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CDP Filed:	11/19/18
180th Day:	05/18/19
Staff:	KH-SF
Staff Report:	11/27/18
Hearing Date:	12/13/18

## STAFF REPORT: REGULAR CALENDAR

**Application No.:** 9-18-0395

**Applicant:** Beach Oil Minerals (BOM) and the Los Cerritos Wetlands Authority (LCWA)

**Project Location:** Four locations within the City of Long Beach, Los Angeles County: (1). Synergy Oil Site, 6433 E. 2nd St.; (2). City site, southeast corner of 2<sup>nd</sup> St. and Shopkeeper Rd.; (3). LCWA site, Northeast corner of 2<sup>nd</sup> St. and Studebaker Rd.; (4). Pumpkin Patch site, 6701 Pacific Coast Highway ([Exhibits 1 and 2](#)).

**Project Description:** New oil production and wetlands restoration project that includes: (1) construction and operation of two oil production facilities, including drilling and operation of up to 120 new wells, (2) construction and operation of 2,200 ft. above-ground oil pipeline, (3) decommissioning of existing oil facilities on two sites, (4) conversion of existing building to Visitor's Center for Los Cerritos Wetlands, (5) implementation of wetlands restoration project as part of mitigation bank on northern portion of existing oil field, Long Beach, Los Angeles County

**Staff Recommendation:** Approval With Conditions

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## SUMMARY OF STAFF RECOMMENDATION

In this coastal development permit (“CDP”) application, Beach Oil Minerals (“BOM”) and the Los Cerritos Wetlands Authority (“LCWA”)<sup>1</sup> propose to decommission and remove existing oil development operations on two sites within the Los Cerritos wetlands complex (the “Synergy” and “City” sites) and consolidate oil production operations on two smaller sites (the “Pumpkin Patch” and “LCWA” sites) ([Exhibit 2](#)). The purpose of the project is to transition oil operations out of a 106-acre area of the wetland complex over a 20-year period to make it available for wetland restoration and consolidate oil production operations on the Pumpkin Patch and LCWA sites (which together comprise a total of 12 acres). Called the “Los Cerritos Wetland Oil Consolidation and Restoration Project,” the proposed project includes the following five main components:

- Cease oil production and remove existing oil operations (including permanent abandonment of about 74 wells, removal of tanks, pipelines and other equipment) at the Synergy and City sites. BOM proposes to cease oil production and abandon one-half of the existing wells within 10 years of the date it receives from the City of Long Beach a “certificate of occupancy” for a new office building to be constructed on the Pumpkin Patch site. The remaining oil operations on those two sites would cease fully within 20 years;
- Construct and operate two new oil production facilities on the Pumpkin Patch and LCWA sites, including a new office building, new well cellars, storage tanks, and other associated equipment, and drill up to 120 new wells (for a maximum daily production of 24,000 barrels of oil);
- Construct and operate an above-ground oil pipeline connecting the Pumpkin Patch and LCWA sites;
- Implement a 30-acre wetlands restoration project on the northern part of the Synergy site; and
- Convert an existing office building on the Synergy site to a visitor’s center for the Los Cerritos wetlands complex and build a pedestrian trail.

The Synergy oil field (referred to historically as the “Bixby lease”), currently operated by Synergy Oil, has been producing oil and gas since 1926. All existing oil operations are located on the southern part of the site and occupy about 73 acres (of the total 150-acre Bixby lease area). Synergy Oil also operates existing oil facilities on the adjacent 33-acre City site. One of the last remnant tidal marsh areas in the Los Cerritos Wetlands, Steamshovel Slough, is located on the northern portion of the Synergy site. Beginning in the 1970s, the State of California and the Port of Long Beach looked at the overall Los Cerritos wetlands complex, of which the Synergy site is part of, for its restoration potential. In 1990s, the Port of Long Beach and the State Coastal Conservancy developed a conceptual restoration plan for the Los Cerritos wetlands area.

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<sup>1</sup> The Applicant is referred to hereinafter singularly as BOM.

In 1998, the then-operator of the oil field, Samedan Oil Corporation, applied to the Coastal Commission for a CDP to establish a new oil drilling site and slant drill up to 12 new wells. The Commission denied the CDP application finding that 1) the project was inconsistent with the Coastal Act's Section 30262(b) requirement that new or expanded oil and gas development be consolidated to the maximum extent feasible, and 2) that applicant had not conducted an adequate analysis of alternative sites. The Commission also concluded that the proposed project was not designed with consideration of the wetland restoration goals of the Los Cerritos wetland complex.

When a subsequent operator, Synergy Oil, first approached Coastal Commission staff in 2012 to discuss its intent to expand oil production at the existing Synergy site, staff provided the operator with the Commission's 1999 decision to deny the Samedan application (CDP Application E-97-25) and advised the operator to look thoroughly at alternative sites with the goal of consolidating oil operations on a smaller footprint out of the wetlands, thereby making area available for wetland restoration.

In May 2018, BOM, an entity that includes Synergy Oil, submitted the subject consolidated CDP application to the Commission, following the City of Long Beach's certification of an EIR for the proposed project. In August 2018, the Coastal Commission also approved an LCP amendment submitted by the City to update its LCP policies for the Southeast Area Development and Improvement Plan (SEADIP), the planning area that includes the Synergy oil field and the Los Cerritos wetlands complex. Although not the standard of review for the proposed project, the LCP update was necessary to ensure that LCP policies related to oil and gas development within SEADIP are consistent with Coastal Act policies requiring consolidation of existing oil and gas facilities, protection of coastal resources including marine resources, wetlands, ESHA, and cultural resources, and avoidance or minimization of risks associated with oil spills and hazards.

The proposed project includes decommissioning of aging oil facilities, construction and operation of new oil production facilities and wetlands restoration. Although one of the benefits of the project is to remove existing aging oil operations out of wetland areas ([Exhibit 14](#)), some elements of the project -- principally constructing and operating new wells and a new above-ground pipeline ([Exhibits 10-12](#)) -- will result in potentially significant adverse impacts to coastal resources. Adverse project-related impacts include:

- Risk and consequences of an oil spill occurring adjacent to the wetland complex (with direct connection to the ocean) in a highly seismic-active area;
- Introduction of several new industrial structures that would affect views to and along the shoreline, including two drilling rigs that would be much higher than other structures in the area;
- Permanent loss of 8.49 acres of wetlands (4.6 acres of this impact will result in restoration or enhancement of existing wetland areas);
- Potential for impairment of a relatively pristine remnant tidal slough, Steamshovel Slough, and harm to special status species;
- Risk and consequences of failure of some or all of the proposed development from seismic and flooding hazards;

- Increase in greenhouse gas (GHG) emissions of about 70,000 tonnes per year over emissions generated by the existing oil operations; and
- Potential damage to archeological and paleontological resources and the introduction of new development that is not consistent with the tribal cultural landscape as described by tribal members with a cultural connection to the Los Cerritos wetlands.

To minimize or avoid these impacts, the Commission staff is recommending a number of Special Conditions, including:

- Oil Spill Prevention and Response: **Special Condition 19** requires BOM to revise its existing Oil Spill Prevention and Response Plan to include a quantitative risk assessment of an oil spill, demonstration that proposed prevention and response measures address the quantified risk, measures to maximize containment for all tanks, evidence of financial responsibility to clean-up an oil spill and additional prevention measures related to monitoring, testing, and training.
- Visual Compensation: **Special Condition 25** requires BOM to develop a plan that includes measures to restore and enhance visual quality in coastal areas within view of the proposed project. These measures may include removing or reducing in size any structures that block or inhibit public views to or along the shoreline, providing screening of existing blighted or degraded structures visible from public locations along the shoreline, and other similar measures.
- Wetland Mitigation and Wetland Mitigation Monitoring: **Special Conditions 4 and 5** require BOM to submit a detailed restoration plan that provides adequate mitigation of all permanent wetland impacts and a monitoring plan that describes mitigation monitoring parameters and protocols, and interim and final success criteria.
- Biological Resource Protection: **Special Condition 8** requires BOM to describe how it will document all biological resources on each site in advance of construction, provide biological monitoring during construction, revegetate and restore areas disturbed by removal of existing oil facilities, and verify that impacts to wetlands and ESHA assumed to be temporary are not present after one year.
- Steamshovel Slough Protection: **Special Condition 10** requires BOM to develop a pollution prevention plan specific to Steamshovel Slough that includes details on how the existing berm will be breached, BMPs to control sediment movement into the Slough and a monitoring plan to ensure water quality in the Slough is maintained. **Special Condition 17** requires BOM to develop a Contaminated Soil Investigation and Removal Plan in partnership with other state and federal agencies that fully characterizes existing contamination at the Synergy and City site and describes how the contamination will be removed in a manner that is protective of Steamshovel Slough and future wetland restored areas.
- Hazards Protection: **Special Condition 3** requires BOM to prepare a Supplemental Geotechnical Analysis and Safety Plan demonstrating that the structural integrity of the pipeline corridor will be maintained during a worst-case earthquake event on the Newport-Inglewood Fault. The geotechnical analysis shall fully evaluate fault rupture hazards along the pipeline corridor based on the best available science on earthquake magnitude and frequency for this fault. The project shall be designed to the most current and protective design standards, and the analysis shall describe how final design elements

of the pipeline and containment berm will accommodate expected maximum displacements. BOM must also conduct a Supplemental Hydrologic and Flooding Analysis [**Special Condition 3**] that assesses vulnerability of the pipeline to flooding, including up to 6.7 feet of sea level rise and, as necessary, recommends additional protection measures to assure the integrity of the pipeline and minimize flooding hazards over the life of the project. Additionally, **Special Condition 21** requires BOM to develop a Seismic and Geotechnical Analysis and Hazard Mitigation Plan that fully analyzes seismic hazards for all project components using updated, site-specific information on earthquake magnitudes, ground shaking intensity, and site conditions, and demonstrates that all structures will meet seismic design standards based on the most current building codes and seismic hazard mitigation strategies.

- **Annual GHG Reporting: Special Condition 22** requires BOM to submit its annual report of emissions offset or reduced through BOM's participation in the state's Cap-and-Trade Program.
- **Protection of Cultural Resources: Special Condition 23** requires BOM to develop an Archeological Research Plan (ARP) to describe additional archeological research and testing that will be conducted on the project sites to better characterize the potential for archeological resources on the site. In addition, BOM must prepare an Archeological Monitoring and Mitigation Plan that is consistent with the findings of the ARP and includes protocols, including dispute resolution protocols, for monitoring of all ground-disturbing activities by a qualified archeological monitor and by a minimum of two tribal monitors, procedures to follow in the event that cultural resources are discovered, and significance testing on any discovered resources. Both Plans must be reviewed by an Archaeological Peer Review Committee, Native American Groups and agencies before submittal to the Executive Director.
- **Site Protections: Special Condition 6** places an open space restriction on the areas within Steamshovel Slough and the northern portion of the Synergy site that will be restored. Only restoration and habitat maintenance-related work will be allowed in these areas in the future. **Special Condition 7** requires the landowners of each site to record a deed restriction against each project site indicating that the Commission has approved development on these sites that includes restrictions on the use and enjoyment of the property for as long as the permit or the development it authorizes remains in existence.

Notwithstanding these recommended Special Conditions, the Commission staff is recommending that the Commission find the project remains inconsistent with the Coastal Act's oil spill and visual policies because even as strictly conditioned to minimize the risk of an oil spill and minimize adverse visual effects, the project is still inconsistent with those policies. However, the project is eligible for consideration under the Coastal Act's Section 30260 "override" policy. That policy allows the Commission to approve coastal-dependent industrial facilities and oil and gas developments that are not consistent with the other Chapter 3 policies of the Coastal Act if the project meets three tests. The tests require: (1) that there be no feasible and less environmentally damaging locations for the proposed project; (2) that objection to the proposed project would adversely affect the public welfare; and (3) that the project's impacts be mitigated to the maximum extent feasible. In applying these tests to the proposed project, the Commission staff is recommending, as discussed in detail in Section M of this report, that the Commission find the following:

9-18-0395 (Beach Oil Minerals)

- There are no feasible and less environmentally damaging alternative locations for the proposed project;
- Objection to the proposed project would adversely affect the public welfare because existing oil operations on the Synergy and City sites (within a large area of the wetland complex identified for its restoration potential) could continue many years beyond the 20-year cessation date committed to by BOM in this project. Implementing this project, as strictly conditioned, will provide more certainty that existing operations will cease and move onto a much smaller area (12 acres total) allowing for restoration of the 102-acre area to happen sooner than might otherwise occur.
- The project's adverse effects will be mitigated to the maximum extent feasible, as strictly conditioned, with respect to its adverse oil spill and visual resource impacts.

For the reasons summarized above, and with implementation of the Special Conditions, the Commission staff believes the project will be carried out consistent with the Coastal Act and recommends that the Commission **approve** CDP application 9-18-0395, as conditioned.

**TABLE OF CONTENTS**

**I. MOTION AND RESOLUTION.....9**

**II. STANDARD CONDITIONS .....9**

**III. SPECIAL CONDITIONS .....10**

**IV. FINDINGS AND DECLARATIONS.....48**

    A.    SITE HISTORY AND PROJECT SETTING ..... 48

    B.    PROJECT DESCRIPTION ..... 50

    C.    COASTAL COMMISSION JURISDICTION AND STANDARD OF REVIEW ..... 59

    D.    OTHER AGENCY APPROVALS..... 59

    E.    DREDGING AND PLACEMENT OF FILL IN WETLANDS AND COASTAL WATERS..... 60

    F.    BIOLOGICAL RESOURCES AND WATER QUALITY ..... 71

    G.    OIL AND GAS DEVELOPMENT ..... 82

    H.    OIL SPILL..... 85

    I.    VISUAL RESOURCES ..... 91

    J.    GEOLOGIC HAZARDS..... 96

    K.    GREENHOUSE GAS EMISSIONS..... 116

    L.    CULTURAL AND TRIBAL RESOURCES ..... 123

    M.    PUBLIC ACCESS AND RECREATION ..... 132

    N.    OVERRIDE..... 133

    O.    CALIFORNIA ENVIRONMENTAL QUALITY ACT..... 141

**APPENDICES**

- [Appendix A – Substantive File Documents](#)
- [Appendix B – Revised City of Long Beach LCP Policies for SEADIP](#)
- [Appendix C – Memo from Dr. Jonna Engel Re: Wetlands and ESHA at the Los Cerritos Wetlands Oil Consolidation and Restoration Project Sites.](#)

**EXHIBITS**

- Exhibit 1 – Regional Location of the Project
- Exhibit 2 – Project Site and Local Vicinity
- Exhibit 3 – Historical Extent of the Los Cerritos Wetlands
- Exhibit 4 – SEADIP Area
- Exhibit 5 – Synergy Oil Field Site
- Exhibit 6 – Newport-Inglewood Fault Zone
- Exhibit 7 – City Property Site
- Exhibit 8 – Pumpkin Patch Site
- Exhibit 9 – Los Cerritos Wetlands Authority (LCWA) Site
- Exhibit 10 – Pumpkin Patch Site Plan
- Exhibit 11 – LCWA Site Plan
- Exhibit 12 – Proposed Pipeline Corridor Across the City Site
- Exhibit 13 – Pipeline and Utility Corridor Cross Section
- Exhibit 14 – Pipeline and Oil Facility Removal from the Synergy and City sites

- Exhibit 15 – Visitor’s Center Site Plan
- Exhibit 16 –Restoration Plan for the Northern portion of the Synergy Site
- Exhibit 17 –Restoration Work Plan for the Northern portion of the Synergy Site
- Exhibit 18 – Planting Plan for the Northern portion of the Synergy Site
- Exhibit 19 – Jurisdictional Wetland Delineation for the Synergy Site
- Exhibit 20 – Jurisdictional Wetland Delineation for the City Site
- Exhibit 21 - Jurisdictional Wetland Delineation for the Pumpkin Patch Site
- Exhibit 22 – Wetlands Impacts Map for the Synergy Site
- Exhibit 23 – Wetlands Impacts Map for the City Site
- Exhibit 24 – Vegetation Impact Map for the City Site Including Alternative Pipeline Alignments
- Exhibit 25 – Vegetation Communities Map for all Sites
- Exhibit 26 – Special Status Plants Map for the Synergy Site
- Exhibit 27 – Special Status Plants Map for the City Site
- Exhibit 28 – Special Status Plants Map for the Pumpkin Patch Site
- Exhibit 29 – Beldings Savannah Sparrow Habitat on the Synergy Site
- Exhibit 30 – Regional Water Bodies
- Exhibit 31 – Hazardous Waste Investigation Sample Sites
- Exhibit 32 – Visual Simulation of the Drill Rig on the Pumpkin Patch Site
- Exhibit 33 – Before and After Views of BOM’s Proposed Visual Impact Compensation Project
- Exhibit 34 – Perimeter Pipeline Alignment Site Plan
- Exhibit 35 – Hydraulic Modeling and Sea Level Rise Results for the Northern Portion of the Synergy Site
- Exhibit 36 – Hydraulic Modeling and Sea Level Rise Results for the Entire Synergy Site



## I. MOTION AND RESOLUTION

### Motion:

*I move that the Commission **approve** Coastal Development Permit 9-18-0395 subject to the conditions set forth in the staff recommendation.*

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in conditional approval of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

### Resolution:

*The Commission hereby approves Coastal Development Permit 9-18-0395 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.*

## II. STANDARD CONDITIONS

The coastal development permit (9-18-0395) is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

### III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Other Permits and Approvals:** PRIOR TO THE START OF CONSTRUCTION, the Permittee shall provide to the Executive Director copies of all other local, state, and federal permits required to perform project-related work. Any modifications to the project or its design, configuration, or implementation that occur as a result of these agencies' review and authorization processes shall be provided to the Executive Director for review to determine if an amendment to this coastal development permit is legally required. These permits and approvals include:
  - a. Regional Water Quality Control Board – Los Angeles Region: final approved 401 water quality certification.
  - b. U.S. Army Corps of Engineers: Authorization under Nationwide Permit #27, pursuant to Rivers and Harbors Act Section 10 and Clean Water Act Section 404.
  - c. California Department of Fish and Wildlife: final approved Lake and Streambed Alteration Agreement.
2. **Revised Site, Grading and Design Plans for the Synergy Site.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and written approval one set of revised site and grading plans. These Plans shall include the following:
  - a. Elimination of the proposed transitional wetland grading and the overlook terrace fill north and east of Steamshovel Slough.
  - b. Any revisions required by other state and federal agencies including the U.S. Army Corps and California Department of Fish and Wildlife. If implementation of the other agency requirements results in impacts to coastal resources that are not analyzed and mitigated in this permit, an amendment to the permit may be required.
  - c. Final plans for the renovated building (i.e., Visitor's Center) demonstrating that:
    - i. It has been relocated outside of the mapped fault hazard zone.
    - ii. The final ground surface elevation for the site is above anticipated terrestrial and marine flooding levels including up to 6.7 feet of sea level rise and assuming the restoration of the southern portion of the Synergy site to tidal wetlands as a baseline condition.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

3. **Perimeter Pipeline Alignment Implementation Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit a Perimeter Pipeline Alignment Implementation Plan to the Executive Director for review and written approval. The purpose of the Plan shall be to incorporate into the project the perimeter

pipeline corridor alternative for the pipeline connecting the Pumpkin Patch site to the LCWA site that substantially conforms to the perimeter alignment alternative described in the City of Long Beach's Response to Comments on the Draft EIR, Section 9.2.1.4, pp 9-76 – 9-81 and submitted to the Commission as part of the Response to a Notice of Incompleteness, dated 8/27/18. The Plan shall include the following elements:

- a. Final site plans
- b. Final design plans, including the following:
  - i. Location and details for shutoff valves, expansion loops and any other oil spill prevention measures. The pipeline shall include a minimum of three automatic shutoff valves, one at each end of the pipeline and one at a feasible location in the middle of the pipeline.
  - ii. Representative cross-sections and detail drawings of key components, such as bends and expansion loops needed for seismic safety.
  - iii. Final design for the crossing underneath 2<sup>nd</sup> St. and Studebaker St.
  - iv. Safety measures to ensure the pipeline is protected from hazards associated with vehicle traffic on 2<sup>nd</sup> St. and Shopkeeper Rd.
  - v. Final Design plans shall reflect any revisions required based on the results of supplemental analyses required in parts (c) and (d).
- c. Supplemental Geotechnical Analysis and Safety Plan that incorporates the following elements:
  - i. A site-specific geotechnical analysis evaluating fault rupture hazards along the final pipeline route, at a minimum evaluating the maximum horizontal and vertical fault displacement that could occur during an earthquake event on the Newport-Inglewood fault with a 1% in 50 year chance of occurrence (1/4,975 annual probability), as determined based on a review of the most current available science.
  - ii. An engineering analysis, using the final route, configuration and dimensions of the pipeline system, demonstrating that the pipelines have been designed to withstand the maximum horizontal and vertical fault displacements derived from the geotechnical analysis required in subsection (c)(i) of this condition, and describing the specific design elements that would be used to accommodate the expected displacements.
  - iii. An engineering analysis of the proposed secondary containment berms describing their capacity to withstand fault rupture and any feasible design measures that would be incorporated to maximize their structural integrity.
  - iv. A Repair and Maintenance Plan describing the measures that would be taken to maintain the pipelines and containment berms in an optimal condition.
- d. Supplemental Hydrologic and Flooding Analysis that incorporates the following elements:
  - i. Assessment of the vulnerability of the perimeter pipeline design and alignment to terrestrial and marine flooding and up to 6.7 feet of sea level rise.

- ii. The study shall incorporate restoration of the remainder of the City site to tidal wetlands as a baseline condition and consider a restoration scenario that results in the worst-case flooding of the pipeline corridor.
- iii. If modeling results show that the pipeline is vulnerable to inundation from flooding and/or sea level rise over its design life, the Plan shall recommend design features for the pipeline or berm that could be implemented to ensure the pipeline is constructed at a safe and appropriate elevation and hazards associated with flooding are minimized.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

4. **Wetland Mitigation Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit for review and written approval of the Executive Director a Wetland Mitigation Plan to mitigate for all wetland impacts associated with the proposed project through wetland restoration activities on the Northern portion of the Synergy site. The Plan shall be developed in consultation with the California Department of Fish & Wildlife, Regional Water Quality Control Board and U.S. Army Corps of Engineers, and other appropriate state and federal agencies as applicable, and at a minimum shall include:
- a. A detailed site plan of the wetland impact area that substantially conforms to the plan submitted to the Commission as part of the CDP application as shown generally on [Exhibits 22, 24 and 28](#). The site plan shall delineate all impact areas (on a map that shows elevations, surrounding landforms, etc.), the types of impact and the exact acreage of each impact so identified. The site plan shall be consistent with the Plan submitted under **Special Condition 3**.
  - b. Applicable wetland mitigation ratios. Wetland impacts shall be mitigated at the following ratios:
    - i. Permanent impacts to wetlands from sheetpile wall installation, sidewalk grading, and installation of the pipeline corridor shall be mitigated at a 4:1 ratio (restored/created area: impacted area) for mitigation involving creation or substantial restoration of wetland habitat and/or 6:1 ratio (enhanced area: impacted area) for mitigation involving enhancement of existing wetland habitat.
    - ii. Permanent impacts to wetlands from construction of the portions of the berm that will result in uplands (i.e., above 4.3 feet NGVD) shall be mitigated at a 2:1 ratio (restored/created area: impacted area) for mitigation involving creation or substantial restoration of wetland habitat and/or 3:1 ratio (enhanced area: impacted area) for mitigation involving enhancement of existing wetland habitat.
  - c. A detailed site plan of the mitigation site. The mitigation site plan shall include both the restoration area and the buffer surrounding the restoration area. If wetland creation or substantial restoration is proposed, the mitigation site plan shall include: existing and proposed hydrologic, soil and vegetative conditions of the mitigation site(s); engineering/grading and erosion control plans and schedule – if applicable;

- weeding plans and schedule; planting plans and schedule; short- and long-term irrigation needs; on-going maintenance and management plans; and a monitoring plan consistent with **Special Condition 5**.
- d. A baseline assessment, including photographs, of the current physical and ecological condition of the proposed restoration site and any areas outside of the restoration site that are tidally connected to the restoration site, including as appropriate, a wetland delineation conducted according to the definitions in the Coastal Act and the Commission's Regulations and the methods laid out in the U.S. Army Corps of Engineers "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region," a detailed site description and map showing the area and distribution of vegetation types and site topography, and a map showing the distribution and abundance of sensitive species that includes the footprint of the proposed restoration.
  - e. A description of the goals of the restoration plan and the applicable mitigation ratio from (b) above. The goals should also include, as appropriate, any changes to site topography, hydrology, vegetation types, presence or abundance of sensitive species, and wildlife usage, and any anticipated measures for adaptive management in response to sea level rise or other climatic changes.
  - f. A description of planned site preparation and invasive plant removal.
  - g. A restoration plan including the planting palette (seed mix and container plants), planting design, source of plant material, methods and timing of plant installation, erosion control measures, duration and use of irrigation, and measures for remediation if success criteria (performance standards) are not met. The planting palette shall be made up exclusively of native plants that are appropriate to the habitat and region and that are grown from seeds or vegetative materials obtained from local natural habitats to protect the genetic makeup of natural populations. Horticultural varieties shall not be used.
  - h. A plan for documenting and reporting the physical and biological "as built" condition of the restoration or mitigation site within 30 days of completion of the initial restoration activities. This report shall describe the field implementation of the approved Restoration or Mitigation Plan in narrative and photographs, and report any problems in the implementation and their resolution, and any recommendations for future adaptive management. The "as built" assessment and report shall be completed by a qualified biologist, who is not employed by and independent of the installation contractor.
  - i. Provisions for submittal of a wetland delineation of the mitigation site at the end of 5 years to confirm that the total acreage mitigated is consistent with the applicable mitigation ratio established in (b) above. The final delineation should also demonstrate that the restoration work did not adversely affect wetland areas outside the restoration site boundary.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

5. **Wetland Mitigation Monitoring.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit for review and written approval of the Executive Director a detailed Wetland Monitoring Plan designed by a qualified wetland or restoration ecologist for monitoring of the wetland mitigation site. The Wetland Monitoring Plan shall at a minimum include the following:
- a. A plan for interim monitoring and maintenance of any restoration or mitigation site(s) and pre-approved reference site(s), including:
    - i. Schedule;
    - ii. Interim performance standards;
    - iii. A description of field activities that includes sampling design, number of samples and sampling methods. The number of samples should rely on a statistical power analysis to document that the planned sample size will provide adequate statistical power to detect the maximum allowable difference between the restored site and a reference site(s).
    - iv. The monitoring period (generally not less than 5 years, depending on case details or longer if performance standards are not met in the initial time frame).
    - v. Changes in sea level rise, sediment dynamics, and the overall health of the wetland to allow for adaptive management, as needed. Include triggers for implementing adaptive management options.
    - vi. Provision for submission of annual reports of monitoring results to the Executive Director for the duration of the required monitoring period, beginning the first year after submission of the “as-built” report. Each report shall be cumulative and shall summarize all previous results. Each report shall document the condition of the restoration with photographs taken from the same fixed points in the same directions. Each report shall also include a “Performance Evaluation” section where information and results from the monitoring plan are used to evaluate the status of the restoration project in relation to the interim performance standards and final success criteria.
    - vii. Provisions for the submittal of a revised or supplemental restoration plan to be submitted if an annual monitoring report shows that the restoration effort is falling significantly below the interim performance standards. Triggers shall be included in the plan to define the level of nonperformance at which the submittal of a revised or supplemental restoration plan will be required. The applicant shall submit a revised or supplemental restoration program within 90 days to address those portions of the original program which did not meet the approved success criteria.
    - viii. Following the restoration, reports shall be submitted every ten years to ensure that the restoration is maintained over the time period of the development.
  - b. Final success criteria for each habitat type, including, as appropriate: total ground cover of all vegetation and of native vegetation; vegetative cover of dominant species; and hydrology, including timing, duration and location of water movement.
  - c. The method by which “success” will be judged, including:
    - i. Type of comparison.

- ii. Identification and description, including photographs, of any high functioning, relatively undisturbed reference sites that will be used.
  - iii. Test of similarity with a reference site. This could simply be determining whether the result of a census was above a predetermined threshold. Generally, it will entail a one- or two-sample t-test that determines if differences between the restoration site and the reference site are within the maximum allowable difference for each success criteria (performance standard).
  - iv. A statement that final monitoring for success will occur after at least 5 years with no remediation or maintenance activities other than weeding.
- d. Provisions for submission of a final monitoring report to the Executive Director at the end of the final monitoring period. The final report must be prepared by a qualified restoration ecologist. The report must evaluate whether the restoration site conforms to the goals, objectives, and success criteria set forth in the approved final restoration program. The report must address all of the monitoring data collected over the monitoring period. Following the restoration, reports shall be submitted every ten years to ensure that the restoration is maintained over the time period of the development.
- e. If the final report indicates that the restoration project has been unsuccessful, in part, or in whole, based on the approved success criteria (performance standards), the Permittee shall submit within 90 days a revised or supplemental restoration program to compensate for those portions of the original plan that did not meet the approved success criteria. The Permittee shall undertake mitigation and monitoring in accordance with the approved final, revised wetland restoration or mitigation plan following all procedures and reporting requirements as outlined for the initial plan until all performance standards (success criteria) are met. The revised restoration program shall be processed as an amendment to this coastal development permit unless the Executive Director determines that no permit amendment is legally required.
- f. A long term maintenance plan.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

**6. Open Space and Conservation Deed Restriction.**

- a. No development, as defined in Section 30106 of the Coastal Act, shall occur within Steamshovel Slough and the areas of the northern portion of the Synergy site that are approved for tidal wetlands restoration under this permit, as depicted on [Exhibit 5](#), except for:
- i. Restoration construction work, including construction of channels, breaching of the existing berm, installation of the sheet pile wall and berm, and implementation of pollution prevention measures, approved under Special Conditions 10 and 11.
  - ii. Wetland and habitat monitoring and other activities approved under Special Conditions 5 and 8.

- iii. Interim and long term habitat management activities approved under Special Condition 5.
  - iv. Invasive plant removal and other restoration maintenance activities as approved under Special Conditions 5 and 15.
  - v. Fence maintenance and repair activities.
  - vi. Removal of the sheet pile wall.
  - vii. Any remedial action required by the Commission or another state or federal agency to ensure the restored area meets mitigation requirements.
- b. **PRIOR TO OPERATION OF OIL PRODUCTION FACILITIES**, the landowner shall execute and record a deed restriction in a form and content acceptable to the Executive Director, reflecting the above restrictions on development in the designated open space area. The recorded document(s) shall include a legal description and corresponding graphic depiction of the legal parcel(s) subject to this permit and a metes and bounds legal description and a corresponding graphic depiction, drawn to scale, of the designated open space area prepared by a licensed surveyor based on an on-site inspection of the open space area.
- c. The deed restriction shall be recorded free of prior liens and any other encumbrances that the Executive Director determines may affect the interest being conveyed.
- d. The deed restriction shall run with the land in favor of the People of the State of California, binding successors and assigns of the Permittee or landowner in perpetuity.
7. **Deed Restriction.** **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the Applicant shall submit to the Executive Director for review and written approval documentation demonstrating that the landowners of the Synergy, City, LCWA, and Pumpkin Patch sites have executed and recorded against the parcel(s) governed by this permit a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject properties, subject to terms and conditions that restrict the use and enjoyment of those properties; and (2) imposing the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the properties. The deed restriction shall include a legal description of the entire parcel or parcels governed by this permit. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject properties so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject properties.
8. **Biological Resource Protection Plan.** **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit for review and written approval of the Executive Director a Biological Resource Protection Plan. The purpose of the Plan is to document biological resources on each site, including wetlands, sensitive habitat areas and special-status species, provide for biological monitoring during construction and oil facility removal and document wetland resources before and after oil facilities are



removed to verify that any impacts to these resources are temporary. The Plan shall address all project activities and all project sites.

- a. Pre-Construction Surveys. **NO MORE THAN 60 DAYS PRIOR TO THE COMMENCEMENT OF PROJECT ACTIVITIES AT A GIVEN SITE**, pre-construction surveys shall be conducted by a qualified biologist approved by the Executive Director for special-status plant and wildlife species and nesting birds protected under the Migratory Bird Treaty Act and California Fish and Wildlife Code section 3503 and to document the boundaries of existing wetlands and other sensitive habitat areas identified by the biologist. Surveys shall incorporate the following:
  - i. Appropriate survey methods and timeframes shall be established by the consulting qualified biologist and described in the Plan.
  - ii. If work on a project site ceases for a period of 30 days or more, a new pre-construction survey shall be conducted prior to continuing with construction or decommissioning activities.
  - iii. Pre-construction surveys for special-status species shall target estuary seablite, Southern tarplant, wooly seablite, Belding's savannah sparrows, Ridgeway's rails, California least terns, western snowy plovers, mudflat tiger beetles, and white-tailed kites. If these or any other listed species are encountered, the Permittee shall consult with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW) and the Executive Director before continuing with work.
  - iv. In oil infrastructure removal areas, surveys shall include detailed vegetation mapping to document the present site conditions of all areas within three (3) feet to either side of the pipeline and three (3) feet around oil infrastructure proposed to be removed from the Synergy, Pumpkin Patch, and City sites. The mapping shall document the percent cover of native and non-native species including any rare native species (e.g. Southern tarplant) as well as bare ground adjacent to and within the pipeline and around and within the oil infrastructure and oil wells. Mapping shall also distinguish wetland from non-wetland areas. For identification and location purposes, the pipelines slated for removal should be divided into 10 or 20 meter segments that are individually mapped and labeled. Likewise, each oil infrastructure and oil well area slated for removal should be described, mapped, and labeled. Every section of pipeline and each oil infrastructure and oil well area shall be photo documented before work is undertaken.
  - v. A site plan shall be prepared that depicts wetlands, vegetation, special-status species and any nests detected. A Site Plan shall be prepared for each site and should include larger scale depictions for each respective pipeline segment and oil infrastructure and oil well area. The Plan shall include staging areas, ingress and egress routes at both a site scale and on a smaller scale for each pipeline segment and oil infrastructure removal areas.
  - vi. **NO MORE THAN 15 DAYS AFTER COMPLETION OF THE SURVEY**, a pre-construction survey report shall be submitted to the Executive Director for review and written approval. The report shall

include the site plan, a narrative description of each site and work area, results of the survey including species richness and percent cover and acreage of wetlands and/or rare species, including Southern tarplant. The report shall also include a description of the potential impacts that will occur from the proposed work including impacts caused by ingress and egress, excavation, and/or re-contouring and whether the impacts will likely be temporary or permanent. Any area of wetland or ESHA excavated or re-contoured will be considered to be a permanent impact. The report shall also describe avoidance measures that will be implemented for wetlands or rare species and a list of any additional recommended mitigation measures or monitoring protocols.

- b. Nesting Birds. All construction shall be avoided, to the greatest extent possible, during the southern California bird nesting season which is January 15 through September 15. If construction must occur during this time, **NO MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES**, a qualified biologist, approved by the Executive Director, shall conduct a pre-construction survey for the presence of nesting birds. If an active nest of any bird including a Federal or State-listed threatened or endangered bird species, bird species of special concern, or any species of raptor is identified during such preconstruction surveys, or is otherwise identified during construction, the Permittee shall notify all appropriate State and Federal agencies within 24 hours, and shall develop an appropriate action plan specific to each incident that shall be consistent with any recommendations of those agencies. The Permittee shall notify the Executive Director in writing within 24 hours of identifying such a nest and consult with the Executive Director regarding the determinations of the State and Federal agencies. At a minimum, if the active nest is located within 300 feet of construction activities (within 500 feet for raptors), the Permittee must ensure that noise levels do not exceed 65 dB at the nest and that nesting birds are not disturbed by construction-related activities, and shall submit a plan to the Executive Director, for review and written approval, demonstrating how construction activities will be modified to avoid, minimize and mitigate impacts to nesting birds, including, but not limited to, such measures as buffer zones around nests, sound blocking BMPs, limits on duration of construction activities, and limits on the location of construction-related machinery and activity. If construction activity noise levels exceed a peak of 65 dB at the nest site(s), sound mitigation measures such as sound shields, blankets around smaller equipment, use of mufflers, and minimizing the use of back-up alarms shall be employed. If these sound mitigation measures do not reduce noise levels, construction within 300 ft. (500 ft. for raptors) of the nesting areas shall cease and shall not commence again until either new sound mitigation can be employed or until the nest(s) is vacated, juveniles have fledged and there is no second attempt at nesting
- c. Biological Monitoring. The Permittee shall employ or have under contract a biologist(s) approved by the Executive Director, during the duration of approved construction and oil facility decommissioning activities. The Permittee shall ensure that the biologist(s) conducts monitoring during any project activities involving mobilization, ground disturbance, grading, soil movement, or any other activities that

could affect biological resources including special-status species, wetlands, coastal waters and marine species in accordance with the following:

- i. Based on results of the pre-construction survey required in part (a) above, the biologist shall clearly mark all sensitive biological resources located within 25 feet of any project-related activity. The biologist shall maintain a 10-foot buffer around any individual special-status plant unless otherwise approved in this permit or by the Executive Director under part (a).
  - ii. Conduct worker training with all project-related personnel to identify the location and types of sensitive biological resources on and near the project site and the measures to be taken to avoid impacts to these resources
  - iii. Implement all approved Plans required in Special Conditions 10, 11, and 12 to ensure impacts to special-status species, wetlands, and coastal waters are minimized.
  - iv. The biologist(s) shall require a halt to any project activities when he or she determines that continuing the activities would result in an unauthorized adverse impact to coastal waters, wetlands, and other biological resources. The biologist(s) shall inform the Permittee what measures are needed to address the impact and may allow activities to resume after necessary measures are implemented.
  - v. An annual summary report, including monitoring results and avoidance measures implemented shall be submitted to the Executive Director before December 31 of each year that construction and decommissioning activities are ongoing.
  - vi. If biological monitoring results indicate fill or dredging or any other adverse impacts to any wetland areas or sensitive biological resources that are not approved under this permit, the Permittee shall submit an application to amend this permit to address these impacts and fully restore any disturbed wetlands or sensitive biological resources to its pre-project condition, unless the Executive Director determines that no such permit amendment is legally required.
- d. **Revegetation of Areas Disturbed During Oil Facility Removal.** The Permittee shall implement the 2018 Ecological Restoration Plan, submitted in October 2018, except where the 2018 Ecological Restoration Plan is not in conformance with this Special Condition 8 as outlined below:
- i. The Permittee shall implement the “As-Built” Plan identified in section 7 per the vegetation mapping results obtained via the pre-condition survey (part a above).
  - ii. The Permittee shall follow Special Condition 13 for addressing impacts to and mitigation for Southern tarplant.
  - iii. The source of all propagules and seed used to revegetate areas shall be from the site or immediately adjacent coastal areas. If propagules or seed are obtained from a nursery they must be from local genetic stock.
  - iv. Site recovery and revegetation success shall be determined based on the success criteria outlined in section (e) v. below.

- v. Reporting shall be based on the criteria outlined in the following sections of this Special Condition 8: (a) vii; (c) v; and (e) iv.
- e. Post-Construction Surveys to verify Temporary Wetland Impacts. **NO MORE THAN ONE YEAR AFTER THE COMPLETION OF OIL FACILITY REMOVAL ACTIVITIES AT A GIVEN SITE**, post-construction surveys shall be conducted to verify that impacts to wetlands associated with oil facility removal are temporary. Surveys shall include the following:
  - i. **Vegetation Mapping.** Vegetation mapping, conducted per the same methods employed for the pre-construction vegetation mapping, shall be conducted.
  - ii. **Site Plan.** A site plan shall be prepared that depicts the vegetation (based on vegetation mapping results) one (1) year following the completion of pipeline, oil infrastructure and oil well removal within each respective pipeline segment and oil infrastructure and oil well area, the ingress and egress location for each pipeline segment and oil infrastructure and oil well removal area, and excavation and re-contouring locations.
  - iv. **Post-Construction Survey Report.** The post-construction survey results shall be submitted to the Executive Director within fifteen (15) business days of completion of the survey. The data from the pre- and post-construction surveys shall be compared to determine the temporary or permanent impact status of all the areas based on the success of habitat recovery in meeting the approved success criteria (see v. below) as well as the nature of the impacts themselves (e.g. as defined in the findings, some impacts will automatically be considered permanent.) If the post-construction survey results show that the area where the pipeline was removed or the access and egress locations have not recovered per the success criteria, the applicant shall apply for an amendment to this coastal development permit within 90 days to address the additional impacts unless the Executive Director determines an amendment is not legally necessary.
  - v. **Success Criteria.** A wetland area that has been temporarily impacted shall be considered fully recovered, if, after one year, the vegetation has recovered to 85% of the value of the adjacent native habitat cover and has at least 90% of the species found in the respective pipeline segment or oil infrastructure area. The area shall also not contain more than 5% cover of non-native invasive species.
- f. Construction and decommissioning activities shall occur during daylight hours only.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

9. **Revised Decommissioning Plan for Existing Facilities.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit a Revised Decommissioning Plan that is in substantial conformance with the Decommissioning

Plan dated September 2018 and submitted as part of the application for this CDP, but shall be revised to incorporate the following:

- a. Provisions for removal of all surface infrastructure associated with a well within 60 days following successful abandonment of that well. Surface infrastructure may include, but is not limited to the wellhead, pumping equipment and controls, concrete pads and any associated debris. The Executive Director may extend the 60 day time period for removal of surface infrastructure for good cause.
- b. Within 60 days of completion of decommissioning activities at the last remaining well on each site, the Permittee shall submit to the Executive Director an application for an amendment to this permit, or a new application to address characterization and cleanup of any contaminated soils or materials on the site.
- c. Provisions for removal of all remaining equipment, infrastructure and debris associated with the oil production facilities and completion of cleanup activities within 20 years of the occupancy date for the new office building. This provision does not apply to new facilities approved under this permit, but does apply to existing wells on the Synergy, City and Pumpkin Patch sites.
- d. Provision for removal of the sheetpile wall separating the Synergy oil field from the western portion of the restored area after all remaining equipment, infrastructure and debris associated with the oil production facilities are removed and cleanup activities have been completed.
- e. Prior to the commencement of construction on the Pumpkin Patch and LCWA sites, a performance bond or other acceptable financial security shall be posted by the operator with the issuing entity in an amount commensurate with the estimated costs of decommissioning for all oil facilities approved in this permit. The cost of decommissioning shall include, but is not limited to, costs associated with planning, permitting and implementation of abandonment and removal of all facilities associated with the oil and gas production facility as well as site restoration. The bond or other financial security may be posted in increments over time based on the well drilling schedule at each site. However, before construction of any specific oil facility or drilling of any well commences, the Permittee shall ensure that the dollar amount of the bond or other financial security is sufficient to cover the cost of decommissioning that oil facility or well. The bond or other financial security shall be returned to the applicant upon successful decommissioning, abandonment and restoration of the site. This requirement is not intended to be duplicative of other state or federal requirements. If another government agency requires a bond or financial security for decommissioning of all facilities, the Applicant may provide evidence of obtaining said bond or financial security as a means to satisfy part or all of this requirement.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

10. **Pollution Prevention Plan for Steamshovel Slough.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and written approval a Pollution Prevention Plan (PPP) for

Steamshovel Slough. The Plan shall describe how the existing berm separating Steamshovel Slough and the Synergy Oil Field will be breached and what measures shall be in place to ensure that the habitat and water quality within Steamshovel Slough is not adversely affected during or after the berm is breached. The Plan shall include the following components:

- a. A detailed methodology and timeline for excavation of the breaches in the existing berm and introduction of tidal flows into the newly restored areas. The Plan should specifically address phasing of the four proposed breaches and include provisions for sequential timing of the breaches with time in between for post-breach monitoring.
- b. A staging plan, including types and locations of equipment, stockpiles, and proposed travel routes for construction equipment entering and existing the breach areas.
- c. A description of all sediment control measures to be implemented before, during and after the berm is breached in each location. The Plan should include a site plan map indicating the location of all measures. These measures shall include the following:
  - i. Silt fences, silt curtains, coffer dams and/or other sediment control devices shall be deployed near the breaches to prevent any sediment from flowing into the Slough. If the silt fences are not adequately containing sediment, construction activity shall cease until remedial measures are implemented that prevents sediment from entering the waters below.
  - ii. Sediment sources shall be controlled using fiber rolls, silt fences, sediment basins, and/or check dams that shall be installed prior to or during grading activities and removed once the site has stabilized.
  - iii. Erosion control may include seeding, mulching, erosion control blankets, silt fences, plastic coverings, and geotextiles that shall be implemented after completion of construction activities.
  - iv. The use of erosion and sediment control products (such as fiber rolls, erosion control blankets, mulch control netting, and silt fences) that incorporate plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers) is prohibited in order to minimize wildlife entanglement and plastic debris pollution.
  - v. Appropriate energy dissipation devices shall be used to reduce or prevent erosion as tidal flows are introduced into newly restored areas.
- d. A detailed monitoring plan that includes protocols for:
  - i. Baseline water quality monitoring. The Permittee shall conduct monitoring of baseline conditions in the Slough, including turbidity, pH, temperature, dissolved oxygen and other appropriate water quality parameters. Monitoring shall be conducted at different points in the tidal cycle and over a sufficient time period to adequately characterize the variability in baseline water quality conditions in the Slough.
  - ii. Monitoring of turbidity, pH, temperature, dissolved oxygen and other appropriate water quality parameters in Steamshovel Slough and the newly restored wetland areas immediately before, during and after tidal flows are introduced into newly restored areas. Monitoring shall continue throughout the site stabilization period to ensure that water quality in the Slough is not being degraded. The Plan shall identify thresholds for turbidity and other water quality parameters such that waters with

measurements of turbidity and/or other parameters exceeding a certain threshold shall be contained and prevented from being discharged into receiving waters. The Plan shall also identify monitoring protocols. The turbidity and other water quality thresholds shall be developed in consultation with the RWQCB and explained in the Plan. If sediment is not being contained adequately, as determined by visual observation or turbidity measurements, the activity shall cease until corrective measures are taken to remedy the situation.

- e. A description of remedial actions that can be taken immediately by the Permittee if monitoring results indicate that water quality parameters are on a trajectory to exceed established thresholds or have exceeded established thresholds.
- f. If monitoring results indicate that water quality thresholds in Steamshovel Slough are exceeded, the Permittee shall immediately stabilize the site, stop work, and notify the Executive Director. After consulting with the Executive Director, the Permittee shall implement remedial measures and continue monitoring all water quality parameters. Before continuing work, the Permittee shall submit a Supplemental Pollution Prevention Plan for Steamshovel Slough to the Executive Director for review and written approval describing what project-related activities lead to the exceedance, what sediment control measures were in place, what remedial measures were implemented after the exceedance was discovered and what measures will be implemented in the future to ensure another exceedance is avoided.
- g. The Permittee shall submit a Final Report within 60 days of the completion of monitoring activities associated with breaching the existing berm and reintroducing tidal flows to newly restored areas. The report shall include a description of all related construction activities and sediment control measures, results of all monitoring activities, and a detailed discussion of any water quality parameter exceedances.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

11. **Construction and Pollution Prevention Plan.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and written approval of a Construction and Pollution Prevention Plan. The Plan shall apply to all construction activities and all oil facility decommissioning and removal activities on all four project sites and shall, at a minimum, describe all structural and non-structural measures the Permittee will implement to avoid and minimize project-related impacts to wetlands and coastal waters adjacent to the project sites. The Plan shall be prepared by a qualified, licensed professional, who shall certify in writing that the Plan is in conformance with the following requirements:
- a. Erosion and the discharge of sediment off-site or to coastal waters shall be minimized through the use of appropriate Best Management Practices (BMPs), including:
    - i. Land disturbance during construction (e.g., clearing, grading, and cut-and-fill) shall be minimized, and grading activities shall be phased, to avoid increased erosion and sedimentation.

- ii. Erosion control BMPs (such as mulch, soil binders, geotextile blankets or mats, or temporary seeding) shall be installed as needed to prevent soil from being transported by water or wind. Temporary BMPs shall be implemented to stabilize soil on graded or disturbed areas as soon as feasible during construction, where there is a potential for soil erosion to lead to discharge of sediment off-site or to coastal waters.
  - iii. Sediment control BMPs (such as silt fences, fiber rolls, sediment basins, inlet protection, sand bag barriers, or straw bale barriers) shall be installed as needed to trap and remove eroded sediment from runoff, to prevent sedimentation of coastal waters.
  - iv. Tracking control BMPs (such as a stabilized construction entrance/exit, and street sweeping) shall be installed or implemented as needed to prevent tracking sediment off-site by vehicles leaving the construction area.
  - v. Runoff control BMPs (such as a concrete washout facility, dewatering tank, or dedicated vehicle wash area) that will be implemented during construction to retain, infiltrate, or treat stormwater and non-stormwater runoff.
- b. The erosion control measures shall be required on the project site prior to or concurrent with the initial grading operations and monitored and maintained throughout the development process to minimize erosion and sediment from runoff waters during construction. All sediment should be retained on-site, unless removed to an appropriate, approved disposal site permitted to receive fill.
- c. The plan shall also include erosion control measures should grading or site preparation cease for a period of more than 30 days, including but not limited to: stabilization of all stockpiled fill, access roads, disturbed soils and cut and fill slopes with geotextiles and/or mats, sand bag barriers, silt fencing; temporary drains and swales and sediment basins. The Plans shall also specify that all disturbed areas shall be seeded with native grass species and include the technical specifications for seeding the disturbed areas. These temporary erosion control measures shall be monitored and maintained until grading or construction operations resume.
- d. All construction and decommissioning-related erosion control materials shall be comprised of bio- degradable materials (natural fiber, not photo-degradable plastics) and must be removed when permanent erosion control measures are in place. Bio-degradable erosion control materials may be left in place if they have been incorporated into the permanent landscaping design.
- e. The discharge of other pollutants resulting from construction activities (such as chemicals, paints, vehicle fluids, petroleum products, asphalt and cement compounds, debris, and trash) into runoff or coastal waters shall be minimized through the use of appropriate BMPs, including
  - i. Materials management and waste management BMPs (such as stockpile management, spill prevention, and good housekeeping practices) shall be installed or implemented as needed to minimize pollutant discharge and polluted runoff resulting from staging, storage, and disposal of construction chemicals and materials. BMPs shall include, at a minimum:



1. Covering stockpiled construction materials, soil, and other excavated materials to prevent contact with rain, and protecting all stockpiles from stormwater runoff using temporary perimeter barriers.
  2. Cleaning up all leaks, drips, and spills immediately; having a written plan for the clean-up of spills and leaks; and maintaining an inventory of products and chemicals used on site.
  3. Proper disposal of all wastes; providing trash receptacles on site; and covering open trash receptacles during wet weather.
  4. Prompt removal of all construction debris from the beach.
  5. Detaining, infiltrating, or treating runoff, if needed, prior to conveyance off-site during construction.
- ii. Fueling and maintenance of construction equipment and vehicles shall be conducted off site if feasible. Any fueling and maintenance of mobile equipment conducted on site shall not take place on the beach, and shall take place at a designated area located at least 50 feet from coastal waters, drainage courses, and storm drain inlets, if feasible (unless those inlets are blocked to protect against fuel spills). The fueling and maintenance area shall be designed to fully contain any spills of fuel, oil, or other contaminants. Equipment that cannot be feasibly relocated to a designated fueling and maintenance area (such as cranes) may be fueled and maintained in other areas of the site, provided that procedures are implemented to fully contain any potential spills.
- f. Minimize Other Impacts of Construction Activities. Other impacts of construction activities shall be minimized through the use of appropriate BMPs, including:
- i. The damage or removal of non-invasive vegetation (including trees, native vegetation, and root structures) during construction shall be minimized, to achieve water quality benefits such as transpiration, vegetative interception, pollutant uptake, shading of waterways, and erosion control.
  - ii. Soil compaction due to construction activities shall be minimized, to retain the natural stormwater infiltration capacity of the soil.
  - iii. The use of temporary erosion and sediment control products (such as fiber rolls, erosion control blankets, mulch control netting, and silt fences) that incorporate plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers) shall be avoided, to minimize wildlife entanglement and plastic debris pollution.
  - iv. Tarps or other devices shall be used to capture debris, dust, oil, grease, rust, dirt, fine particles, and spills to protect the quality of coastal waters.
  - v. At the conclusion of the removal of all existing oil facilities on the Synergy and City sites, the former sites of these structures shall be level clean soil (with or without vegetation) that is unencumbered by remnant structures, debris, waste material, asphalt, or concrete foundations. These sites shall be revegetated with native vegetation according to Special Condition 8d.

- vi. All abandoned material, equipment, structures, and debris within the Synergy and Pumpkin Patch sites shall be collected and removed from the site.
  - vii. The Permittee shall not engage in future stockpiling or long term storage of construction debris, vehicles, out of service or abandoned equipment. All such vehicles, equipment, and materials shall be removed as part of oil field decommissioning and abandonment activities
  - viii. Noise control measures shall be employed to mitigate noise levels to the extent feasible. These measure shall include, but would not be limited to: temporary noise barriers or sound walls between construction areas and adjacent habitats; noise pads or dampers, or moveable task noise barriers, including rubberized pads within pipewalk areas; replacement or update of noisy equipment and use of enhanced hospital quality engine mufflers; queuing of trucks to distribute idling noise; siting of vehicle access points away from the sensitive habitat area; reduction in the number of loud activities that occur simultaneously; efforts to concentrate elevated noise causing activities during the middle hours of the day outside of key morning and evening wildlife foraging periods; placement of loud stationary equipment in acoustically engineered enclosures or maximum distances away from sensitive habitat areas; and use of walkie-talkies or similar devices to limit personnel noise;
  - ix. The Permittee shall prevent wildlife subsidies or attractants (primarily food and water) by minimizing watering for dust control, maintaining all tanks and pipes to prevent leaks, prohibiting littering by personnel, performing daily site cleanup, and providing self-closing waste containers and removing trash contents regularly to prevent overflow.
  - x. All construction lighting shall be installed at the minimum necessary height, shielded and directed downwards and towards the interior of the project areas to minimize night lighting of habitat areas located adjacent to these sites. All lighting shall employ the best available “dark sky” technologies including lights with the lowest intensity possible and using wavelengths that are the most environmentally protective of organisms active at night and dawn and dusk. The lowest intensity lighting shall be used that is appropriate for safety purposes.
  - xi. All construction activity, except for drilling and well installation operations that must be carried out continuously until completed, shall be limited to daylight hours.
- g. Manage Construction-Phase BMPs. Appropriate protocols shall be implemented to manage all construction-phase BMPs (including installation and removal, ongoing operation, inspection, maintenance, and training), to protect coastal water quality.
- h. Construction Site Map and Narrative Description. The Construction and Pollution Prevention Plan shall include a construction site map and a narrative description addressing, at a minimum, the following required components:
- i. A map delineating the construction site, construction phasing boundaries, and the location of all temporary construction-phase BMPs (such as silt fences, inlet protection, and sediment basins). The map shall delineate the

areas on all four project sites to be disturbed by grading or construction activities and shall include any temporary access roads, staging areas and stockpile areas. Wetlands and natural areas on the site shall be clearly delineated on the plan and on-site with fencing or survey flags

- ii. A description of the BMPs that will be implemented to minimize land disturbance activities, minimize the project footprint, minimize soil compaction, and minimize damage or removal of non-invasive vegetation. Include a construction phasing schedule, if applicable to the project, with a description and timeline of significant land disturbance activities.
- iii. A description of the BMPs that will be implemented to minimize erosion and sedimentation, control runoff and minimize the discharge of other pollutants resulting from construction activities. Include calculations that demonstrate proper sizing of BMPs.
- iv. A description and schedule for the management of all construction-phase BMPs (including installation and removal, ongoing operation, inspection, maintenance, and training). Identify any temporary BMPs that will be converted to permanent post-development BMPs.

Prior to implementing any new or modified project developments, facility locations, or BMPs not included in the initial Plan, the Permittee shall submit for Executive Director review and written approval proposed modifications needed to incorporate these project components into the Plan. The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

12. **Inadvertent Release Contingency Plan for jack and bore and/or Horizontal Directional Drilling (HDD) activities.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and approval an Inadvertent Release Contingency Plan for all jack and bore/HDD activities associated with the project. The plan shall include, at a minimum:
- a. An evaluation of a worst-case spill volume;
  - b. Clear identification of the location and dimensions of entry and exit pits and the trajectory and depth of bores beneath the intersection of Westminster Rd/2<sup>nd</sup> St. and Studebaker Rd.
  - c. Measures describing training of personnel, monitoring procedures, equipment, materials and procedures in place for the prevention, containment, clean up, and disposal of released drilling muds, and agency notification protocols;
  - d. Methods for detecting the accidental release of drilling fluids that include: (1) monitoring by a minimum of one biological monitor throughout drilling operations to ensure swift response if a release (i.e., frac-out) occurs; (2) continuous monitoring of drilling pressures to ensure they do not exceed those needed to penetrate the formation; (3) continuous monitoring of mud returns at the exit and entry pits to determine if mud circulation has been lost; and (4) continuous monitoring by spotters to follow the progress of the drill bit during the pilot hole operation, and reaming and pull back operations.
  - e. Protocols the Permittee will follow if there is a loss of circulation or other indicator of a release of fluids.

- f. Protocols the Permittee will follow if there is a fluid release in adjacent wetland areas (e.g., isolating the area through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting).
- g. If a frac-out and fluid release occurs in a wetland area, the Permittee shall immediately halt work and notify and consult with the staffs of the City, Coastal Commission, and U.S. Fish and Wildlife Service regarding appropriate incident-specific actions to be undertaken before HDD activities can begin again.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

13. **Southern Tarplant Restoration and Mitigation Plan.** PRIOR TO ISSUANCE OF A COASTAL DEVELOPMENT PERMIT, the Applicant shall submit a Southern Tarplant Restoration and Mitigation Plan to the Executive Director for review and written approval. The Plan shall include the following elements:

- a. Provision for seed collection from existing Southern tarplant populations in late summer and fall in preparation for future mitigation. Southern tarplant is an annual species belonging to the sunflower family that grows in seasonally moist (saline) areas and that germinates in the spring and flowers in late summer and into fall. The tarplant phenology must be monitored by the biologist assigned to collect seeds in order to determine the appropriate timing for seed collection. Seeds must be collected from all tarplants within the impact area once it has been determined tarplants have set seed. A biological monitor must be present during seed collection activities to ensure that seed is only collected from plants that will be impacted by the oil infrastructure removal activities. Upon completion of seed collection, the seeds must be cleaned in preparation for planting. If necessary, the seed must be temporarily stored in a dark, cool place and not be allowed to become damp.
- b. Summary of impacts to Southern tarplant from project-related activities including the percent cover measurements of the areas of impacted Southern tarplant. The summary should note which impacts are to fragmented and disturbed Southern tarplant in and around the oil infrastructure and which impacts are to Southern tarplant in large undisturbed areas.
- c. A detailed site plan of the Southern tarplant mitigation sites. Appropriate sites will have suitable hydrology, soils, and necessary open space. The mitigation sites shall mitigate impacts to the fragmented and disturbed Southern tarplant in and around the oil infrastructure, described in (b) at a 1:1 ratio (created:impacted) and impacts to Southern tarplant in large undisturbed areas, described in (b) at a 3:1 ratio (created:impacted) . The mitigation site plan shall include both the restoration area and the buffer surrounding the restoration area.
- d. A baseline assessment, including photographs, of the current physical and ecological condition of the proposed mitigation site including the hydrology and soil type.
- e. A description of the goals of the restoration plan and the applicable mitigation ratio from (b) above.
- f. A description of planned site preparation that includes:

- i. Soil preparation – soils must be ripped or disced prior to seeding to alleviate any soil compaction that exists within the mitigation sites
  - ii. Weed control – all non-native species must be removed prior to seeding.
  - iii. Temporary irrigation may be necessary and may include either an overhead and/or drip system or use of a water truck or other hand-watering methods.
- g. Seed planting/broadcasting shall occur between October and January 30 during following late fall and winter rain when the weather and soil conditions are suitable.
- h. A plan for documenting and reporting the physical and biological “as built” condition of the restoration or mitigation site within 30 days of completion of the initial restoration activities.
- i. Monitoring design that measures the percent germination rate and the number of seedlings the first year followed each year by the number and percent cover of surviving Southern tarplants.
- j. Monitoring must occur until the number and percent cover of Southern tarplants has reached 75% of the value of the impacted areas for a minimum of five (5) years.
- k. Provisions for submittal of annual reports and a final report once success criteria have been met.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

14. **Revised Nuisance Minimization Plan.** PRIOR TO ISSUANCE OF A COASTAL DEVELOPMENT PERMIT, the Applicant shall submit, for review and written approval of the Executive Director, a Revised Nuisance Minimization Plan that is in substantial conformance to Development Plan, Section viii. Measures to Prevent or Reduce Nuisance Effects, submitted on September 28, 2018. The Plan shall describe how the Permittee will meet the criteria outlined in the Plan and also reflect the following additions or revisions:
- a. Lighting. All allowed night lighting shall be minimized, directed downward, and shielded using the best available dark skies technology and pole height and design that minimizes light spill, sky glow, and glare impacts. Lighting shall use the lowest intensity possible that is appropriate for safety purposes and using wavelengths that are the most environmentally protective of organisms active at night and dawn and dusk. Outdoor lighting is limited to the following:
    - i. The minimum necessary to light walkways used for entry and exit to structures, including parking areas on the site. This lighting shall be limited to fixtures that do not exceed three feet in height above finished grade, are shielded and directed downward, and generate the same or fewer lumens equivalent to those generated by a 60 watt incandescent bulb, unless a greater number of lumens is authorized in writing by the Executive Director.
    - ii. Security lighting attached to the structures shall use a control device or automatic switch system or equivalent functions to minimize lighting and is limited to same or fewer lumens equivalent to those generated by a 60

watt incandescent bulb. The control system shall include controls that automatically extinguish all outdoor lighting when sufficient daylight is available.

- iii. The minimum necessary to light oil production facilities, if feasible, with the same or fewer lumens equivalent to those generated by a 60 watt incandescent bulb. This lighting shall be shielded and directed downward.
  - iv. All windows shall be comprised of glass treated to minimize transmission of indoor lighting to outdoor areas.
  - v. No lighting around the perimeter of the site and no lighting for aesthetic purposes is allowed.
- b. Implementation Plan. The Revised Plan shall include specific measures to implement the requirements and guidelines outlined in the Plan.

Within 60 days of the completion of construction of new oil production facilities and the Visitor's Center, the Permittee shall submit a written report, for the review and written approval of the Executive Director, showing that all project components were installed in compliance with the Revised Nuisance Minimization Plan. The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

15. **Management and Maintenance Plan for Public Access, Recreational Use, and Open Space Areas.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall provide for the review and written approval of the Executive Director, a Management and Maintenance Plan for all public access and recreational use areas on the Synergy site. The Plan shall balance public access and recreation on the Synergy site with protection of sensitive biological resources on the site, including Steamshovel Slough and the surrounding existing and restored areas. The final management and maintenance program(s) shall include the following:
- a. Identify all entities responsible for management and maintenance of the public access and recreational use areas. The current owner(s) of the Synergy site shall maintain those areas consistent with the final management and maintenance program until such time as management of the site is accepted by the Los Cerritos Wetlands Authority (LCWA). All management and maintenance shall occur in accordance with the approved Management and Maintenance Program.
  - b. Interim Management Plan that addresses how public access will be managed while oil production and decommissioning operations at the Synergy Oil Field are ongoing.
  - c. Restrictions on timing, locations, number of persons allowed on all public access features, and group activities for public access and recreation on the site that ensure disturbance to surrounding habitats is minimized. The Plan shall also include measures such as signage, wildlife-friendly fencing or barriers, public education programs and other means to ensure successful implementation of restrictions.
  - d. Signage Plan. The Permittee shall submit a Signage Plan, in compliance with the following:
    - i. Public Access Signage that directs the public to the public access and recreation areas, and trails, on the Synergy site.

- ii. Conservation signage that directs the public to refrain from entering and disturbing wetland areas included in the mitigation bank and educates the public about the habitat value and lists common disturbances to wildlife which are to be avoided, including but not limited to: domestic pets, littering, loud noises, lights, etc.
  - iii. Signs shall be included that are located and sized such that they are visible from existing publicly accessible areas (e.g. nearby sidewalks and public roads) adjacent to the site. Signs shall invite and encourage public use of access opportunities and shall identify and direct the public to those locations.
  - iv. Directional signage is required including direction to public parking, directional monuments (e.g. location of public amenities), and public trails. Signage denoting a coastal access point is required.
  - v. Interpretative signage shall be limited to historical, environmental and cultural educational signage.
- e. Identify funding for Management and Maintenance Activities. The Plan shall include:
- i. A funding program sufficient to fund the actual cost of maintenance and periodic repair and replacement of the facilities within the areas open to the public, such as the Visitor's Center, trails, public access walkways and associated appurtenances including, but not limited to, surfaces, landscaping (if any), and signage; and
  - ii. A list of maintenance activities including but are not limited to: trash collection, repairs or replacement of surfaces due to cracks, spalling, broken concrete, etc., maintenance of gutters, curbs and sidewalks (keep free of debris, buildup, etc.), removal and/or trimming of vegetation that is interfering with public use of trails and any other public access and recreational use areas, repair/replacement of public access signs, trash receptacles, benches, handrails, stairs, and lighting, if necessary.
  - iii. A funding program sufficient to fund the actual cost of maintenance and periodic vegetation enhancements including on-going restoration, habitat enhancements for identified sensitive species, and repair and replacement of associated appurtenances including, but not limited to, fencing and signage for the trails and recreational areas; and
  - iv. A list of maintenance activities related to the on-going restoration and habitat enhancement for the trails and recreational areas.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

16. **Water Quality Management Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and written approval, a Water Quality Management Plan (WQMP) for post-construction conditions at all four project sites. This Plan shall be prepared by a qualified licensed water quality professional. For oil production facilities at the Pumpkin Patch and

LCWA site, the Plan shall include site and grading plans demonstrating that all stormwater on the site will be collected onsite and treated as produced water. The Plans shall include all stormwater collection and transmission systems and equipment that handle stormwater on these two sites. For the Synergy and City sites, the WQMP shall include details on all aspects of water quality protection for the post-construction environment of this project, including detailed drainage and runoff control plan sheets, and all supporting BMP sizing calculations. The Plan shall include the following, where appropriate:

- a. Drainage and Runoff Controls: A Drainage Plan shall be developed for each project site and included in the WQMP which details the movement and discharge of runoff. This plan shall include discharge directional indicators, sizing calculations for all associated BMPs included in the final Drainage Plan. The Plan shall include, at a minimum, the following water quality protection approaches and runoff controls throughout the development of the site, in the following order of priority:
  - i. Site Design BMPs- Project design features that reduce the creation or severity of potential pollutant sources, or reduce the alteration of the project site's natural stormwater flow regime. Examples are minimizing impervious surfaces, preserving native vegetation, and minimizing grading.
  - ii. Source Control BMPs- Methods that reduce potential pollutants at their sources and/or avoid entrainment of pollutants in runoff, including schedules of activities, prohibitions of practices, maintenance procedures, managerial practices, or operational practices. Examples are covering outdoor storage areas, use of efficient irrigation, and minimizing the use of landscaping chemicals.
  - iii. Treatment Control BMPs- Systems designed to remove pollutants from stormwater by gravity settling of particulate pollutants, filtration, biological uptake, media adsorption, or any other physical, biological, or chemical process. Examples are vegetated swales, detention basins, and storm drain inlet filters. Where post-construction treatment of stormwater runoff is required, treatment control BMPs (or suites of BMPs) shall, at a minimum, be sized and designed to treat, infiltrate, or filter stormwater runoff from each storm event, up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, or the 85th percentile, 1-hour storm event (with an appropriate safety factor of 2 or greater) for flow-based BMPs.
  - iv. The qualified licensed professional shall certify in writing that the final Drainage and Runoff Control Plan is in substantial conformance with the following minimum requirements:
    1. Projects shall incorporate Low Impact Development (LID) techniques in order to minimize stormwater quality and quantity impacts from development, unless a credible and compelling explanation is provided as to why such features are not feasible and/or appropriate. LID strategies use small-scale integrated and distributed management practices, including minimizing



- impervious surfaces, infiltrating stormwater close to its source, and preservation of permeable soils and native vegetation.
2. Post-development runoff rates from the site shall be maintained at levels similar to pre- development conditions.
  3. Selected BMPs shall consist, or primarily consist of, site design elements and/or landscape based systems or features that serve to maintain site permeability, avoid directly connected impervious areas and/or retain, infiltrate, or filter runoff from rooftops, driveways and other hardscape areas, where feasible. Examples of such features include but are not limited to porous pavement, pavers, rain gardens, vegetated swales, infiltration trenches and cisterns.
  4. Structural BMPs (or suites of BMPs) shall be designed to treat, infiltrate or filter the amount of stormwater runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event, with an appropriate safety factor (i.e., 2 or greater), for flow-based BMPs.
  5. Landscape plants shall have low water and chemical treatment demands.
  6. All slopes shall be stabilized in accordance with provisions contained in Special Condition 11 (Construction and Pollution Prevention Plan), and, if applicable, in accordance with engineered plans prepared by a qualified licensed professional.
  7. Runoff shall be discharged from the developed site (where applicable) in a non-erosive manner. Energy dissipating measures shall be installed to prevent erosion. Plan details and cross sections for any rock rip-rap and/or other energy dissipating devices or structures associated with the drainage system shall be prepared by a qualified licensed professional. The drainage plans shall specify the location, dimensions, cubic yards of rock, etc. for any velocity reducing structure with the supporting calculations showing the sizing requirements and how the device meets those sizing requirements. The qualified, licensed professional shall ensure that all energy dissipaters use the minimum amount of rock and/or other hardscape necessary to protect the site from erosion.
  8. All BMPs shall be operated, monitored, and maintained in accordance with manufacturer's specifications where applicable, or in accordance with well recognized technical specifications appropriate to the BMP for the life of the project and at a minimum, all structural BMPs shall be inspected, cleaned-out, and where necessary, repaired, prior to the onset of the storm season (October 15th each year) and at regular intervals as necessary between October 15th and April 15th of each year. Debris and other water pollutants removed from structural BMP(s) during clean-out shall be contained and disposed of in a proper manner.

9. Site drainage and BMP selection shall be developed concurrent with the preliminary development design and grading plan, and final drainage plans shall be approved by a licensed geotechnical engineer or engineering geologist.
  10. Should any of the project's surface or subsurface drainage/filtration structures or other BMPs fail or result in increased erosion, the applicant/landowner or successor-in-interest shall be responsible for any necessary repairs to the drainage/filtration system or BMPs and restoration of the affected area. Should repairs or restoration become necessary, prior to the commencement of such repair or restoration work, the applicant shall submit a repair and restoration plan to the Executive Director to determine if an amendment or new coastal development permit is required to authorize such work.
  11. The structural BMPs shall be constructed prior to or concurrent with the construction of infrastructure associated with the development. Prior to the occupancy of commercial or public structures approved by this permit, the structural BMPs proposed to service those structures and associated support facilities shall be constructed and fully functional in accordance with the final WQMP approved by the Executive Director.
  12. Structural BMPs shall incorporate natural treatment components (e.g. soft-bottom vegetated basins/bioswales) to the maximum extent practicable;
  13. The Plan shall include measures for reporting any events where BMPs did not prevent adverse impacts to wetlands or coastal waters and the measures taken in response to these events
- b. Best Management Practices. The WQMP shall incorporate long-term post-construction Best Management Practices (BMPs) that protect water quality and minimize changes in runoff volume and rate post-construction. The WQMP shall include the following requirements:
- i. The use of chemical pesticides, herbicides, and rodenticides containing any anticoagulant compounds (including, but not limited to, Warfarin, Brodifacoum, Bromadiolone or Diphacinone), shall be prohibited. The use of fertilizers shall be minimized to the maximum extent practicable. An Integrated Pest Management Program (IPM) shall be implemented in all landscaped areas. The IPM Program shall be designed and implemented for all of the proposed landscaping/planting on the project site and shall include the following IPM features, as appropriate:
    1. Bacteria, viruses and insect parasites shall be considered and employed as a pest management measure, where feasible.
    2. Manual weeding, hoeing and trapping
    3. Use of non-toxic, biodegradable, alternative pest control products.
    4. The applicant or responsible party shall be responsible for educating all landscapers or gardeners on the project site about the IPM program and other BMPs applicable to water quality

- management of landscaping and gardens. Education shall include written and verbal materials.
- ii. Trash and recycling containers and storage areas: The applicant shall use trash and recycling containers and storage areas that, if they are to be located outside or apart from the principal commercial structures, are fully enclosed and water-tight in order to prevent stormwater contact with waste matter which can be a potential source of bacteria, grease, and particulates and suspended solids in runoff, and in order to prevent dispersal by wind and water. Trash container areas must have drainage from adjoining roofs and pavement diverted around the area(s), and must be screened or walled to prevent off-site transport of trash.
  - iii. Structures, hardscape, and Roads: Runoff from all new and redeveloped surfaces on the site shall be collected and directed through a system of media filter devices and bioswales. The filter elements shall be designed to treat, filter, or infiltrate runoff and a) trap sediment, particulates and other solids and b) remove or mitigate contaminants through filtration and biological uptake. The drainage system shall also be designed to convey and discharge runoff in a non-erosive manner.
  - iv. Education and Training: Annual verbal and written training of employees, tenants, landscapers, and property managers and other parties responsible for proper functioning of BMPs in commercial development shall be required. Outdoor drains in the commercial site shall be labeled/stenciled to indicate whether they flow to an on-site treatment device, a storm drain, or the sanitary sewer as appropriate. Storm drain stenciling (“No Dumping, Drains to Ocean” or equivalent phrase) shall occur at all storm drain inlets in the development. Informational signs around the commercial establishments for customers and employees/tenants about water quality and the BMPs used on-site shall be provided.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

17. **Contaminated Soil Investigation and Removal Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and written approval a Contaminated Soil Investigation and Removal Plan for the Synergy and City sites that is consistent with Regional Water Quality Control Board requirements. The Plan shall be developed in consultation with other appropriate agencies, including, but not limited to the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife. The Plan shall include the following components:
  - a. Description of all soil sampling and analysis efforts to identify and delineate contaminated areas, including dates, sampling methodologies, and analytical methods.
  - b. Results of all soil sampling and analysis activities

- c. Identification of appropriate clean-up thresholds reflecting the ultimate use of the site as wetland habitat subject to tidal influence, and protective of existing surrounding wetlands and habitats. Development of these thresholds shall include input from all appropriate state and federal agencies.
- d. A detailed site plan of all excavation areas including any necessary staging and temporary stockpile areas.
- e. An estimate of the required surface area and volume of soil that must be excavated to achieve appropriate clean-up thresholds. If anticipated excavation activities will result in impacts to wetlands, Southern tarplant, or other sensitive resources that are not addressed in this permit, the Permittee shall submit an application to amend this permit to address additional wetland impacts, unless the Executive Director determines a permit amendment is not necessary.
- f. Avoidance and minimization measures to protect Steamshovel Slough and other wetland and upland habitat areas surrounding the excavation sites.
- g. A post-contaminated soil removal sampling protocol to verify that appropriate clean-up thresholds were achieved.
- h. Provisions for submittal of a final report documenting actual excavation surface areas and volumes and results of post-removal monitoring. If excavation activities result in unanticipated impacts to wetlands, the Permittee shall submit an application to amend this permit to address additional wetland impacts, unless the Executive Director determines a permit amendment is not legally necessary.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

18. **Land Surface Monitoring Plan.** PRIOR TO THE COMMENCEMENT OF OIL DRILLING ACTIVITIES, the Permittee shall submit for Executive Director review and written approval a Land Surface Monitoring Plan. The purpose of the Plan is to establish baseline land surface elevations in vulnerable areas, and then monitor those areas throughout the duration of the project for any significant change. The Plan shall include the following components:
  - a. Baseline surface elevations on the project sites and all surrounding areas that lie above the target reservoir and could be vulnerable to subsidence. Existing data, if sufficient, may be used to establish a baseline. The Plan shall use a statistical analysis to justify the number of data points used to establish the baseline.
  - b. Baseline data on ground shaking and land surface movement in the project vicinity.
  - c. Protocols for annual monitoring of land surface elevations at the same monitoring locations.
  - d. Protocols for monitoring ground shaking and land surface movements in the project vicinity. The type, frequency and duration of all monitoring activities shall be justified in the Plan.
  - e. Criteria to determine if a change in land surface elevation or the frequency and duration of seismic activity is significant.
  - f. If monitoring results indicate significant changes in land surface elevations or land surface movements, the Permittee shall submit a supplemental report to the Executive

- Director for review and written approval that analyzes potential causes of the observed changes. The report shall specifically address the potential that oil and gas activities approved under this permit contributed to the observed changes. The report shall be submitted within 60 days of submittal of a report indicating significant changes.
- g. If land surface monitoring results, including results from the required supplemental report indicate that oil and gas activities approved under this permit caused or contributed to significant changes in land surface elevations or movement, the Permittee shall submit a Land Surface Mitigation Plan to the Executive Director for review and written approval that identifies additional measures the Permittee will take to address the causes and effects of the identified changes in land surface elevation or movement. The Permittee will apply for an amendment to this permit to implement the identified measures unless the Executive Director determines an amendment is not legally necessary.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

19. **Revised Oil Spill Prevention and Response Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit for Executive Director review and written approval, a revised Oil Spill Prevention and Response Plan (OSRP) that includes the following:
- a. A risk assessment that analyses the oil spill risk and hazards for all project components that could cause an oil spill. The risk assessment shall include an inventory of the hazards that could cause an oil spill, or that have resulted in historical spills, and identify the control measures that will be used to avoid or minimize the risk of an oil spill. The risk assessment shall include a probability analysis of significant oil spills (specifying size, frequency, cause, duration, and location) that could still occur after any or all spill control measures have been implemented, including a cumulative worst-case spill scenario.
  - b. Demonstration that the prevention and response measures included in the Plan address the magnitude of the risk as determined in (a).
  - c. Updated worst case discharge volume and containment volume calculations for the selected pipeline route on the City site consistent with final design and site plans required in **Special Condition 3**.
  - d. Detailed site and facility plans and all grading plans for all project components/sites, including the selected pipeline route on the City site (consistent with requirements in **Special Condition 3**), that match the details and results of the oil spill risk and worst-case spill assessment.
  - e. Prevention and safety measures. The oil spill prevention and safety measures for all project components/sites, including schedules, methods, and procedures for testing, maintaining, and inspecting pipelines and other facilities, shall comply with California Office of Spill Prevention and Response regulations for Oil Spill Contingency Plans for Marine or Inland Facilities (14 CCR §§ 815.01 – 818.03; 14 CCR § 817.04).

- f. The Plan shall maximize secondary containment of all tanks to the extent feasible.
- g. Incorporate the use of smart pigs to inspect the interior of the pipeline a minimum of every three years, unless it can be demonstrated that use of smart pigs is technically infeasible or that an equivalent internal integrity monitoring technology is already required by another regulatory agency.
- h. Preparedness training and emergency planning. The oil spill training programs for all project components/sites shall comply with California Office of Spill Prevention and Response oil spill training and drills regulations (14 CCR §820.01).
- i. Evidence of financial responsibility. PRIOR TO OPERATIONS, the OSRP shall include evidence that a Certificate of Financial Responsibility (COFR) has been issued by the California Office of Spill Prevention and Response, demonstrating compliance with 14 CCR §791-797, for all project components/sites.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

**20. No Future Shoreline Protective Device**

- a. By acceptance of this permit, the Permittee agrees, on behalf of itself and all successors and assigns, that no bluff or shoreline protective device(s) shall ever be constructed to protect the development approved pursuant to Coastal Development Permit No. 9-18-0395 including, but not limited to, oil production facilities including wells, pipelines, tanks, processing equipment and other support infrastructure including in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions, liquefaction, bluff retreat, landslides, or other coastal hazards in the future, and as may be exacerbated by sea level rise. By acceptance of this permit, the Permittee hereby waives, on behalf of itself and all successors and assigns, any rights to construct such devices that may exist under applicable law.
- b. By acceptance of this permit, the Permittee further agrees, on behalf of itself and all successors and assigns, that the landowner shall remove the development authorized by this permit, including oil production facilities including wells, pipelines, tanks, processing equipment and other support infrastructure, if any government agency has ordered that the structures are not to be occupied due to any of the hazards identified above, or if any public agency requires the structures to be removed. If any portion of the development at any time encroaches onto public property, the Permittee shall either remove the encroaching portion of the development or apply to retain it. Any application to retain it must include proof of permission from the owner of the public property. The Permittee shall obtain a coastal development permit for removal of approved development unless the Executive Director provides a written determination that no coastal development permit is legally required.
- c. Prior to removal/relocation, the Permittee shall submit two copies of a Removal/Relocation Plan to the Executive Director for review and written approval. The Removal/Relocation Plan shall clearly describe the manner in which such development is to be removed/relocated and the affected area restored so as to best protect coastal resources, including the Pacific Ocean. If portions of the development

fall into surrounding waterways or wetlands before they are removed/relocated, the landowner shall remove all recoverable debris associated with the development from the bluffs and ocean and lawfully dispose of the material in an approved disposal site. Such removal shall require a coastal development permit.

21. **Seismic and Geotechnical Analysis and Hazard Mitigation Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit for the Executive Director review and written approval, a Seismic Analysis and Safety Plan. The Plan shall include the following:
- a. Detailed design plans for the following:
    - i. Sheetpile wall and berm separating Steamshovel Slough and restored wetlands from the Synergy oil field.
    - ii. All new significant structures, including buildings, pipelines, storage tanks, well cellars, walls and berms
  - b. A site-specific geotechnical analysis for each site evaluating:
    - i. Fault rupture hazards, at a minimum evaluating the maximum horizontal and vertical fault displacement that could occur during an earthquake event on the Newport-Inglewood fault with a 1% in 50 year chance of occurrence (1/4,975 annual probability), as determined based on a review of the most current available science.
    - ii. Ground shaking, liquefaction and seismic settlement hazards based on current building codes (e.g., CBC 2016) and ASCE guidelines (e.g., ASCE 7-16) and the most current, best available science
  - c. An engineering analysis, specific to each site, demonstrating the following:
    - i. The flood control barriers have been designed to withstand the maximum horizontal and vertical fault displacements indicated in the geotechnical analysis, and describing the specific design elements that would be used to accommodate the expected displacements.
    - ii. Project structures would be designed and constructed to withstand expected levels of ground shaking, liquefaction and ground settlement as determined in the geotechnical analysis, and describing the specific design elements and mitigation measures that would be used to assure the integrity of each structure.
  - d. Specific design recommendations and mitigation measures to address the hazards described in (b) and (c) above.
  - e. An Inspection and Maintenance Plan describing in detail the types and frequency of inspections and the procedures that will be followed to maintain the flood control elements and structures in good working condition.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

22. **Greenhouse Gas Reporting.** The Permittee shall submit each year, for Executive Director review, the annual report required pursuant to its participation in the California Air Resources Board's Cap-and-Trade Program. The report is to document GHG

emissions from all project sources covered by the Program and shall identify all offsets and credits acquired to fully offset emissions from those sources.

The Permittee shall also submit each year, for Executive Director review, an annual report documenting compliance with applicable requirements of the South Coast Air Quality Management District's Stationary Sources, Rules, and Plans program, or documentation from the District that the project is not subject to the program.

23. **Protection of Cultural Resources**

- a. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit for the review and written approval of the Executive Director an Archeological Research Plan (ARP), prepared consistent with subsections b, c and d of this condition. The ARP shall:
- i. Include a detailed plan for additional archeological research and testing to better characterize the potential for archeological resources on the site and to identify and accurately delineate (to the maximum extent practicable and in accordance with current professional archeological practices) any resources that may be discovered during the investigations.
  - ii. Address the nature of archeological resources that could be found around the mudflats, beach lines, and wetlands in and around the project sites.
  - iii. Expand upon the existing records search investigation (Fulton & Fulton 2017) by conducting a new search that increases the search radius from within 0.5 miles to within 1.5 miles of the project sites.
  - iv. Address the larger cultural and tribal setting of the project area and describe how the project sites fit into this setting. The ARP shall address potential connections between the project sites and the broader network of prehistoric villages and resources of tribal people in the Long Beach area. The ARP shall address the value of living resources and the cultural significance for the surrounding sites to tribal communities.
  - v. Include further site testing at the Pumpkin Patch, LCWA and Synergy sites, at a minimum, soil core sampling to determine the depth of artificial fill and to characterize the deeper soil layers. The ARP shall address the likelihood of archeological resources (including burials) being present and what impacts the proposed project may have on unknown archeological resources under the artificial fill. Additional site testing may also include excavation of test pits and other soil testing methodologies if recommended by the peer review committee (see Item 9).
  - vi. If, during archeological testing, any cultural deposits, including but not limited to skeletal remains and grave-related artifacts, traditional cultural, religious or spiritual sites, midden and lithic material or artifacts, are discovered, they shall not be exposed and the testing shall be immediately halted in this location. Additional testing shall be conducted further from the center of the discovery until sterile conditions are encountered. The ARP does not authorize the excavation of any cultural deposits nor data recovery. Nothing in this condition shall prejudice the ability to comply with applicable State and Federal laws if human remains are encountered. However, in compliance with applicable State and Federal laws the project



archaeologist shall work with the County Coroner and other authorities to allow Native American human remains to be left in situ, to the maximum extent practical.

- vii. If resources are discovered, the Permittee shall undertake significance testing of these resources consistent with Subsection d. Based on the results of significance testing, the Permittee shall submit a revised ARP describing the nature and boundaries of any archeological sites. The revised ARP shall also identify proposed investigation and mitigation measures. If there is disagreement between the project archeologist and the Native American monitors and/or the Native American most likely descendent (MLD), both perspectives shall be presented to the Executive Director. The range of investigation and mitigation measures considered shall not be constrained by the approved development. Mitigation measures considered shall range from in-situ preservation to recovery and/or relocation. A good faith effort shall be made to avoid impacts to cultural resources through methods such as, but not limited to, project redesign, capping, and creating an open space area around the cultural resource areas. In order to protect cultural resources, any further development may only be undertaken consistent with the provisions of the final, approved ARP.
    - 1. If the Executive Director approves the revised ARP and determines that the revised ARP's recommended changes to the proposed development or mitigation measures are de minimis in nature and scope, construction may recommence after the Executive Director informs the Permittee of that determination.
    - 2. If the Executive Director approves the revised ARP but determines that the changes therein are not de minimis, construction may not recommence until after the Commission approves an amendment to this permit.
  - viii. Archeological and cultural resource monitoring shall be consistent with subsection c of this condition;
  - ix. The ARP shall be reviewed by an archaeological peer review committee, Native American groups and agency review process, consistent with Subsection f.
- b. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the Applicant shall submit for the review and written approval of the Executive Director an Archaeological Monitoring and Mitigation Plan for the protection of archaeological/paleontological resources during project grading and construction activities, prepared by a qualified professional, consistent with **Subsections c, d, e, f and g** of this condition, which shall incorporate the following measures and procedures:
- i. The Archeological Monitoring and Mitigation Plan shall incorporate all measures and changes in the proposed development included by the approved revised ARP, if required, as described in Subsection a.
  - ii. During all digging, ground disturbance, and subsurface activity on the site, archaeological monitor(s) qualified by the California Office of Historic

Preservation (OHP) standards and the Native American MLDs from each tribe when State Law mandates identification of MLDs, shall be present on the site.

- iii. Also present during all digging, ground disturbance, and subsurface activity on the site shall be a minimum of 1 set of Native American monitors for every location of ground disturbance; 1 set shall include 2 individual monitors representing the Tribes identified on the Native American Heritage Commission's list (NAHC list). Both Native American monitors in the set shall be present at the same time and monitoring the same location.
- iv. More than 1 set of monitors on the site may be necessary during times with multiple grading and soil disturbance locations.
- v. Tribal representatives selected for the monitoring set shall be rotated equally and fairly among all tribal groups identified on the NAHC list, such that every tribal group has an equal opportunity to monitor on the site.
- vi. During all digging, ground disturbance, and subsurface activity on the site, any Native American representatives from Tribes on the NAHC list are welcome to be present on the site and monitor, even if they are not the assigned set of monitors within the rotation for that day.
- vii. The Permittee shall provide sufficient archeological and Native American monitors to assure that all project grading or other development that has any potential to uncover or otherwise disturb cultural deposits is monitored at all times. All archaeological monitors, Native American monitors and Native American most likely descendants (MLD) shall be provided with a copy of the final revised archaeological monitoring and mitigation plan required by this permit. Prior to commencement of grading, the Permittee shall convene an on-site pre-grading meeting with the all archaeological monitors, Native American monitors and Native American MLDs along with the grading contractor, the Permittee and the applicant's archaeological consultant in order to ensure that all parties understand the procedures to be followed pursuant to the subject permit condition and the approved archaeological monitoring and mitigation plan, including the procedures for dispute resolution. At the conclusion of the meeting all attendees shall be required to sign a declaration, which has been prepared by the applicant, subject to the review and written approval of the Executive Director, stating that they have received, read, discussed and fully understand the procedures and requirements of the approved Archaeological Monitoring and Mitigation Plan and agree to abide by the terms thereof. The declaration shall include contact phone numbers for all parties and shall also contain the following procedures to be followed if disputes arise in the field regarding the procedures and/or terms and conditions of the approved Archaeological Monitoring and Mitigation Plan. Prior to commencement of grading, a copy of the signed declaration shall be given to each signatory and to the Executive Director.

1. Any disputes in the field arising among the archaeologist, archaeological monitors, Native American monitors, Native American MLD, the grading and construction contractors or the applicant regarding compliance with the procedures and requirements of the approved archaeological monitoring and mitigation plan shall be promptly reported to the Executive Director via e-mail and telephone.
  2. All work shall be halted in the area(s) of dispute. Work may continue in area(s) not subject to dispute, in accordance with all provisions of this special condition.
  3. Disputes shall be resolved by the Executive Director, in consultation with the archaeological peer reviewers, Native American monitors, Native American MLD, the archaeologist and the Permittee.
  4. If the dispute cannot be resolved by the Executive Director in a timely fashion, said dispute shall be reported to the Commission for resolution at the next regularly scheduled Commission meeting or as soon as practicable after the dispute is referred to the Executive Director.
- viii. If any cultural deposits are discovered during project grading or construction, including but not limited to skeletal remains and grave-related artifacts, traditional cultural sites, religious or spiritual sites, or other artifacts, the Permittee shall carry out significance testing of said deposits and, if cultural deposits are found by the Executive Director to be significant pursuant to **Subsection d** of this condition and any other relevant provisions, additional investigation and mitigation in accordance with all subsections of this special condition;
- ix. If any cultural deposits are discovered, including but not limited to skeletal remains and grave-related artifacts, traditional cultural sites, religious or spiritual sites, or other artifacts, all development shall cease in accordance with **Subsection c** of this special condition;
- x. In-situ preservation and avoidance of cultural deposits shall be considered as the preferred mitigation option, to be determined in accordance with the process outlined in this condition, including all subsections. A setback shall be established between the boundary of cultural deposits preserved in-situ and/or reburied on-site and any proposed development; the setback shall be no less than 50 feet and may be larger if necessary to protect the cultural deposits;
- xi. If human remains are encountered, the Permittee shall comply with applicable State and Federal laws. Procedures outlined in the monitoring and mitigation plan shall not prejudice the ability to comply with applicable State and Federal laws. The range of investigation and mitigation measures considered shall not be constrained by the approved development plan. Where appropriate and consistent with State and Federal laws, the treatment of remains shall be decided as a component of the process outlined in the other subsections of this condition.

- c. **Discovery of Cultural Deposits.** If an area of cultural deposits, including but not limited to skeletal remains and grave-related artifacts, traditional cultural sites, religious or spiritual sites, or other artifacts, is discovered during the course of the project, all grading and construction activities in the area of the discovery that have any potential to uncover or otherwise disturb cultural deposits in the area of the discovery and all construction that may foreclose mitigation options or the ability to implement the requirements of this condition shall cease and shall not recommence except as provided in **Subsections e and f** and other subsections of this special condition. In general, the area where construction activities must cease shall be 1) no less than a 200-foot wide buffer around the cultural deposit; and 2) no more than the residential enclave area within which the discovery is made.
- d. **Significance Testing Plan Required Following the Discovery of Cultural Deposits.** PRIOR TO RECOMMENCING CONSTRUCTION, the Permittee, following a discovery of cultural deposits, shall submit a Significance Testing Plan for the review and written approval of the Executive Director. The Significance Testing Plan shall identify the testing measures that will be undertaken to determine whether the cultural deposits are significant. The Significance Testing Plan shall be prepared by the project archaeologist(s), in consultation with the Native American monitor(s), and the Most Likely Descendent (MLD) when State Law mandates identification of a MLD. Once a plan is deemed adequate, the Executive Director will make a determination regarding the significance of the cultural deposits discovered.
- i. If the Executive Director approves the Significance Testing Plan and determines that the Significance Testing Plan's recommended testing measures are de minimis in nature and scope, the significance testing may commence after the Executive Director informs the permittee of that determination.
  - ii. If the Executive Director approves the Significance Testing Plan but determines that the measures therein are not de minimis, significance testing may not commence until after the Commission approves an amendment to this permit.
  - iii. Once the measures identified in the Significance Testing Plan are undertaken, the permittee shall submit the results of the testing to the Executive Director for review and written approval. The results shall be accompanied by the project archeologist's recommendation as to whether the findings should be considered significant. The project archeologist's recommendation shall be made in consultation with the Native American monitors and the MLD when State Law mandates identification of a MLD. If there is disagreement between the project archeologist and the Native American monitors and/or the MLD, both perspectives shall be presented to the Executive Director. The Executive Director shall make the determination as to whether the deposits are significant based on the information available to the Executive Director. If the deposits are found to be significant, the permittee shall prepare and submit to the Executive Director a supplementary Archeological Plan in accordance with **Subsection e** of this condition and all other relevant subsections. If the

deposits are found to be not significant by the Executive Director, then the Permittee may recommence grading in accordance with any measures outlined in the Significance Testing Plan.

- e. **Supplementary Archaeological Plan Required Following an Executive Director Determination that Cultural Deposits are Significant.** PRIOR TO RECOMMENCING CONSTRUCTION, the Permittee, following a determination by the Executive Director that the cultural deposits discovered are significant, shall submit a Supplementary Archaeological Plan for the review and written approval of the Executive Director. The Supplementary Archeological Plan shall be prepared by the project archaeologist(s), in consultation with the Native American monitor(s), the MLD when State Law mandates identification of a MLD, as well as others identified in subsection f of this condition. The supplementary Archeological Plan shall identify proposed investigation and mitigation measures. If there is disagreement between the project archeologist and the Native American monitors and/or the MLD, both perspectives shall be presented to the Executive Director. The range of investigation and mitigation measures considered shall not be constrained by the approved development plan. Mitigation measures considered shall range from in-situ preservation to recovery and/or relocation. A good faith effort shall be made to avoid impacts to cultural resources through methods such as, but not limited to, project redesign, capping, and creating an open space area around the cultural resource areas. In order to protect cultural resources, any further development may only be undertaken consistent with the provisions of the final, approved, Supplementary Archaeological Plan.
- i. If the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are de minimis in nature and scope, construction may recommence after the Executive Director informs the Permittee of that determination.
  - ii. If the Executive Director approves the Supplementary Archaeological Plan but determines that the changes therein are not de minimis, construction may not recommence until after the Commission approves an amendment to this permit.
- f. **Review of Plans Required by Archaeological Peer Review Committee, Native American Groups and Agencies.** Prior to submittal to the Executive Director, all plans required to be submitted pursuant to this special condition, including the revised ARP and the monitoring and mitigation plan during project grading, excepting any Significance Testing Plan, shall have received review and written comment by a peer review committee convened in accordance with current professional practice. The Committee shall consist of 3 professional archeologists with experience in Los Angeles and/or Orange Counties. Names and qualifications of selected peer reviewers shall be submitted for review and written approval by the Executive Director. Representatives of Native American groups with documented ancestral ties to the area, as determined by the NAHC, shall also be invited to review and comment on the above required plans. The plans submitted to the Executive Director shall incorporate the recommendations of the peer review committee and the Native

American groups or an explanation provided as to why the recommendations were rejected. Furthermore, upon completion of the peer review and Native American review process, and prior to submittal to the Executive Director, all plans shall be submitted to the California Office of Historic Preservation (OHP) and the NAHC for their review and an opportunity to comment. The plans submitted to the Executive Director shall incorporate the recommendations of the OHP and NAHC. If any of the entities contacted for review and comment do not respond within 30 days of their receipt of the plan, the requirement under this permit for those entities' review and comment shall expire, unless the Executive Director extends said deadline for good cause. All plans shall be submitted for the review and written approval of the Executive Director.

- g. **Final Report.** At the completion of the revised ARP and the Archaeological Monitoring and Mitigation Plan, the Permittee shall prepare a report, subject to the review and written approval of the Executive Director, which shall include but not be limited to, detailed information concerning the quantity, types, location, and detailed description of any cultural resources discovered on the project site, analysis performed and results and the treatment and disposition of any cultural resources that were excavated. The report shall be prepared consistent with the State of California Office of Historic Preservation Planning Bulletin #4, "Archaeological Resource Management Reports (ARMR): Recommended Contents and Format". The final report shall be disseminated to the Executive Director and the South Central Coastal Information Center at California State University at Fullerton.
- h. The Permittee shall undertake development in conformance with the approved plans unless the Commission amends this permit or the Executive Director determines that no amendment is legally required.

24. **Tribal Culture Education Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES ON THE SYNERGY SITE, the Permittee shall submit to the Executive Director for review and written approval a Tribal Culture Education Plan. The Plan shall describe educational materials and activities to be provided at the Visitor's Center to educate visitors about the history and culture of all tribal peoples with a cultural connection to the Los Cerritos Wetlands. The Plan shall seek to include a variety of tribal perspectives and shall be representative and respectful of all tribal peoples. The Plan shall include the following components:

- a. The Permittee shall work with tribal representatives to develop an educational plan for the Visitor's Center.
  - i. The Permittee shall contact all tribal members on the NAHC list to gather feedback on the types of materials, displays, activities or other educational components the tribal members would like include at the Visitor's Center. The Permittee shall provide an adequate amount of time, and no less than 45 days for tribal representatives to respond.
  - ii. Based on the feedback received from tribal representatives, the Applicant shall develop a draft Plan describing tribal educational materials and activities to be provided at the Visitor's Center.
  - iii. The Permittee shall submit this Plan to all tribal members on the NAHC list to provide them an opportunity to comment on the draft Plan. The

Permittee shall provide an adequate amount of time, and no less than 60 days for tribal representatives to provide comments.

- b. If there is a disagreement among different tribal representatives on the content or types of materials and activities to be included, the Permittee will present different alternatives in the Plan that is submitted to the Executive Director.
- c. The Plan shall provide for maintenance and upkeep of the educational materials and activities.
- d. The Plan should include a process to re-evaluate tribal educational materials and activities with interested tribal representatives on the NAHC list every five years.
- e. The Permittee shall implement the final approved Plan within one year of approval by the Executive Director unless he or she determines that additional time is warranted. Any subsequent changes to the Plan must be submitted to the Executive Director for review and written approval.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

25. **Visual Compensation Plan.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit for Executive Director review and written approval a Visual Compensation Plan to address the adverse visual effects of the proposed project. The Visual Compensation Plan shall include the following:
- a. Descriptions and photographs of existing visual conditions from viewpoints around the project sites and descriptions and visual simulations of conditions expected during typical periods of project construction and operations during the upcoming 20-year project life. The visual simulations are to encompass visual conditions during both maximum and minimum levels of activities at the project sites. [Note: these may be expanded versions of the visual elements provided in the project EIR.]
  - b. Descriptions of the viewsheds from which the proposed project's components are visible, including aerial views or maps showing the extent of the viewsheds surrounding the project sites.
  - c. Measures proposed to restore and enhance visual quality within visually degraded coastal areas within these viewsheds. Cumulatively, the measures proposed should be roughly proportional in scale to the visual elements resulting from the proposed project, visible from an overall similarly-sized area as the viewsheds affected by the proposed project, and/or be viewed by a significant portion of the public using the coastal zone in the project vicinity. These measures may include, but not be limited to, any of the following improvements to public views to or along the shoreline:
    - i. Removing or reducing in size structures that block or inhibit public views to or along the shoreline.
    - ii. Adding screening to existing blighted or degraded structures visible from public locations to or along the shoreline.
    - iii. Restoring or repairing blighted or degraded structures visible from public locations to or along the shoreline.
    - iv. Providing landscape enhancements to areas visible from public locations to or along the shoreline.

For each of these proposed restoration and enhancement measures, the Plan is to include photographs of existing conditions and visual simulations of conditions expected upon implementation of the measure.

- d. A schedule that assures the proposed measures will be implemented in concert with project development.
- e. A description of all approvals and legal instruments needed to implement the proposed measures.
- f. Provision for a final post-implementation report demonstrating the visual improvements achieved by implementation of the visual enhancement measures.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

## **IV. FINDINGS AND DECLARATIONS**

### **A. SITE HISTORY AND PROJECT SETTING**

The Los Cerritos Wetlands Oil Consolidation and Restoration Project (“project”) is located within the Los Cerritos Wetlands, a brackish and freshwater wetland complex at the mouth of the San Gabriel River in Long Beach, Los Angeles County (see [Exhibits 1 and 2](#)). Prior to development of the area, the Los Cerritos Wetlands complex covered approximately 2,400 acres and extended up to 2 miles inland of the coastline ([Exhibit 3](#)). Starting in the late 1800s/early 1900s, the vast majority of these wetlands were filled for oil production, farming, burn dumps as well as commercial and residential development. Currently, only a few remnant wetlands remain.

Beginning in the 1970s, the State of California and the Port of Long Beach began exploring options for restoring portions of the Los Cerritos Wetland complex. In the 1990s, the Port of Long Beach and the State Coastal Conservancy developed a conceptual restoration plan for the Los Cerritos Wetlands. The Los Cerritos Wetlands Authority (LCWA), a joint powers authority consisting of the State Coastal Conservancy, the Rivers and Mountains Conservancy and the cities of Long Beach and Seal Beach, began development of a new conceptual restoration plan in 2011. The final Los Cerritos Wetlands Conceptual Restoration Plan was released in August of 2015. The LCWA is currently working on an EIR for the Plan.

The proposed project, described in detail in the following section, involves four separate sites within the Los Cerritos Wetlands complex: the Synergy Oil Field, the City site, the Pumpkin Patch site and the LCWA site ([Exhibit 2](#)). All four sites are located within the Coastal Zone and within the City of Long Beach’s Southeast Area Development and Improvement Plan (SEADIP) area ([Exhibit 4](#)). These sites are described in detail below.

#### *Synergy site*

The Synergy Oil field is located on part of what is known as the “Bixby lease.” This land, originally owned and developed by the Bixby family, has been under continuous gas and oil production since 1926, and now includes 52 oil wells (22 active, 17 idle, 13 plugged) on the 150



acre Synergy site. The site can be divided into the 76.5 acre northern section, and the 73.1 acre southern section ([Exhibit 5](#)). All the existing oil production facilities, including wells, above-ground pipelines, tanks, transformers, other production equipment and dirt access roads, are located on the southern portion of the site, which also includes the Bixby Ranch Field Office that is used by Synergy Oil as an office. In addition to the developed areas, the southern portion of the Synergy site also contains non-tidal wetlands areas and vegetated and non-vegetated flats. A closed former landfill is located on the eastern portion of the site, buried under approximately 25 feet of fill.

The northern portion of the Synergy site contains the 30-acre Steamshovel Slough, a relatively pristine area of southern coastal salt marsh that is separated from the oil operations by an earthen berm. Steamshovel Slough is one of the only remaining remnants of historic tidal marsh areas in Southern California. South of the berm, the northern portion of the site also includes parts of the existing active oil field, although no wells or other production equipment are located in this area. On the west side of the site, just south of the mouth of Steamshovel Slough, a tide gate and series of pipes are used to restrict tidal influence into the active oil field. The rest of the oil field is not subject to tidal influence, although the site does support salt marsh habitat. The Newport-Englewood fault bisects the Synergy site ([Exhibit 6](#)).

The Synergy site has been operated as an oil field since the mid-1920s. Most of the equipment is old and outdated, which contributes to the relatively low annual production from the field in recent history. In 1998, the operator, Samedan Oil Corporation, applied to the Coastal Commission for a CDP to establish a new oil drilling site and slant drill up to 12 new wells on the site. The Commission denied the CDP application finding that 1) the project did not satisfy the Coastal Act's Section 30262(b) requirement that new or expanded oil and gas development be consolidated to the maximum extent feasible, and 2) the applicant did not conduct a sufficient alternative sites analysis. The Commission also concluded that the proposed project was not designed with consideration of the wetland restoration goals of the Los Cerritos wetland complex.

#### *City site*

The City site, a 33-acre site that is also part of the "Bixby lease" contains 22 oil wells (11 active, 2 idle, 9 plugged), above-ground pipelines, tanks and dirt access roads ([Exhibit 7](#)). The City site is owned by the City of Long Beach and operated by Synergy. The interior of the site contains wetland areas interspersed with disturbed and developed areas. The perimeter of the site contains trees and landscaping. The Newport-Englewood fault also traverses diagonally through the City site ([Exhibit 6](#)).

#### *Pumpkin Patch Site*

The Pumpkin Patch site is an approximately 7-acre disturbed site that is currently used seasonally for the sale of pumpkins and Christmas trees. The western two-thirds of the site was previously used as a landfill for household and construction waste, and is actively maintained to remove vegetation. The eastern third of the site contains a wetland area as well as two oil wells (one active, one plugged) ([Exhibit 8](#)).

*LCWA site*

The LCWA site is an approximately 5-acre disturbed industrial site that is generally used as a temporary storage and staging area. In 2007, the Los Cerritos Wetlands Authority (LCWA) accepted an Offer of Dedication for the site that had been recorded by Southern California Edison as part of a litigation settlement. The LCWA is a joint powers authority consisting of the California Coastal Conservancy, the Rivers and Mountains Conservancy, and the Cities of Long Beach and Seal Beach. The LCWA currently owns and manages approximately 175 acres of land within the Los Cerritos Wetlands complex for conservation and restoration. The perimeter of the site contains some non-native trees but is otherwise generally devoid of vegetation ([Exhibit 9](#)).

## **B. PROJECT DESCRIPTION**

The proposed project includes five main components:

1. Construction and operation of two new oil production facilities on the Pumpkin Patch and LCWA sites, including drilling up to 120 new wells with a maximum production capacity of 24,000 barrels per day.
2. Construction and operation of a 2,200 foot above-ground pipeline on the City site that connects the Pumpkin Patch and LCWA sites.
3. Decommissioning of existing oil operations at the Synergy and City sites over a twenty year period.
4. Conversion of an existing building into a Visitor's Center for the Los Cerritos Wetlands on the southern portion of the Synergy site.
5. Implementation of a wetlands restoration project and mitigation bank on the northern portion of the Synergy site.

BOM anticipates that most construction activities would occur in the first four years. Approximately 110 to 160 workers would be needed daily during construction. Workers would meet at the Synergy Oil Field site and then travel to their respective work sites on work buses. Well drilling would occur over an 8 year period at the Pumpkin Patch and a 12 year period at the LCWA site and would require approximately 40-60 workers. Decommissioning and abandonment of existing oil operations would begin in Year 4 and would continue over a 20-year period. Each of these project components listed above is discussed in more detail below.

### **Construction and operation of two new oil production facilities on the Pumpkin Patch and LCWA sites**

*Landfill removal and Grading*

Prior to any construction activities on the Pumpkin Patch site, BOM proposes to remove approximately 63,000 cubic yards of waste associated with a buried landfill located under the western two-thirds of the site. To remove the landfill, BOM would first remove the dry trash from the site and haul it to a transfer station for disposal. Next, BOM would remove wet trash with excavation equipment fitted with a dredging bucket. Water draining off the trash would be kept within the excavation footprint. Any residual water brought to the surface would be collected in an on-site tank, sampled and then disposed of at an appropriate off-site facility. Waste from the landfill would be classified as hazardous (Class I), designated (Class II) or non-

hazardous (Class III) and disposed of at an appropriate facility. Once the landfill is removed, BOM would import approximately 45,000 cubic yards of clean dirt to fill in the excavation. Landfill removal is expected to take approximately six months and would occur within the first year.

On the LCWA site, BOM estimates that approximately 7,969 cubic yards of soil will be graded and all material will be kept on site. Grading is estimated to take approximately 6 months and would be completed in Year 1.

### Site Improvements

BOM proposes site improvement work at both the Pumpkin Patch and LCWA sites prior to facility construction. All oil-related development on the Pumpkin Patch site would occur on the western five acres of the site. The remaining 2 acres on the eastern portion of the site would be maintained as open space including a 100-foot buffer around the existing wetland area. The wetland area and buffer would be separated from oil operations by a 10-foot high wall. An 18-foot high perimeter screen wall would be installed along Studebaker Rd., PCH and the San Gabriel River. At the LCWA site, BOM would also construct a 10-foot tall perimeter screen wall along Studebaker Rd. and 2<sup>nd</sup> St. Perimeter landscaping would also be installed at both sites.

At the Pumpkin Patch site, additional site improvements would include construction of a 47-space parking lot, establishment of utility connections, construction of two driveways into the site from Studebaker Rd., and construction of sidewalks and bikeways along PCH and Studebaker Rd. and a bikeshare station on PCH near the San Gabriel River. At the LCWA site, the existing driveway into the site from Studebaker Rd. would be relocated to the south and a new driveway would be constructed into the site from Westminster Ave. Sidewalks and bikeways would also be constructed along Studebaker Rd. and Westminster Ave. Site improvement work at both sites is expected to take up to a year and would be complete in Year 2.

### Construction of Oil Facilities

BOM proposes to construct a tank storage area, well cellars, a water treatment system and an oil separation system on the Pumpkin Patch site ([Exhibit 10](#)). Specifically, proposed oil facilities on the Pumpkin Patch site include:

- Two tanks – one 3,000-barrel “wet oil” tank (30 ft in diameter and 24 ft high) and one 2,000-barrel “skim oil” tank (25 ft in diameter and 24 ft high).
- Three 8 ft. deep cement lined well cellars – two cellars with 20 wells each, and one cellar with 10 wells, for a total of 50 wells.
- A water treatment system designed to remove particles, and dissolved or suspended solids from produced water prior to injection back into the reservoir. The system may also be used to add corrosion and/or scale inhibitors, biocides, and/or oxygen scavengers to the produced water prior to injection.
- Oil separation systems designed to remove water and gas from produced oil.

BOM also proposes to construct an elevated pipe rack, tank storage, well cellars, and an emergency flaring system ([Exhibit 11](#)). Specifically, proposed oil facilities at the LCWA site include:

- Four tanks – one 28,000 barrel sales oil tank (70 feet in diameter, 50 feet high), one 5,000 barrel injection water tank (32 feet in diameter and 35 feet high), two 14,000 barrel multi-use or “swing” tanks (5 feet in diameter, 50 feet high)
- Three 8 ft. deep cement lined well cellars – two cellars with 23 wells each, and one cellar with 24 wells, for a total of 70 wells
- An elevated pipe rack
- An emergency flaring system including a 20- to 25-foot ground flare

Tanks would be of a fixed-roof and gas-blanketed design and would include a vapor recovery system, leak detection system, overfill protection, pressure relief valves and instrumentation to monitor oil levels, temperature and pressure. Both tanks would sit in a secondary containment basin designed to hold the entire contents of the largest tank plus the 25-yr storm. The well cellars also serve as secondary containment for the entire site and are constructed below grade. These facilities would take approximately two years to construct and would be completed in Year 4.

Starting in Year 3, once the well cellars have been completed, BOM would commence drilling wells. Up to 120 new wells used for oil production, water injection and water sourcing would be drilled over an 11-12 year period. The specific number of wells of each type would be determined by the reservoir characteristics once drilling commences. Wells would be directionally drilled using two 160-ft high electric-powered drilling rigs, one at each site. The drilling rigs would be enclosed in a sound abatement shell and all worker safety lighting would be located inside the shell. During drilling operations, drilling mud, generally consisting of a non-toxic clay or polymer and water mix, is pumped down through the drill string and sprayed on to the drill bit to keep it clean and cool. As the mud circulates up from the bottom of the hole, it carries up the rock cuttings to the surface. The cuttings are filtered from the mud and transported off-site for disposal. The clean mud is then reused in drilling operations. As required by DOGGR, all wells would be equipped with blowout prevention equipment (BOPE) to prevent an uncontrolled release of oil and other formation fluids. Once the desired well depth is achieved, the BOPE is replaced by a wellhead and Christmas tree (piping on the well head) and production can begin. BOM estimates that 6 wells would be drilled per year at each site, for a total of 8 years at the Pumpkin Patch site and 12 years at the LCWA site.

Produced oil would be transported off-site using one or both of two existing oil and gas shipping lines. The first line, the Crimson Pipeline, travels along the south side of PCH and would connect to the Pumpkin Patch site. The second line, the Plains All American Pipeline is located just north of the LCWA site. BOM proposes to construct new oil and gas pipelines running from the Pumpkin Patch and LCWA sites to the connection point for each of these existing pipelines. All construction would occur within existing right-of-ways or streets.

#### Construction of Non-Oil Facilities

BOM proposes to construct a new office building and warehouse on the Pumpkin Patch site. The office building would be approximately 5,200 square feet and two stories high (35 feet).

The warehouse would be 9,750 square feet and 20 feet high and used primarily for storage. In addition, a new 10 foot wide sidewalk would be constructed along Studebaker Rd, just north of the Pumpkin Patch site.

BOM also proposes to construct an energy microgrid system to integrate multiple on-site energy sources. A microgrid system seeks to increase efficiency by managing the interaction of all energy production and supply sources and energy-consuming equipment. Most of the microgrid system would be installed at the LCWA site, including up to four natural gas turbines with a heat recovery steam generator for cogeneration, an SCE interconnection and equipment for using waste heat. The turbines would be self-contained in a steel full-length enclosure that would be weatherproof, insulated, sound attenuated and assembled to mount on the generator base frame. The enclosure would also include a ventilation system, dust protections system, fire and gas detection and monitoring system and a fire suppression system. BOM would also construct a new SCE utility line connection from the existing substation on Studebaker Rd., located approximately 4,500-5,000 feet north of the LCWA site. This connection would provide power to the site for a minimum of the first seven years, when gas production is not expected to be sufficient to provide power for the entire site. Construction of these facilities is expected to take one year and would be completed in Year 3.

On the Pumpkin patch site, solar photovoltaic cells would be installed on both the rooftop of the office building and the warehouse. An electric vehicle charging station would be installed in the parking lot of the Pumpkin patch site. Construction of non-oil facilities is expected to take approximately 6 months and would be completed in Year 3.

### Operations

Prior to operation of the oil facilities, BOM would test the microgrid and turbine cogeneration system. After an initial operation period, BOM anticipates producing more natural gas than is needed to operate the turbines. BOM intends to sell this excess natural gas to the grid.

BOM proposes to operate the oil processing facility with computerized control, monitoring and communications systems. Primary operations would be conducted from the new office building on the Pumpkin Patch site. The operator console would be staffed 24 hours a day and includes a supervisory control and data acquisition (SCADA) system that allows operators to monitor all systems, respond to alarms, and shutdown any malfunctioning systems. The SCADA system is also designed to include cybersecurity measures. All equipment includes independent automated shutdown instrumentation, access to an uninterruptible power supply (including a diesel emergency generator), and gas and fire detection and fire suppression systems.

BOM would implement a monitoring protocol that included regular internal, external, and non-destructive testing of tanks, vessels and piping and testing of relief devices. Project facilities would also be protected by a continuously pressurized firewater loop fed by the Long Beach Water Department water main.

Throughout the life of the project, BOM would use a 120 foot tall workover rig for well maintenance and workover operations. The rig is collapsible and would be stored on site, but

would only be visible when in use. Workover operations would be limited to 50 hours per week during daylight hours.

### **Construction and operation of a new pipeline on the City site that connects the Pumpkin Patch and LCWA sites**

BOM proposes to construct an approximately 2,200 foot above-ground pipeline system and utility corridor through the City site to connect the Pumpkin Patch and LCWA sites along the route shown in [Exhibit 12](#). Prior to construction of the pipeline and utility corridor, BOM proposes to grade the site by bringing in approximately 4,030 cubic yards of soil and 800 cubic yards of gravel. Once grading is completed (likely in year 2), BOM would begin construction of a 12.5 foot above-ground corridor and a 5.5 foot underground corridor ([Exhibit 13](#)). The above-ground corridor would contain 6 pipelines including an 8" water injection line, "8" oil gathering line, 6" gas line, 4" dry oil line, 3" heat medium line and 3" heat medium return line. The above-ground pipelines would be contained within a 12" berm on both sides. Two 10 foot high by 10 foot wide expansion loops would be installed in the pipeline alignments to accommodate potential fault displacement and thermal expansion. A leak detection system would be installed on all main lines and seismic accelerometers would be installed at both the Pumpkin Patch and LCWA sites. The underground corridor would be constructed at a depth of approximately 5 feet below ground surface and would include a 4" LP Heat line, an 8" LCP Clean Water line and several power and communications lines. The pipeline system and utility corridor would take approximately six months to construct and would be completed in year 2.

At the northeast corner of the City site, the above-ground pipelines would dive beneath the intersection of Studebaker Rd and 2<sup>nd</sup> St. and then daylight within the LCWA site. A 42" casing would be installed beneath the road crossing using a jack and bore method. First, sending and receiving pits would be dug and the boring equipment set up. The boring machine would then push the auger and casing through the ground simultaneously while the machine turns a cutting head through the ground. The auger carries dirt and cuttings back to the entry pit, where they can be removed. BOM is considering two options for the jack and bore operation: (1) the bore crossing would travel from the southwest corner of the LCWA site, pass diagonally under the intersection of Studebaker St. and 2<sup>nd</sup> St. and daylight within the northeast corner of the City site; or (2) the bore crossing would travel from the southwest corner of the LCWA site, crossing first underneath Studebaker Rd. perpendicularly, daylighting within the southeast corner of the Synergy site, crossing under 2<sup>nd</sup> St. perpendicularly and daylighting again in the northeast corner of the City site.

Once constructed, the pipelines would be hydrostatically tested as mandated by federal regulations before being put into service. The pipelines would be visually inspected weekly, tested for external corrosion every three years and hydrotested to inspect for internal corrosion. BOM may use pigs to clean and/or inspect the pipeline but does not propose to use "smart pigs" to detect corrosion or other damage that could affect the integrity of the pipeline. Emergency isolation valves and shutdown instrumentation will also be regularly tested for set points and functionality.

## **Decommissioning of existing oil operations at the Synergy, City and Pumpkin Patch sites over a twenty year period**

### *Pipeline and tank removal*

During the first three years of the proposed project, approximately 95 percent, or 66,000 linear feet of existing aboveground pipelines and all tanks would be removed from the Synergy, City and the eastern-most 2 acres of the Pumpkin Patch sites ([Exhibit 14](#)). The first step would be to identify and mark in the field all pipelines to be removed, and then use blind flanges to permanently isolate these pipelines from portions of the system that will remain in operation. After any necessary asbestos removal work is completed, the next step would be to flush any remaining fluid from within the pipelines using vacuum trucks. Once the pipelines are cleared, any sections of pipeline located parallel to access roads would be cut into 20-40 foot sections, and capped. When feasible, a backhoe or an excavator would be used to lift the pipe and place it onto a flat-bed truck, which would then haul the pipeline segments to an on-site storage bin. In sensitive areas (i.e., wetland or other habitat areas), or areas inaccessible by heavy machinery, pipelines would be cut into smaller sections and removed by hand. In these cases, the work area would be limited to a 10 foot radius around the pipeline.

In areas where the aboveground pipelines are not in proximity to existing access roads, pipelines will be cut into small 5-10 foot sections and hauled manually, or removed in larger sections by hand, backhoe or excavator towards an access road or cleared work area and then cut into smaller segments for disposal. All pipelines would be tested for Naturally Occurring Radioactive Material (NORM). Although not anticipated, any pipelines that test positive for NORM will be segregated and disposed of separately. During pipeline removal activities, if contaminated soil is discovered, the material will be tested and assessed to determine remediation options.

Above-ground storage tanks will also be removed during the first year. Tanks will first be isolated from all facility pipelines using blind flanges. Next, all instrumentation and appurtenances would be removed and the connections capped. The tanks would then be drawn down to the lowest level feasible and then any remaining liquids would be removed by vacuum trucks. Once emptied of all liquids, a specialized contractor would degas and clean the tank. During demolition, tracked excavators fitted with equipment for cutting the tank would be used to remove sections of the tank roof and side walls. Cut steel would be placed into dump trucks, transferred to on-site storage bins, and ultimately hauled off as scrap metal. Finally, all tank foundations would be removed and disposed of off-site. All tank materials would be tested for NORM and if encountered, disposed of properly. During tank removal activities, if contaminated soil is discovered, the material will be tested and assessed to determine remediation options.

All construction vehicles would be limited to existing access roads and designated equipment storage locations. Staging of waste disposal bins, demolition equipment and contractor facilities would occur in areas that do not contain vegetation, water ways or other sensitive resources. Once pipelines and tanks are removed from the Synergy and City sites, all disturbed areas would be revegetated with a native upland seed mix.

Well Plugging and Abandonment

Once the new occupancy date for the new office building on the Pumpkin Patch site is established (anticipated within two years of the commencement of construction), BOM proposes to decommission the 39 wells at the Synergy, 13 wells at the City site and 1 well at the Pumpkin Patch site and associated oil production infrastructure over a twenty-year period. BOM proposes to decommission half the wells within 10 years and all of the wells within 20 years of the new occupancy date. In addition, if an oil well produces less than one full barrel of oil per day for a period of 18 consecutive months, the well would be immediately plugged and abandoned. Furthermore, BOM proposes to reduce existing oil production from the 53 wells by 75 percent immediately upon receipt of building permits for the new office building on the Pumpkin Patch site.

Plugging and abandonment activities would be performed in compliance with DOGGR regulations which require plugging the wells with cement at prescribed intervals to prevent fluid from migrating between rock layers.

**Construction of a Visitor's Center, Trails and Bikeways on the Synergy site**

The applicant proposes to relocate and repurpose the existing Bixby Ranch field office to create a future Visitor's Center for the Los Cerritos Wetlands. The existing Bixby building would be moved approximately 427 feet southwest of its current location to a 1.42 acre disturbed area. The purpose of the relocation is to move the building outside the Alquist-Priolo Earthquake Fault Zone which extends approximately 500 feet on either side of the Newport-Englewood fault. The structure would undergo minor rehabilitation and would be raised to address future sea level rise. A parking lot would be constructed adjacent to the new Visitor's Center to provide approximately 50 parking spaces ([Exhibit 15](#)).

A 10-foot wide, pedestrian-only trail of decomposed granite would be constructed from the Visitor's Center to the former location of the Bixby Ranch field office. An overlook terrace would be constructed on this site including picnic facilities with vegetation and trees. The trail would continue on the east side of the overlook terrace on an existing oil field road towards Studebaker Rd. where it would turn north, extending approximately a quarter of a mile, terminating near the northeast corner of the Synergy site. Class II bikeways would also be constructed adjacent to the Synergy site along Studebaker Rd., PCH, and 2<sup>nd</sup> Street and sidewalk improvements made at the Synergy site, as well as the City and Pumpkin Patch sites. Construction of the Visitor's Center, Studebaker trail, bikeways and sidewalks would begin in year 2 and conclude by the end of year 4.

**Implementation of a wetlands restoration project and development of a mitigation bank on the Northern portion of the Synergy site**

BOM proposes to expand tidal connections to areas south of the existing Steamshovel Slough habitat to facilitate restoration of coastal salt marsh habitat on an approximately 30 acre portion of the Synergy site, and to preserve and enhance existing subtidal and salt marsh habitat within Steamshovel Slough ([Exhibit 16](#)). BOM proposes to fund and manage the restoration site through a mitigation bank, designed to be consistent with the USACE Mitigation Banking Rule.



However, as the mitigation bank is still under review by the USACE and the Interagency Review Team (IRT), the structure and requirements of the mitigation bank are not considered under this permit.

Specifically, the restoration project would include the following activities:

- Construction of a sheet pile wall and earthen berm along the southern border of the northern half of the Synergy site.
- Establish tidal channels through grading to convey tidal flows into portions of the Synergy site.
- Remove segments of the existing berm and roads to provide a tidal connection between the existing Slough and portions of the Synergy site.
- Lower areas along the northern edge of Steamshovel slough from current elevations ranging from 7.5 to 10.5 feet to elevations ranging from 5.1 to 6.1 feet.
- Post-construction planting, irrigation and maintenance

Earthmoving work would be implemented using excavators, bulldozers, front-end loaders and trucks. All excavated material would be re-used on-site. Staging areas would be located in upland areas to the extent feasible and access to work areas would be provided through upland areas.

Each of the activities listed above is described in more detail below.

#### *Installation of Sheet Pile and Earthen Berm Barriers*

BOM proposes to construct a sheet pile wall along the western portion and an earthen berm along the eastern portion of the border between the northern and southern halves of the Synergy site ([Exhibit 17](#)). The purpose of the barrier is to both protect the wetlands and habitat in the northern portion of the Synergy site from ongoing oil production activities and potential oil spills on the southern portion of the Synergy site, and to provide flood protection to the existing oil operation and abandonment activities on the southern portion of the Synergy site. The sheet pile wall would be approximately 4,744 feet in length, 7 and 9 feet in height and 12 inches or less in thickness. The wall would be installed using pile driving techniques and could be made of vinyl, composite material, aluminum, wood or steel. Installation will occur outside of the bird breeding season. Final design features of the sheet pile wall will be determined during the mitigation banking process.

The earthen berm will be constructed using material excavated during construction of the tidal channels, road removal and berm removal. It will be constructed with a 5:1 slope on the wetlands side and a 3:1 slope on the oil field side. The top of the berm will be approximately 3 feet wide and would be built to an elevation of 9 feet NGVD. To facilitate breaching of the existing berm, BOM would need to construct temporary earthen ramps over the sheet pile wall to provide access to the existing berm for earthmoving equipment. After the breaches are made, these ramps would be removed using an excavator.

#### *Establish tidal channels through grading to convey tidal flows into portions of the Synergy site.*

Tidal channels would be graded to connect the breached berm segments with restored areas ([Exhibit 17](#)). Earthmoving equipment would be used to dig the channels before the berm areas

are breached. The tidal channels would range in elevation from 0.5 feet at the berm breach to approximately 1.0 feet at the upper end of the channel. To the extent feasible, the channels have been designed to be created in areas that are currently unvegetated. Additional grading would occur in the proposed eastern complex to lower existing surface elevations from the existing range of 3.5 to 11 feet to a range of 1.5 to 4.0 feet.

*Remove segments of the existing berm and roads to provide a tidal connection between the existing Slough and portions of the Synergy site*

The existing berm that separates Steamshovel Slough from the Synergy Oil field would be breached in five locations to allow tidal flows to enter restored areas south of the berm ([Exhibit 17](#)). The largest breach, Berm Removal: Western Segment, located on the western end of the existing berm, would be approximately 440 feet long. The breach would result in the lowering of the berm elevation from approximately 6.1 to 6.7 feet to 0.5 to 1.5 feet. A secondary berm located behind the existing berm would also be lowered from approximately 4.4 to 4.8 feet to 1.5 to 2.0 feet. An existing pipe that carries tidal flows south of the secondary berm would be removed once the open connection is established through the breach.

BOM also proposes to lower three existing road segments and a disturbed upland area south of the berm segments, shown on [Exhibit 17](#) as Secondary Berm Removal. The existing road elevations of 2.6 to 3.6 feet would be lowered to elevations ranging from 0.4 to 0.8 feet. Further to the east along the existing berm, Berm Removal: Central Segment would result in removal of a 50 foot long section of berm and a decrease in elevation from 6.5 feet to 0.5 feet. Towards the east end of the existing berm, two small breaches would be made. Berm Removal: Eastern Segments would remove an approximately 50 foot long section of berm and an approximately 25 foot long section of berm. Both of these breaches would result in a final channel elevation of about 1.0 feet.

*Lower areas along the northern edge of Steamshovel slough from current elevations ranging from 7.5 to 10.5 feet to elevations ranging from 5.1 to 6.1 feet*

BOM proposes to grade an upland area located to the north of Steamshovel Slough to create transitional wetland habitat. Grading would lower the elevation of the upland area from approximately 8 to 10 feet to about 5.1 to 6.1 feet. This area would be planted with high marsh species such as parish's glasswort, shoregrass, saltgrass, Pacific pickleweed, and alkali heath.

*Post-construction planting, irrigation and maintenance*

Newly restored areas would be planted with native salt marsh or upland plants, as appropriate. [Exhibit 18](#) shows which type of plants would be targeted in each new restored area. In addition, BOM proposes to install irrigation in upland buffer areas to encourage plants to establish in these areas. A main irrigation line would be installed below-grade and lateral lines would be installed above grade. Irrigation would occur, at a minimum, for the first winter and early spring following planting. Once plants are established, the main below-grade irrigation lines would be cut and capped and left in place. Above-grade lateral lines would be removed from the site.

BOM would implement a maintenance program to improve the likelihood that the restoration is successful. General maintenance activities would include plant inspection, weed control, trash

and debris removal, adjusting irrigation water volume and frequency, maintenance of the irrigation system, pest control and plant replacement.

## **C. COASTAL COMMISSION JURISDICTION AND STANDARD OF REVIEW**

The project sites are located within two different jurisdictions. All four sites are located within the Coastal Zone and within the City of Long Beach's Southeast Area Development and Improvement Plan (SEADIP) area ([Exhibit 4](#)). The Pumpkin Patch Site and the LCWA site are located within the portion of SEADIP that is part of the City of Long Beach's certified Local Coastal Program (LCP). The Synergy site and the City site are also located within the boundary of the SEADIP, but within a portion of the Plan that was not certified by the Commission and is under the direct jurisdiction of the Commission.

Section 30601.3 of the Coastal Act provides that when a project requires a coastal development permit from a local government with a certified Local Coastal Program and the Coastal Commission, a single, consolidated coastal development permit for the entire project may be considered by the Coastal Commission if the applicant and local government agree to that process. That section provides that the Coastal Act Chapter 3 policies serve as the legal standard of review, with certified LCPs serving as guidance. On September 9, 2014, the City of Long Beach requested a consolidated permit under Section 30601.3 of the Coastal Act. The applicant also agreed to a consolidated permit for the portions of the project within the City of Long Beach's jurisdiction.

In August 2018, the Commission approved a request by the City of Long Beach to amend its certified Land Use Plan (LUP) and Implementation Plan (IP) policies within SEADIP and the City's Oil Code, both components of the City of Long Beach's LCP. Long Beach LCP Amendment Request No. 1-18 added Oil Production Uses as an allowable use to the Pumpkin Patch site and the LCWA site. The LCP amendment also revised the City's Oil Code to reflect the addition of these two areas as "Oil Operating Areas." The City adopted the Commission's suggested modifications on October 2, 2018. In accordance with Section 30601.3, the Commission will review the entire project for consistency with the Chapter 3 policies of the Coastal Act, with the City's amended LCP used for guidance.

## **D. OTHER AGENCY APPROVALS**

### **City of Long Beach**

The City of Long Beach (City) is the lead agency under the California Environmental Quality Act (CEQA) for the proposed project. On January 16, 2018, the City certified the final EIR for the project, as well as a Zoning Code Amendment, Site Plan Review, Oil Map Amendment and Certificate of Compliance authorizing the project. At the same time, the City passed a City resolution and ordinance approving the land use changes within SEADIP and authorizing submittal of these changes in the form of an LCP amendment to the Commission. However, because of the jurisdictional patchwork that exists within SEADIP, the LCP amendment only covers two of the four sites included in the project, specifically, the sites proposed for oil development

**Regional Water Quality Control Board – Los Angeles Region (RWQCB)**

The RWQCB regulates waste discharges into receiving waters in the project area. The Applicant submitted an application for a Section 401 water quality certification on June 1, 2018. A final decision from the RWQCB is pending.

**California Department of Fish and Wildlife (CDFW)**

CDFW reviews projects that would alter any river, stream, or lake to ensure that existing fish and wildlife resources are conserved. The applicant submitted an application for a Lake and Streambed Alteration Agreement on June 1, 2018. A final decision from CDFW is pending.

**U.S. Army Corps of Engineers (Corps)**

The Corps has regulatory authority over the proposed project under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 1344) and Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). The Applicant submitted an application to the Corps under Nationwide Permit #27 (Aquatic Habitat Restoration) on July 19, 2018. A final decision from the USACE is pending.

**E. DREDGING AND PLACEMENT OF FILL IN WETLANDS AND COASTAL WATERS**

Coastal Act Section 30233(a) states:

*The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
- (2) Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
- (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (6) Restoration purposes.*
- (7) Nature study, aquaculture, or similar resource dependent activities.*

See Appendix B, Policies A.4, pp, 1-2 for applicable LCP policies

The proposed project includes several components of both dredging and fill of wetlands and is therefore subject to the policies of Coastal Act Section 30233. Three of the four sites included in the proposed project include areas that meet the Commission's definition of a wetland. These areas include the existing Steamshovel Slough, former tidal marsh areas on the City and Synergy sites that were drained and diked, drainage areas, and other remnant tidal marsh areas (see [Exhibits 19-21](#)). Construction activities associated with the proposed project could result in impacts to existing wetlands on project sites. A description of potential impacts to wetlands within each project site is included below.

#### *Synergy site*

The existing Synergy site consists of an active oil field on the southern two-thirds of the site, and wetland and subtidal habitat areas on the northern third of the site. The southern portion of the site includes oil wells, tanks, a network of roads and pipelines and other oil-related infrastructure as well as wetland areas, and vegetated and unvegetated flats. The northern portion of the site includes the approximately 32-acre Steamshovel Slough, the only remaining historic remnant wetland area in the Los Cerritos Wetlands. Steamshovel Slough is characterized by tidal channels, mudflats, salt marsh areas and adjacent upland areas. An existing tide gate near the mouth of Steamshovel Slough brings water through a series of pipes into the western portions of the oil field. [Exhibit 19](#) shows all wetlands areas, consistent with the Coastal Act definition, on both parts of the Synergy site.

The proposed restoration on the northern half of the Synergy site will fit into a larger effort to restore substantial areas of the Los Cerritos Wetlands. The LCWA is the lead agency in designing and analyzing alternative design scenarios for the entire Los Cerritos Wetlands complex. Principal goals of the restoration effort include restoring wetland processes and functions to the maximum extent possible and maximizing contiguous wetland areas and minimizing the edge between wetlands and sources of human disturbance. The LCWA is currently engaging in a planning effort with agencies and stakeholders to develop alternative designs for restoration of this and other sites in advance of commencing work on a programmatic EIR. The restoration proposed by BOM in the northern portion of the Synergy site, and considered under this CDP, was designed with input from the LCWA and is consistent with preliminary designs for the broader restoration effort undertaken by the LCWA. Through a land swap, the LCWA would be the eventual owner and manager of the entire Synergy site. Although BOM would implement the restoration work on the northern portion of the site, LCWA would manage the wetlands over the long term. Once the oil facilities have been removed from the southern portion of the Synergy site, LCWA would take ownership of this portion of the site with the intent to restore the southern half of the site once funding is available.

The proposed project would result in permanent impacts to wetlands on the Synergy site. Most of the wetland impacts would result from activities associated with the clean-up and restoration of the northern section of the Synergy Oil Field and connecting both of these

restored areas to the existing Steamshovel Slough. Permanent impacts associated with restoration would result from installation of a sheet pile wall to separate the western portion of the restoration site from the Synergy Oil Field (0.03 acres), installation of a berm to separate the eastern portion of the restoration site from the Synergy Oil Field (2.06 acres), grading of the wetland areas to the north of Steamshovel Slough (1.18 acres), grading of tidal channels in both the western and eastern restoration areas (3.54 acres), and removal of existing berm and road areas to facilitate the tidal connection of the restored areas to Steamshovel Slough (0.45 acres) ([Exhibit 17](#)). Finally, clean-up activities associated with excavation of contaminated soil areas near the berm within the area to be restored would also result in permanent impacts to existing wetlands. However, the proposed excavation areas are within the wetland restoration footprint for tidal channel grading and are thus not quantified separately. See Section F for a more detailed discussion of these activities. In addition to restoration-related impacts, impacts to wetlands would also result from construction of the overlook terrace (0.04 acres) and construction of sidewalks along East 2<sup>nd</sup> Street and the Pacific Coast Highway (0.53 acres). The activities described above will result in permanent impacts to a total of 7.83 acres of wetlands on the Synergy site. [Exhibit 22](#) shows the location of all Coastal Commission wetlands on the Synergy site as well as the location of all wetland impacts areas.

In addition to permanent wetland impacts described above, the proposed project will also result in temporary impacts to wetland areas associated with removal of existing oil and gas infrastructure from the southern half of the Synergy site. Temporary impacts have been determined in previous Commission action to be impacts from disturbance or partial vegetation removal that do not involve excavation or permanent fill and are no longer observable after one year. BOM proposes to remove 95% of all pipelines, tanks and oil production support structures in the first two years of the project and all of the remaining infrastructure including oil wells and associated equipment over a twenty year period. Although most of the oil infrastructure is located on upland or non-wetland areas, some infrastructure is located immediately adjacent to wetlands or traverses over a wetland area (i.e., pipelines). Removing this infrastructure could result in disturbance to adjacent wetland areas from equipment staging or trampling by personnel assisting in the removal work.

#### *City Site*

The existing City site consists of former tidal marsh areas that have been diked and drained and developed with oil production facilities. The western portion of the site has developed into a brackish marsh area that is supported by stormwater runoff from the Marketplace development to the west of the site. Although not part of this proposed project, the LCWA intends to restore this site to wetlands, once all existing oil facilities have been removed and the site cleaned up, as part of a larger effort to restore several sites within the Los Cerritos Wetlands Complex (described in more detail under the Synergy section). The design alternatives currently under consideration for this site include different combinations of tidal and non-tidal wetland habitats and are constrained by the location of the pipeline alignment considered under this application.

Permanent impacts to wetland areas on the City site would result from installation of sidewalks along 2<sup>nd</sup> St. (0.89 acres) and installation of the pipeline corridor (0.31 acres). [Exhibit 23](#) shows wetland areas and impact areas on the City site. The total acreage of wetland impacts resulting from sidewalk installation and construction of the pipeline corridors is 1.2 acres.

Similar to the Synergy site, removal of existing oil and gas infrastructure will result in temporary impacts to wetland areas. Impacts are as described for the Synergy site.

#### *Pumpkin Patch Site*

The Pumpkin Patch site consists of a flat, generally unvegetated plain on the western two thirds of the site and a lower wetland area on the eastern portion of the site adjacent to the City property site. The lower wetland area contains an existing oil well surrounded by pickleweed mats. Although not identified in the EIR, the Commission's biologist Dr. Jonna Engel, determined that an area described as a non-wetland seasonal depression on the upper portion of the Pumpkin Patch site was in fact a wetland, as defined by the Coastal Commission regulations, of approximately 0.03 acres in size.

Proposed construction of the new oil production facility would result in permanent fill of the small wetland on the upper portion of the Pumpkin Patch site (0.03 acres). In addition, as described above for the Synergy and City sites, decommissioning of the single well and removal of associated equipment and structures could result in temporary impacts to surrounding wetland areas.

#### *LCWA site*

The LCWA site does not contain wetland areas.

As described above, the proposed project will result in permanent impacts to 9.06 acres of wetland habitat in the Synergy, City and Pumpkin Patch sites. Projects that include dredging or fill of wetlands must meet the three tests of Coastal Act Section 30233(a). The first test requires that the proposed activity must fit into one of seven categories of uses enumerated in Coastal Act Section 30233(a). The second test requires that there be no feasible less environmentally damaging alternative. The third and last test mandates that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

#### **Allowable Use Test**

The first test set forth above is that any proposed filling, diking, or dredging in wetlands must be for an allowable purpose as specified under Section 30233 of the Coastal Act.

#### *Synergy site*

Most of the proposed wetland impacts proposed on the Synergy site, including impacts from installation of the sheet pile wall and berm, tidal channel grading and berm and existing road removal are necessary to facilitate restoration of the northern portion of the Synergy site and the

introduction of tidal flows into these areas. Thus, these activities meet the allowable use test as restoration, under Coastal Act Section 30233(a)(6).

Proposed transitional wetland grading activities will result in grading of wetland areas to decrease the ground surface elevation from approximately 7 to 10 feet NGVD to 5.1 to 7.1 feet NGVD. Work associated with the overlook terrace would fill existing wetlands to create an upland buffer on the northeastern tip of the site. The intent of the proposed grading is to convert an upland area with some wetland areas into transitional wetland habitat. However, as described in more detail below, elevations ranging from 5.1 to 7.1 feet NGVD are too high to be considered transitional wetlands and are better described as uplands. Thus, the proposed grading will not facilitate restoration of tidal wetland areas. Furthermore, the existing mosaic of upland and wetland habitat provides a buffer to existing adjacent lower wetland areas, habitat for Belding's savannah sparrows and other wetland species and is likely to contribute to the stability of the berm separating Steamshovel Slough from the Los Cerritos Channel. Thus, lowering the elevation of this upland area would impact existing functioning habitat without improving the overall value of the habitat, and could result in structural issues with the berm. Similarly, filling an existing wetland area to provide an upland buffer to adjacent wetlands does not appear to be necessary for flooding, water quality or ecological reasons. For these reasons, the proposed transitional wetland grading and overlook terrace grading are not considered restoration and do not fit into any of the other allowable use categories. Thus, these activities cannot be found consistent with the allowable use test under Coastal Act Section 30233(a). **Special Condition 2** requires BOM to submit revised grading and site plans for the restoration area on the northern portion of the Synergy site that reflect removal of this proposed development.

Installation of sidewalks along 2<sup>nd</sup> St and Pacific Coast Highway was included in the proposed project at the request of the City to ensure public safety for pedestrians and motorists. Currently, members of the public walking to and from the Marketplace commercial district are forced to walk on the road shoulders, creating a significant safety hazard. Installing sidewalks in these areas thus serves an incidental public service purpose and is consistent with the allowable use test under Coastal Act Section 30233(a)(4).

#### *City Site*

Similar to the reasons stated above for the Synergy site, installation of sidewalks meets the allowable use test as an incidental public use purpose under Coastal Act Section 30233(a)(4).

Installation of the pipeline corridor is part of a new or expanded energy facility and thus meets the allowable use test under Coastal Section 30233(a)(1).

#### *Pumpkin Patch Site*

Grading of the Pumpkin Patch site is necessary for the installation of a new or expanded energy facility and thus meets the allowable use test under Coastal Section 30233(a)(1).

### **Alternatives**

The second test set forth in Coastal Section 30233 is that the proposed development must have no feasible less environmentally damaging alternative. The EIR examined several alternatives that are discussed in detail below.



No Project Alternative

The “no project” alternative would maintain the status quo of the existing sites. The Synergy and City sites would continue to operate oil and gas production facilities. Decommissioning of existing oil facilities would not occur and wetlands restoration activities would also not occur on these sites. The Pumpkin Patch would continue to be used seasonally to sell pumpkins and Christmas Trees and the LCWA site would continue to serve as a location for temporary storage and staging. All the described wetland impacts would be avoided. However, the benefits associated with restoring wetlands habitat would not be realized and existing oil infrastructure would continue to degrade the existing wetlands. Therefore, the “no project” alternative is not a less environmentally damaging alternative to the proposed project.

Accelerated Wetlands Restoration Alternative

This alternative would restore wetlands habitat across the entire Synergy site instead of just the northern portion of the site. As a result, the sheet pile wall and berm would not be necessary to separate oil operations from restored areas and these impacts would be avoided. However, according to the EIR, this alternative is not feasible from an economic standpoint as financing for the project relies on continued oil operation on the Synergy and City sites for an up to 20 year period to help fund restoration and construction of the new facilities. Thus, this alternative is not a alternative to the proposed project.

Reduced Development Footprint

The Reduced Development Footprint would limit all new oil operations to either the Pumpkin Patch or LCWA site. Restoration and decommissioning of existing oil facilities would still occur. With development limited to one site, the pipeline would not be necessary, thus avoiding wetland impacts on the City site from construction of the pipeline corridor. However, similar to the alternative above, BOM relies on anticipated revenue from oil production on both sites to make the project economically feasible. Thus, this alternative is not a feasible alternative to the proposed project.

Seasonal Depression Avoidance

This alternative would reduce or reconfigure the area to be developed on the Pumpkin Patch site to avoid impacts to the seasonal wetland area. However, as described in Section B, part of the site preparation work prior to construction of new oil facilities on this site is the removal of a landfill located on the entire western portion of site. Avoiding the wetland would preclude removal of a significant portion of the landfill. Leaving the landfill in place could result in discharges of contaminated water into adjacent wetlands and waterways and could affect stability of the oil operations on the surface. Given the potential severity of impacts associated with leaving the landfill in place, this alternative is not a less environmentally damaging alternative to the proposed project.

### No Pipeline Alternative

This alternative would eliminate construction of the proposed pipeline corridor, thus avoiding all wetland impacts associated with the pipeline. Without the pipeline, oil production facilities on the LCWA and Pumpkin Patch sites would need to operate independently. Each site would need to have its own wells and oil processing facilities. According to the EIR, each site is not big enough to physically accommodate all the necessary equipment and still be economically feasible. Thus, this alternative is not a alternative to the proposed project.

### Alternative Pipeline Alignments

In addition to the proposed alignment, the EIR examined two other potential pipeline alignments. One of the considerations in analyzing the various pipeline alignments is the eventual intended use of the site. As discussed above, LCWA is developing design alternatives for restoration of the site to tidal and non-tidal wetlands. The pipeline alignment alternatives, as well as the proposed alignment are shown in [Exhibit 24](#).

The first alternative would locate the aboveground pipeline corridor on a wider oil service road located on the eastern portion of the City site. This alternative would avoid all wetland and tarplant impacts associated with construction of the pipeline. However, it would maintain the fragmentation of existing habitat and limit future restoration options on the site. Under this alternative, tidal influence would not be introduced to the majority of the site and the areas to the north and west of the pipeline would be isolated from the restored tidal wetlands to the south and east of the pipeline alignment. This is in direct conflict with stated goals of the Los Cerritos Wetlands restoration effort to maximize wetland functions and contiguous wetland areas. Thus, although this alternative would avoid a relatively small area of direct impacts to existing degraded wetlands, it would also preclude optimal future restoration of the site and result in fewer acres of tidal wetland in the future. Furthermore, in locating the pipeline further to the east, closer to the San Gabriel River, the potential for an oil spill to reach the river increases. This could result in substantially more widespread damage to marine waters, habitat and species. Thus, this alternative is not a less environmentally damaging alternative to the proposed project.

The second alternative would locate the pipeline corridor along the western and northern perimeter of the site. Because the pipeline would not be located on existing roads, construction of this alternative would result in additional impacts to existing wetlands, totaling 0.96 acres. However, of all the pipeline corridor alternatives considered, this alternative would maximize future restoration potential on the site once the oil facilities are removed. Locating the pipeline on the inland edge of the site frees up the rest of the site for restoration to tidal or non-tidal wetlands and provides the opportunity for a larger area of contiguous wetlands through channel and habitat connections with restored wetlands on the site to the east. In addition, by locating the pipeline on the portion of the site farthest from the San Gabriel channel and tidal areas, the potential for an oil spill to reach the river and spread to Alamitos Bay and the Pacific Ocean is minimized. The pipeline corridor would still be located adjacent to wetland areas on one side, so the risk

of impacts to wetland areas is not eliminated. Further, because the perimeter pipeline alignment requires a longer pipeline, the magnitude of the worst case spill scenario (i.e., the entire contents of the pipeline spills onto the wetlands) is greater. But, given the location of the pipeline further from marine waters, the magnitude of adverse effects from an oil spill would likely be reduced. Thus, for the reasons described above, the Commission finds that the perimeter pipeline alignment alternative is a feasible less environmentally damaging alternative to the proposed project. To reflect this finding, **Special Condition 3** requires BOM to submit a Perimeter Pipeline Alignment Implementation Plan for the pipeline corridor connecting the Pumpkin Patch site with the LCWA site that incorporates the perimeter alignment. To address concerns related to the increased oil spill magnitude, **Special Condition 3** also requires that BOM add an additional automatic shutoff valve to the pipeline to further minimize the potential volume of an oil spill. With this change, and as conditioned, the perimeter pipeline corridor component of the proposed project meets the second test of Coastal Act Section 30233.

### **Mitigation**

The final requirement of Coastal Act Section 30233(a) is that filling and dredging of wetlands may be permitted if feasible mitigation measures have been provided to minimize any adverse environmental effects. As described above, as proposed, the project would result in direct impacts to 9.06 acres of wetlands. However, based on the findings above, 1.18 acres of transitional wetland grading and 0.04 acres of overlook terrace grading are not allowable uses of wetland fill under Coastal Act Section 30233. **Special Condition 2** requires the Permittee to submit a revised site and grading plans that reflect removal of these impacts from the approved work. Furthermore, as described in the previous section, **Special Condition 3** requires the Permittee to construct the pipeline along the perimeter alignment. This alignment results in impacts to 0.96 acres of wetlands, as opposed to 0.31 acres as proposed. Thus, as conditioned, the proposed project would result in 8.49 acres of permanent wetland impacts. Table 1 shows the breakdown of wetlands impacts at each site.

BOM proposes to mitigate all wetland impacts at the proposed wetlands restoration site on the northern portion of the Synergy site. In general, BOM has proposed a 1:1 mitigation ratio for all impacts associated with the proposed project. While staff concurs that 1:1 mitigation might be appropriate for some areas, higher mitigation ratios are justified in other areas.

The installation of the sheet pile wall and berm would result in 2.09 acres of wetland impacts. In past actions, the Commission has required 4:1 mitigation for allowable conversions of wetlands to uplands. This ratio is appropriate for the sheet pile wall given the total loss of wetland habitat. For the berm, in addition to providing a barrier between the wetland and the adjacent oil field, BOM would design and construct the berm to function as wetland habitat at the lower elevations and transitional and upland buffer habitat at the upper elevations. The wetland side of the berm would be constructed with a 10:1 slope to allow for a gradual transition from wetlands to transition and upland areas.

The design of the shallow sloped berm would also allow for migration of wetland habitat up the berm slope as sea level rises, thus facilitating adaptation of the wetlands. The upland and transition habitat at the higher elevations would serve as foraging and nesting areas for salt marsh bird species, including Belding's savannah sparrows. Of the 2.06 acres of impact from the berm, 0.6 acres, calculated as the surface area under the berm from the wetland edge of the berm to the line where the berm elevation reaches 4.3ft NGVD<sup>2</sup>, would result in restoration of degraded non-tidal low and mid marsh to fully-functional tidal mid and upper marsh areas. The proposed work would also result in substantial restoration and improvement in wetland function and habitat value. As a result, mitigation for these areas is not required. The remainder of the wetland impact from the berm, 1.46 acres, would result in conversion of wetland to upland. However, because the berm would be designed to provide important habitat for wetland species as well as facilitate wetland migration as sea level rises, the Commission finds that a 2:1 mitigation ratio would be appropriate for these impacts.

Impacts associated with tidal channel grading and berm/road removal would result in substantial restoration and improvement of existing non-tidal, disturbed wetlands to higher-functioning tidally influenced wetlands. In addition, tidal channels were designed to avoid existing vegetation to the maximum extent possible. Thus, similar to the wetland portion of the berm described above, additional mitigation for these types of impacts is not necessary to meet the requirements of Section 30233.

For impacts to wetlands from installation of sidewalks and grading at the Pumpkin Patch site, a 4:1 mitigation ratio is necessary to ensure adequate mitigation and also consistent with past Commission actions. Impacts associated with construction of the pipeline corridor also warrant a 4:1 mitigation ratio. Table 1 provides a summary of wetland impacts, mitigation ratios and the resultant mitigation requirement for each wetland impact. The ratios described above and in Table 1 assume that mitigation will take the form of creation or substantial restoration. In the event that BOM proposes to mitigate wetland impacts through enhancement of existing wetland habitat, these mitigation ratios should increase by one and a half times (i.e., if the appropriate mitigation ratio is 4:1 for creation, the corresponding ratio for enhancement would be 6:1). It has been the Commission's practice to require a 4:1 mitigation ratio for wetlands for permitted project-related impacts when mitigation will result in creation or substantial restoration of wetlands. Mitigation ratio considerations include the type of mitigation being undertaken, the mitigation location, the degree of temporal loss of services and function that will occur, and the uncertainty of mitigation success<sup>3</sup>. Higher mitigation ratios are

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<sup>2</sup> 4.3ft NGVD is the maximum elevation of tidal marsh habitat based on hydraulic modeline results. Above 4.3 feet NGVD is transitional habitat and uplands.

<sup>3</sup> In 2007 Ambrose et al. published "An Evaluation of Compensatory Mitigation Projects Permitted Under Clean Water Act Section 401 by the California State Water Resources Control Board, 1991-2002". For this study they reviewed 129 permit files. One of their overall conclusions was that the resulting ecological condition of the mitigation wetlands was very low and that most mitigation projects did not replace the functions lost when the wetlands were impacted.

appropriate when the mitigation will result in enhancement of wetlands because of the reduced level of work required for enhancement and the reduced level of functional improvement associated with the mitigation work.

**Table 1: Wetland Impacts and Mitigation Requirements**

Site and Activity	Area of Impact	Mitigation Ratio	Mitigation Requirements
<b>Synergy Site</b>			
Sheet Pile Wall	0.03	4:1	0.12
Berm - wetland	0.6	N/A	0
Berm - upland	1.46	2:1	2.92
Tidal Channel Grading	3.54	N/A	0
Berm/Road Removal	0.45	N/A	0
Sidewalk	0.53	4:1	2.12
Synergy Subtotal	6.61		5.16
<b>City Site</b>			
Sidewalk	0.89	4:1	3.56
Pipeline Corridor - perimeter	0.96	4:1	3.84
City Subtotal	1.85		7.4
<b>Pumpkin Patch site</b>			
Grading for oil facilities	0.03	4:1	0.12
Pumpkin Patch Subtotal	0.03		0.12
<b>Total Permanent Wetland Impacts</b>	<b>8.49</b>		<b>12.68</b>

**Special Condition 4** requires BOM to submit a Wetlands Mitigation Plan to the Executive Director for review and approval that establishes wetland mitigation ratios as shown on Table 1 and described in the findings above. In addition to establishing mitigation ratios, **Special Conditions 4** and **5** require BOM to describe how proposed restoration work on the Synergy site will satisfy mitigation requirements and establishes performance criteria, monitoring protocols, and reporting procedures to ensure that the plan is implemented and successfully achieves the envisioned wetland habitat benefits. With the addition of these conditions, the project's impacts to wetlands will be mitigated to the maximum extent feasible. If BOM gains approvals from the USACE and other state and federal agencies to establish a mitigation bank on the northern portion of the Synergy site, as it has proposed, the Commission's wetland mitigation requirements would have to be subtracted from the credits available for purchase by other entities.

To ensure that proposed restoration and mitigation activities are preserved as habitat areas into the future, **Special Condition 6** places an open space restriction on the areas within Steamshovel Slough and the northern portion of the Synergy site that will be restored. No development will be allowed in these areas with the exception of activities such as restoration construction work, monitoring and maintenance of habitat areas, invasive plant removal and other restoration maintenance activities, fence repair and future removal of the sheet pile wall. To further ensure the restored areas remain in a

natural state, **Special Condition 7** requires BOM to record a deed restriction against the restored areas on the northern portion of the Synergy site indicating that the Commission has approved development that restricts the use and enjoyment of the property for as long as the permit or the development it authorizes remains in existence.

In addition to permanent impacts, the proposed project would result in temporary impacts to wetlands. Temporary impacts could arise from decommissioning and removal of oil facilities, construction of new facilities and restoration-related work in areas immediately adjacent to wetlands. To address these impacts, BOM submitted an Ecological Restoration Plan that specifically addresses minimizing impacts to wetlands and vegetation during removal of oil field infrastructure including pipelines, tanks and wells. The Ecological Restoration Plan includes provisions for pre-removal mapping of native and non-native vegetation, identification of least damaging access points and routes, identification of excavation requirements and minimum-impact removal methods, and quantification of unavoidable impacts. The elements included in this plan are important, but do not go far enough to ensure that any impacts to adjacent wetlands are minimized and temporary. To ensure that any temporary wetland impacts from removal of oil facilities are adequately mitigated, **Special Condition 8** requires that BOM submit a Biological Resource Protection Plan that is substantially similar to the Ecological Restoration Plan but also includes several additional requirements including: (1) Pre-Construction Surveys that map existing wetland areas, infrastructure to be removed and ingress/egress routes, (2) Post-Construction Surveys that use the same methods as employed for the Pre-Construction Survey to map the boundaries of wetland areas and vegetation one year after completion of the oil facility removal work, (3) Success criteria used to compare the pre- and post-construction surveys to determine if impacts persist. If, after one year, impacts to wetlands remain, those impacts would be considered permanent and BOM would be required to apply for an amendment to the permit to address these additional impacts. In addition, **Special Condition 9** requires BOM to submit a revised Decommissioning Plan for Existing Facilities that ensures that existing oil facilities are removed in a timely manner and that final clean-up of the site is accomplished within the proposed 20-year timeframe.

In addition to addressing impacts from decommissioning of existing oil facilities, the Commission requires several other special conditions to ensure wetland areas are protected and any temporary impacts are minimized during construction of new facilities and restoration work. **Special Condition 10** requires BOM to submit a plan to protect Steamshovel Slough from water quality impacts associated with breaching the berm and connecting newly restored areas. **Special Condition 11** requires BOM to develop a Pollution Prevention and Construction Responsibilities Plan to control stormwater runoff and erosion from impacting adjacent areas during construction and to report any events where BMPs did not prevent adverse impacts to wetlands or coastal waters and the measures taken in response to these events. **Special Condition 8** requires BOM to conduct pre-construction surveys to establish existing boundaries of wetland areas. Finally, **Special Condition 8** requires BOM to hire a biologist to conduct biological monitoring during construction activities to ensure that mitigation measures are implemented properly and impacts to adjacent areas, including wetland areas, are

avoided. In the event that unanticipated wetland impacts occur, BOM will be required to amend this CDP to address these impacts and fully restore any disturbed wetlands to its pre-project conditions. Implementation of these mitigation measures will ensure that indirect impacts to wetland areas from nearby construction areas will be minor and temporary.

Finally, the proposed project includes installation of the proposed pipeline under the corner of Studebaker Rd. and 2<sup>nd</sup> St. using a jack and bore or horizontal directional drilling (HDD) technique. Both these methods use bentonite, a non-toxic drilling fluid, to lubricate the drill bit when drilling. Jack and bore and/or HDD activities could result in the inadvertent release of drilling fluids (i.e., frac-out) onto wetland areas above the bore path. Although it does not pose an acute toxicity threat, bentonite releases can smother benthic organisms and contribute to increases in turbidity. To minimize the potential impacts associated with a frac-out, **Special Condition 12** requires BOM to submit an Inadvertent Release Contingency Plan for all jack and bore/HDD activities that includes: (1) identification of a worst case spill scenario, (2) identification of entry and exit pits, (3) measures describing personnel training, (4) a frac-out monitoring plan, and (5) protocols to address a frac-out. If a frac-out occurs and does result in temporary impacts to wetlands, these impacts would be addressed under the Biological Resource Protection Plan required by **Special Condition 8**.

With these conditions incorporated, the proposed project provides adequate mitigation for both permanent and temporary wetland impacts and thus, the Commission finds that the third test of Coastal Act section 30233(a) has been met.

For the reasons described above, the Commission finds the project, as conditioned, consistent with Coastal Act Section 30233(a).

## **F. BIOLOGICAL RESOURCES AND WATER QUALITY**

Coastal Act Section 30240 states that:

*(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

In addition, Coastal Act Section 30107.5 defines "Environmentally sensitive area" as follows: *"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

Section 30230 of the Coastal Act states:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act states:

*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

See Appendix B, Policies A.1-2 ( p. 1); A.5-6 (p. 2); D.8 (p. 13-15) for applicable LCP policies

The proposed project involves development on four sites, the Synergy site, City site, Pumpkin Patch site and LCWA site. All four sites were part of the historic Los Cerritos Wetlands, a vast network of marshes, mudflats, tidal channels and supporting habitats. Development over the last century and a half has resulted in the conversion of most of the Los Cerritos Wetlands into residential, commercial and industrial development. There are, however, a few remnant wetland areas remaining, including the relatively pristine Steamshovel Slough on the northern portion of the Synergy property. The remainder of the Synergy property as well as the City and portions of the Pumpkin Patch site support disturbed wetland habitat and associated transition and upland habitat. All of these sites provide known or potential habitat for a variety of native or sensitive species.

The proposed project includes the removal of oil facilities and infrastructure, excavation and grading activities, and the restoration of wetland areas, all of which have the potential to result in impacts to biologically significant species and habitats, both terrestrial and marine.

### **Terrestrial species and habitats**

The Synergy and City sites support a mosaic of wetland and upland habitats interspersed with roads, pipelines and other disturbed areas that support oil production at these sites. The Pumpkin Patch consists largely of a non-vegetated, flat area, although the lower, eastern portion of the site supports salt marsh habitat surrounding oil infrastructure. The LCWA site supports only a small amount of upland vegetation, largely consisting of Aleppo pine (*Pinus halepensis*) stands, but is otherwise flat and devoid of vegetation. [Exhibit 25](#) shows the existing vegetation cover at all four sites. The sites also contain several sensitive natural communities, including California cordgrass marsh, Parish's glasswort patches, Southern tarplant patches, alkali heath marsh, pickleweed mats, and Southern coastal brackish marsh.



To further characterize the plant and wildlife species on all four sites, BOM conducted a biological study that included a search of the California Natural Diversity Database (CNDDDB) and plant and wildlife surveys to detect the presence of sensitive species. The results of this study were reported in the EIR. The CNDDDB search indicated several special-status plant species that are either found on the site or have the potential to be found on the site. These include estuary seablite (*Suaeda esteroa*), salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*), Southern tarplant (*Centromadia parryi* ssp. *australis*), southwestern spiny rush (*Juncus acutus* ssp. *Leopoldii*), Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), and wooly seablite (*Suaeda taxifolia*). Plant surveys on the four sites confirmed the presence of estuary seablite, Southern tarplant and wooly seablite. [Exhibits 26-28](#) show the locations of these species within the project area.

The CNDDDB also indicated several special-status wildlife species that are either found on the site or have the potential to be found on the site. These include invertebrates such as the mudflat tiger beetle (*Cicindela trifasciata sigmoidea*), salt marsh wandering skipper (*Panoquina errans*), and San Diego fairy shrimp (*Branchinecta sandiegonensis*); reptiles such as the Pacific green sea turtle (*Chelonia mydas*); birds such as the American peregrine falcon (*Falco peregrinus anatum*), Belding's savannah sparrow (*Passerculus sanwicensis beldingi*), burrowing owl (*Athene cunicularia*), California black rail (*Laterallus jamaicensis coturniculus*), California brown pelican (*Pelencanus occidentalis californicus*), California least tern (*Sternula antillarum browni*), Ridgeway's rail (*Railus obsoletus*), Northern harrier (*Circus cyaneus*), Short-eared owl (*Asio flammeus*), Western snowy plover (*Charadrius alexandrines nivosus*), and white-tailed kite (*Elanus leucurus*); and mammals such as the south coast marsh vole (*Microtus californicus stephensi*) and the Southern California salt marsh shrew (*Sorex ornatus salicornicus*). Of the species listed above with a potential to be present on one or more of the project sites, field surveys were able to document the presence of Belding's savannah sparrows, California least terns, mudflat tiger beetle, and white-tailed kites.

The proposed project includes wetland restoration activities, oil facility decommissioning activities and construction of new oil and gas production facilities that could result in adverse impacts to flora and fauna on all four project site.

### *Flora*

Several special-status species have been documented in the project area and have the potential to be adversely impacted by proposed project activities. Southern tarplant is an annual herb (CNPS Rank 1B.1) that has been documented on the Synergy, City and Pumpkin Patch sites (see [Exhibits 26-28](#)). Within the project area, Southern tarplant was found in disturbed areas, including road edges, and the edges of well and tank pads. According to the EIR, surveys of the Synergy site have documented large ranges of Southern tarplant from 5,500-8000 individuals surveyed in 2016 to approximately 279,000 individuals in 2015. On the Pumpkin Patch site, surveys documented about 155 individuals in 2016 that were associated with shallow seasonal depressions on the site. On the City site, Southern tarplant occurs along the road edges and other oil facility areas. Surveys between 2011 and 2013 estimated between 200 and 400 plants were present on the site. Estuary seablite, a perennial shrub (CNPS Rank 1B.2) has been documented in the mid- to upper-marsh areas on berms and slopes within Steamshovel Slough. Wooly

seablite, also a perennial shrub (CNPS Rank 4.2) was also documented on the upper marsh areas and berms surrounding Steamshovel Slough.

On May 5, 2017, Commission biologist, Dr. Jonna Engel, conducted a site visit on all four project sites to determine if Environmentally Sensitive Habitat Areas (ESHA) were present on the sites. Dr. Engel's memo documenting her findings is included as Appendix C. Dr. Engel confirmed that the LCWA site does not contain wetlands or any species or habitats that meet the definition of ESHA. On the Synergy site, Dr. Engel confirmed the presence of Southern tarplant, finding that it occurs in both wetland and non-wetland areas. She determined that three populations on the property, characterized by "large patches or a large number of small concentrated patches of tarplant" rise to the level of ESHA because of "their size or number of patches, the health of the plants, and the proximity to each other." These areas of ESHA on the Synergy site are shown in purple circles on Figure 8 of Appendix C. Areas of estuary seablite and wooly seablite were not observed directly but are also likely to be considered ESHA.

On the City site, Dr. Engel observed that Southern tarplant occurs within areas of native alkali meadow, mulefat scrub, and coastal brackish marsh, as well as in scattered populations surrounding existing roads and infrastructure. She found that,

*...the bulk of the southern tarplant population on the City Property that is associated with the alkali meadow, mulefat scrub and coastal brackish marsh is thriving and unfragmented and therefore rises to the level of ESHA. However, the scattered individuals around the tank farm and oil infrastructure are fragmented within a very disturbed area with poor soil and therefore do not rise to the level of ESHA.*

Finally, on the Pumpkin Patch site, Dr. Engel confirmed the presence of a Southern tarplant population associated with seasonal wetlands on the south-east corner of the upper area of the site. She also observed scattered patches of individual Southern tarpants on other portions of the site. Dr. Engel determined that the population of Southern tarplant on this site is small and fragmented and isolated from other populations in the area. Furthermore, the small patch of Southern tarplant is located on an extremely degraded site consisting of compacted fill on top of a former landfill. Thus, the site is not suitable for "supporting a persistent, self-sustaining Southern tarplant population." She therefore concluded that the Southern tarplant on the Pumpkin Patch site does not meet the definition of ESHA.

The proposed project could result in adverse impacts to individuals and patches of Southern tarplant, estuary seablite and wooly seablite. On the Synergy site, grading associated with the excavation of tidal channels in the northern portion of the site would result in direct impacts to a portion of a large patch of Southern tarplant designated as ESHA by Dr. Engel. Construction of the berm would also impact a small population of Southern tarplant that does not rise to the level of ESHA. All grading activities have been designed to avoid estuary and wooly seablite. On the southern portion of the site as well as the City site, decommissioning and removal of oil infrastructure have the potential to result in impacts to Southern tarplant, given the location of individuals and patches on or adjacent to the concrete pads supporting oil infrastructure.

The purpose of the activities described above is to restore portions of an oil field to tidal wetlands, or remove existing oil infrastructure in preparation for restoration. Ultimately, the proposed activities will improve the habitat value of the area and open up additional areas for colonization by Southern tarplant and other native species. Restoration is a resource-dependent use and therefore a use allowed in ESHA and thus, these impacts to ESHA may be authorized under Coastal Act Section 30240. However, ESHA must still be protected against any significant disruption of habitat values by siting and designing development to avoid ESHA impacts to the extent feasible and otherwise by fully mitigating those impacts. To achieve this requirement, **Special Condition 8** requires pre-construction biological surveys to identify and map any patches of special-status species on a particular project site. Following the survey on each site, a report including survey results, a map of all wetlands, sensitive habitat areas and special status species, and a list of recommended mitigation measures and/or monitoring protocols shall be submitted to the Executive Director for review and approval. **Special Condition 8** also requires that biological monitoring be conducted during project-related activities to ensure that biological resources including wetlands, sensitive habitat areas and special status species are protected. Finally, **Special Condition 13** requires that BOM submit for review and approval by the Executive Director, a Southern Tarplant Restoration and Mitigation Plan. This Plan shall include a description and map of all impacted Southern tarplant, a requirement to mitigate all impacts to Southern tarplant at a 1:1 or 3:1 (restored:impacted) ratio (depending on the ESHA status of the respective Southern tarplant population), a detailed site plan of a proposed mitigation site, a planting plan, performance standards and monitoring, adaptive management and reporting protocols.

In addition to the direct impacts described above, restoration construction and oil facility decommissioning activities have the potential to result in indirect impacts to Southern tarplant, estuary seablite and wooly seablite from increased erosion associated with construction activities and specifically, breaching of the existing berm. To minimize the potential for indirect impacts related to construction, **Special Condition 11** requires BOM to implement a Pollution Prevention and Construction Responsibilities Plan that includes measures to minimize pollution and erosion from construction activities. Furthermore, **Special Condition 10** requires that BOM implement a Pollution Prevention Plan that is specific to Steamshovel Slough. The Plan will need to include measures to ensure that sediment is controlled as tidal waters are introduced into new areas and includes monitoring protocols to verify that existing habitat is protected.

### *Fauna*

Proposed project activities could also adversely impact special-status wildlife species. Several special-status species have been documented, or would be likely to be found in or in the vicinity of Steamshovel Slough. These include the Pacific green turtle, several species of invertebrates including the mudflat tiger beetle and the wandering skipper, several bird species, including Belding's savannah sparrows, burrowing owls, California least terns and white-tailed kites, and mammals including the South Coast marsh vole and the Southern California salt marsh shrew. Portions of the three other project sites, and the southern half of the Synergy site also have the potential to contain limited amounts of habitat that support special-status species. The proposed project would result in direct impacts to Belding's savannah sparrow habitat. [Exhibit 29](#) shows the location of Belding's savannah sparrow habitat within Steamshovel Slough based on focused surveys conducted in 2017. Activities associated with restoration of the

northern section of the Synergy site, south of Steamshovel Slough, including installation of the sheetpile wall, and grading and construction of the restoration area would result in direct impacts to occupied habitat of 3.673 acres. However, restoration activities, including the introduction of new habitat areas suitable for Belding's Savannah Sparrow will result in a significant net increase in available habitat. Thus, loss of occupied habitat will be a temporary impact. To address potential impacts to individual nests occupied by Belding's Savannah Sparrow or other bird species, the Commission included **Special Condition 8** which requires a pre-construction survey to identify any nesting birds in the project area. If a nest is identified, BOM would be required to submit an action plan to the Executive Director demonstrating that adequate measures are in place, including buffer zones and limits on construction, to ensure impacts to nesting birds are minimized.

Project-related activities could also result in direct impacts to special-status invertebrate and mammal species. Invertebrates including the mudflat tiger beetle and the wandering skipper are generally found in areas within the Slough and in other project areas that support saltgrass. The South Coast marsh vole and the Southern California salt marsh shrew have not been observed in the project area, but areas within Steamshovel Slough provide suitable habitat for these species. Grading associated with restoration activities could result in direct loss to some individuals of invertebrates and temporary loss of habitat for both invertebrates and mammals. However, given the limited area of grading and the much larger area of suitable habitat that would be protected within Steamshovel Slough, impacts to these species would not likely cause a significant population level effect and are therefore minor and temporary. Furthermore, **Special Condition 8** would require pre-construction surveys and biological monitoring that would ensure that impacts to individuals are avoided to the extent feasible.

In addition to the potential direct impacts described above, special-status wildlife species could be subject to temporary impacts associated with construction and decommissioning activities. Potential indirect impacts could result from construction-related noise, lighting, dust, erosion and temporary displacement from foraging habitat. To minimize these impacts, **Special Condition 11** requires BOM to develop and implement a Pollution Prevention and Construction Responsibilities Plan that includes measures to minimize pollution, erosion, light, noise, dust and other construction-related impacts. Furthermore, **Special Condition 10** requires that BOM implement a Pollution Prevention Plan that is specific to Steamshovel Slough. The Plan shall include measures to ensure that sediment is controlled as tidal waters are introduced into new areas and includes monitoring protocols to verify that existing habitat is protected. Finally, sensitive habitats and species could be vulnerable to disturbance from ongoing operations of the proposed oil and gas facilities as well as public access associated with the Visitor Center and proposed trails. Operation of new oil facilities and well drilling, including the office building, warehouse and parking lot could result in disturbance to nearby sensitive species and habitats related to lighting, noise, vibration and other similar impacts. The proposed office building and storage warehouse on the Pumpkin Patch site would have exterior building lights that could affect wetlands and sensitive habitat nearby. The parking lot and oil facility areas may also require lighting that could adversely affect habitat areas. Furthermore, noise and vibration from drilling or other oil facility-related operations could disturb wetlands and other habitat areas in close proximity to either the Pumpkin Patch or LCWA site. These issues are also addressed in the revised amendment to SEADIP, which required a series of restrictions related to lighting,

exterior noise levels and working hours. As part of the Development Plan submitted by BOM on September 28, 2018 was a Report called “Measures to Prevent or Reduce Nuisance Effects.” This Report compiled all the relevant standards from the EIR, LCP and Coastal Act on lighting, noise, vibration and other nuisance categories. However, the Plan did not describe specific measures that will be implemented to meet the various requirements listed in the Report. To ensure that impacts associated with light, noise and vibration associated with oil facility operations are adequately minimized, **Special Condition 14** requires that BOM develop a Revised Nuisance Minimization Plan. This Plan would incorporate restrictions on lighting, noise, vibration and other factors that are included in the September 2018 Measures to Prevent or Reduce Nuisance Effects Report but also requires that BOM include additional lighting restrictions, a detailed Implementation Plan, demonstrating how BOM would achieve the restrictions outlined in the Plan, and a post-Installation Plan verifying that all project components were installed in compliance with the Plan.

The introduction of public access and recreation on to the Synergy site could also result in disturbance to sensitive species and habitats. As described above, Steamshovel Slough is recognized as one of the last remnant, relatively pristine salt marsh habitats left in the Los Angeles region. Part of the reason it has been able to persist and thrive is likely because it is on a private oil production facility where public access is restricted. The proposed project also adds a Visitor Center, trails, and picnic facilities on the lower portion of the Synergy site and a trail on the higher elevation upland area on the east side of the site (on the site of the former landfill). The facilities on the southern portion of the Synergy site are all sited on existing disturbed areas that are relatively far away from Steamshovel Slough and proposed restored areas on the northern portion of the site. The proposed berm and sheetpile wall will also provide protection to the habitats on the north side of the site. The public access element that could have the most potential to result in disturbance to sensitive species and habitats is the trail on the east side of the site. The trail is sited at a much higher elevation than Steamshovel Slough and the surrounding habitat areas, and will provide an opportunity for the public to view the entire Slough from a higher vantage point. To ensure protection of the habitats, the public will not be allowed to go down into the wetlands and surrounding transition and upland habitat areas. Even though the trail is sited to minimize impacts, there is still a potential for impacts associated with noise, trash, development of volunteer trails and other potential disturbances to sensitive species and habitats. To address these concerns, **Special Condition 15** requires BOM to develop a Management and Maintenance Program for Public Access, Recreational Use, and Open Space Area. This Program would need to define appropriate restrictions on hours, locations, number of persons allowed on all public access features and group activities that minimize the potential for impacts to sensitive species and habitats. The Program would also identify measures such as signage, wildlife-friendly fencing or barriers and/or public education to ensure successful implementation of these measures.

With these measures in place, ESHA will be protected against any significant disruption of habitat values. In instances where impacts to ESHA are necessary to restore the surrounding habitat, impacts will be minimized and fully mitigated. Furthermore, proposed activities include sufficient measures to ensure that impacts to ESHA are avoided.

### **Marine Resources and Water Quality**

As described in detail above, the northern portion of the Synergy site encompasses Steamshovel Slough, a tidally-influenced channel and surrounding wetland area that drains into the Los Cerritos Channel and then into Alamitos Bay and the Pacific Ocean. A tide gate and a series of pipes allow tidal water into a small area of the western portion of the Synergy site near existing oil operations. To the east and south of the project areas is the San Gabriel channel which flows south towards Alamitos Bay and the Pacific Ocean ([Exhibit 30](#)).

Most of the special status species and habitats in the project vicinity that could be affected by proposed project activities are located in coastal wetland areas, including Steamshovel Slough, but also on the Pumpkin Patch, City and southern portion of the Synergy site. Impacts to these species and habitats have been addressed above. However, project-related activities could also result in impacts to marine species observed near the project site, including marine reptiles such as the Pacific green sea turtle (*Chelonia mydas*) and fish species such as topsmelt (*Atherinops affinis*), arrow goby (*Clevelandia ios*) and California killifish (*Fundulus parvipinnis*). In addition, because Steamshovel Slough has a direct connection to the ocean, project-related water quality impacts could affect other marine species much farther away from the project site. The most significant water-quality related impacts associated with the proposed project are likely to stem from increased sedimentation associated with construction activities and exposure to hazardous material or contaminated sediments.

#### *Erosion*

Construction and operation of new oil production facilities, decommissioning of existing oil production facilities and restoration work could result in erosion and increased sedimentation of marine waters. Elevated levels of suspended sediment or other pollutants can cause mortality, illness or injury of fish species by interfering with feeding, growth, and habitat. To avoid these adverse impacts, it is critical to control the erosion at the source. Construction and decommissioning activities can also result in accidental discharges of other pollutants including chemicals, paints, vehicle fluids, petroleum products, asphalt and cement compounds, debris, and trash. To minimize impacts from these types of construction-related discharges, **Special Condition 11** requires BOM to submit a Construction and Pollution Prevention Plan that includes Best Management Practices (BMPs) for controlling sediment and preventing discharge off-site or into marine waters, controlling discharge of other pollutants including fueling and maintenance practices, and management of construction materials and debris. Implementation of the Construction and Pollution Prevention Plan will ensure that construction and decommissioning-related erosion and discharge of pollutants will be minimized. For the post-construction operation of the four sites, **Special Condition 16** requires BOM to prepare a Water Quality Management Plan that described the drainage plan, runoff controls and BMPs to manage sediment on each site. With these conditions in place, impacts to marine resources from erosion and stormwater-related discharge during construction and operation of the proposed oil production facilities will be minor.

Restoration activities in the northern portion of the Synergy site have the potential to result in increased erosion from channel construction and breaching of the existing berm. The introduction of tidal flows into a new area is likely to result in an increased flush of sediment from the newly restored area into the existing tidal areas over the first few days and even months

as the system comes to equilibrium. This flush of sediment, if not controlled, could result in adverse impacts to sensitive coastal and marine habitats in Steamshovel Slough. BOM proposed several potential erosion control measures that could be used to minimize the flow of sediment into the Slough. However, given the sensitivity of the habitat in the Slough, additional measures are needed to ensure impacts are avoided. Thus, the Commission requires **Special Condition 10** that requires BOM to submit for Executive Director review and approval a Pollution Prevention Plan specific to Steamshovel Slough. The Plan shall include a detailed timeline, phasing plan and staging plan for breaching of the berm. The Plan must also specify which erosion control measures will be in place to control sediment flow in an aquatic environment. These measures may include silt fences, silt curtains, coffer dams or other measures. The Plan shall also include a detailed monitoring plan that provides baseline water quality data, monitoring protocols and turbidity thresholds. If threshold are exceeded, the Plan shall include immediate remedial measures that can be taken and a directive to stop work until the issue can be addressed. With this condition in place, impacts to Steamshovel Slough will be temporary and minor.

#### *Hazardous Materials*

The proposed project could lead to the release of hazardous materials that could migrate into sensitive coastal areas and marine waters. The proposed project includes excavation and grading within potentially contaminated areas on the Synergy, City and Pumpkin Patch sites. As described, these sites have been operated as an oilfield since the later 1920's. BOM conducted a Phase I Environmental Site Assessment to describe the site history and assess the potential for contamination on the Synergy site. As reported in the EIR, the ESA documented that historically, it was common practice to excavate a sump adjacent to an oil well for temporary storage of produced oil, water and drilling muds. The drilling mud was likely left in the sump and backfilled. The Synergy/City site likely contains several of these backfilled sumps, which could contain elevated concentrations of petroleum products and other pollutants. There have also been four documented releases of oil or grease on the site between 2006 and 2010, resulting in releases ranging from less than one barrel to 10 barrels. Several other older site investigations and cleanups were also documented in the ESA. The ESA also documented a closed landfill on the eastern portion of the site. The landfill, called the Studebaker/Loynes Disposal Site was a Class II landfill that accepted household and commercial refuse, but not hazardous waste. Approximately 160,000 cubic yards of waste were landfilled before it was capped and covered with soil in 1980. The Synergy and City sites also have a history of PCB releases and cleanups near transformer locations. To address the releases, several site assessments and remedial excavations were performed in 2009 and 2010. At the direction of the U.S. Environmental Protection Agency, all soils having PCB concentrations above 1 mg/kg were removed and disposed of offsite.

Based on the results of the ESA, BOM conducted additional soil testing at the Synergy and City sites in 2016 and 2017. Sampling was conducted at seventeen locations on the Synergy and City sites ([Exhibit 31](#)). Results of these investigations (approved under 9-16-0947-W and 9-17-0579-W) found elevated concentrations of total petroleum hydrocarbons (TPH) and other chemicals at a four locations, HA-3, HA-5, HA-12 and HA-17. Three of these locations are associated with existing or former storage tanks farms. In general, samples exceeded screening levels for TPH, with some samples also exceeding thresholds for naphthalene, lead and arsenic (although arsenic

concentrations were determined to be within background levels for Southern California). Step-out sampling was conducted at each of these locations to assess the extent of contamination.

On the Pumpkin Patch site, the ESA documented land uses including oil production and a closed landfill. The site contains one active well on the eastern portion of the site that may contain former sump areas. The western portion of the site is a former landfill, called the City Dump and Salvage #2 that accepted household and construction waste but not liquids or hazardous waste. The landfill was closed and capped in 1961. Soil and groundwater investigations conducted in 2016 found numerous detections of TPH and Volatile Organic Compounds (VOCs) within the landfill trench, including some samples above the industrial environmental screening level (ESL). Groundwater samples also indicated elevated levels of TPH and VOCs.

To address known and potential areas of contamination, BOM proposes to excavate and remove contaminated soil. BOM proposed excavating approximately 24,000 tons of soil to a depth of approximately 6 to 7 feet below ground surface to address contamination at all four sites described above. However, according to the EIR, because the lateral limits of the petroleum hydrocarbon contamination has not been adequately defined, the volume of soil may be larger than estimated. The bulk of the proposed excavation would be conducted on the southern portion of the Synergy site, but on the northern portion of the site, the contaminated areas near the existing berm (HA-12) would result in approximately 200 tons of soil excavated and removed. At sampling location HA-9, a former dump area used for disposal of oil filters, horsehead pumping units and other oil facility debris, sampling indicated elevated levels of lead and zinc at and just below the surface. BOM proposes to excavate an area 100 feet by 40 feet to a 2 foot depth to remove the contamination. BOM also anticipates needing to excavate additional areas of contamination on the City site. The specific locations and size of these excavations have not been determined. All soil would be disposed of at an appropriate facility. In addition to excavating areas of contamination within the Synergy and City sites, BOM also proposes to remove the landfill from the Pumpkin Patch site prior to site preparation, grading and construction of oil facilities on the site. Removal of the landfill would remove a potential source of contamination and would be conducted under direction of the RWQCB.

BOM presented the sampling results for HA-9 and HA-12 to an Interagency Review Team (IRT), a multi-agency group that is reviewing the proposed restoration of the northern portion of the Synergy site for consideration as a mitigation bank. The IRT includes representatives from Coastal Commission staff, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, NOAA's National Marine Fisheries Service and the California Department of Fish and Wildlife. The IRT provided direction to BOM that the sampling conducted in 2016 and 2017 was insufficient to determine the extent of contamination and whether proposed remediation (i.e., excavation) was sufficient to clean-up the contamination in advance of restoring tidal influence to this area. Because this area will be restored to tidal wetlands, it is important to ensure that contamination is cleaned up to a level that is protective of sensitive species and habitats in Steamshovel Slough and adjacent tidal waters. In response to the IRT's direction, BOM has proposed additional sampling in the northern portion of the Synergy site. Similarly, although not reviewed by the IRT, the same conclusion can be drawn about sampling efforts on the City site, including the need for additional sampling to fully assess the extent of contamination and determine appropriate remedial actions. Furthermore, the



RWQCB, the agency that will direct any clean-up efforts, has not yet fully reviewed the sampling analysis or determined what the appropriate course of action should be under its applicable regulations. Clean-up of contaminated areas is a critical component to the restoration of wetland areas in and around Steamshovel Slough. However, to be consistent with Coastal Act Sections 30230 and 30231, these activities must be conducted in a manner that protects marine resources and water quality.

To ensure that clean-up efforts are sufficient to remove contamination to sufficiently protective levels, **Special Condition 17** requires BOM to submit a Contaminated Soil Investigation and Removal Plan to the Executive for review and approval. The Plan will need to be developed in consultation with appropriate agencies, and include a description and results of all sampling activities, identification of appropriate clean-up thresholds that are protective of existing coastal waters and habitats and reflect the ultimate use of the site as tidally-influenced wetlands, proposed excavation and other remedial actions, avoidance and minimization measure to ensure the protection of Steamshovel Slough and the surrounding coastal water, and a post-remedial sampling protocol to ensure clean-up standards are achieved. The Plan also requires BOM to identify any impacts to wetlands, Southern tarplant or other sensitive species. Section E (Dredging and Fill of Wetlands) addresses potential impacts to wetlands from excavation of the HA-9 and HA-12 area, which are within the excavation footprint for the proposed tidal channels. However, although the EIR did describe excavation footprints and surface areas for other potential excavation areas on the Synergy site, these estimates are not final and it is likely that the specific location, volume and surface area of these estimates will change after further review by the appropriate agencies. Thus, if proposed remedial actions result in impacts to coastal waters, wetlands or sensitive species that are not addressed in Section E, BOM would be required to submit an application to amend the CDP. With inclusion of **Special Condition 17**, clean-up of contaminated areas on the Synergy and City sites will be conducted in a manner that maintains, enhances and restores marine resources and maintains the biological productivity of coastal waters.

On the City site, removal of the existing landfill as proposed will ensure that marine resources are protected. Existing contamination on the site includes methane, various sulfur compounds, fuel compounds and other pollutants. Migration of these pollutants from the site could occur through groundwater or as a vapor. To address these concerns, BOM will remove approximately 63,000 cubic yards of dry and wet trash from the site. The excavation area would be filled with clean soil and then graded before construction of the proposed oil facilities would commence. To ensure that landfill removal is conducted in a manner that protects nearby coastal waters and marine resources, **Special Condition 11** requires BOM to develop and implement a Construction Pollution and Prevention Plan that requires the implementation of BMPs to control erosion and other potential discharges from the site during landfill removal and other construction activities.

The proposed project also includes the decommissioning and removal of pipelines, tanks, wells and other oil facilities that could contain hazardous materials. These materials could include asbestos-containing materials (ACM), lead-based paint (LBP), Naturally Occurring Radioactive Material (NORM) and petroleum products. The South Coast Air Quality Management District regulates the removal of ACM and LBP and would require BOM to prepare a Management Plan for removal of these contaminants. Removal of pipelines would be conducted in accordance

with DOGGR and the Department of Toxic Substances Control (DTSC) regulations. If pipelines test positive for (NORM), they would be segregated and transported to a landfill permitted to accept NORM materials. Any fluid from the pipeline would be flushed into vacuum trucks. All pipeline handling, cutting and disposal would be conducted on top of tarps and other spill containment equipment. Tanks would be isolated from all facilities to avoid accidental spills and tested for NORM before being disposed of at an appropriate facility. To further ensure that existing oil facilities are removed in a manner that protects marine resources, **Special Condition 11** requires implementation of a Construction and Pollution Prevention Plan which requires BMPs for containment and removal of construction-related materials and implementation of spill prevention equipment and procedures. With compliance with existing regulations and **Special Condition 11** in place, decommissioning and removal activities will be conducted in a way that is protective of marine resources.

For the reasons described above, the proposed project, as conditioned, will ensure that water quality impacts from increased sedimentation and interaction with hazardous materials will be minimized and project activities will be implemented in a manner that protects marine resources and maintains the biological productivity of coastal waters. In addition, coastal waters and ESHA will be protected against any significant disruption of habitat values. In instances where impacts to coastal waters and ESHA are necessary to restore the surrounding habitat, impacts will be minimized and fully mitigated. Thus, the Commission finds the proposed project consistent with Sections 30230, 30231 and 30240 of the Coastal Act.

## G. OIL AND GAS DEVELOPMENT

Section 30262 of the Coastal Act states:

- (a) *Oil and gas development shall be permitted in accordance with Section 30260, if the following conditions are met:*
- (1) *The development is performed safely and consistent with the geologic conditions of the well site.*
  - (2) *New or expanded facilities related to that development are consolidated, to the maximum extent feasible and legally permissible, unless consolidation will have adverse environmental consequences and will not significantly reduce the number of producing wells, support facilities, or sites required to produce the reservoir economically and with minimal environmental impacts.*
  - ...
  - (5) *The development will not cause or contribute to subsidence hazards unless it is determined that adequate measures will be undertaken to prevent damage from that subsidence.*
  - (6) *With respect to new facilities, all oilfield brines are reinjected into oil-producing zones unless the Division of Oil, Gas, and Geothermal Resources of the Department of Conservation determines to do so would adversely affect production of the reservoirs and unless injection into other subsurface zones will reduce environmental risks. Exceptions to reinjections will be granted consistent with the Ocean Waters Discharge Plan of the State Water Resources Control Board and where adequate provision is made for the elimination of petroleum odors and water quality problems.*

*(b) Where appropriate, monitoring programs to record land surface and near-shore ocean floor movements shall be initiated in locations of new large-scale fluid extraction on land or near shore before operations begin and shall continue until surface conditions have stabilized. Costs of monitoring and mitigation programs shall be borne by liquid and gas extraction operators.*

See Appendix B, Policies A.13-14 (p. 3); D.1-8 (p. 9-15) for applicable LCP policies

BOM proposes to construct two new oil and gas production facilities and a connecting pipeline. These facilities are subject to the portions of Coastal Act Section 30262 that are applicable to onshore oil and gas facilities. These policies require consolidation of any new or expanded facilities as well as ensuring that the development is designed to address geologic conditions and hazards at the site.

### **Consolidation**

Coastal Act Section 30262(a)(2) requires that new or expanded oil facilities be consolidated to the maximum extent feasible, unless consolidation would be more environmentally damaging or would not significantly reduce the number of wells or sites required to produce the reservoir economically. The proposed project would not reduce the total number of wells used to produce the reservoir. In fact, the proposed project would result in an increase in wells, from the existing 52 wells to 120 wells. “Sites” is not explicitly defined in this section, but if interpreted to mean the surface footprint taken up by wells and support facilities (including tanks, processing equipment, pipelines, etc.), the proposed project does meet the requirement to significantly reduce the number of sites. Existing oil and gas development is present on both the Synergy and City sites. Oil and gas facilities comprise a total of 106 acres on these two sites combined. BOM proposes to decommission these facilities over twenty years and construct two new facilities and a connecting pipeline that would result in a total oil and gas footprint of approximately 15 acres. Thus, the end result would be a decrease in the surface footprint of 86% or 91 acres. It should be noted, however, that during the 20 year decommissioning period, the proposed project would result in an increase in surface area devoted to oil and gas facilities in this immediate area. However, wells on the existing Synergy sites would be decommissioned gradually over the twenty year period, reducing the footprint actively devoted to oil and gas production, until the end of the twenty year period when the site would be made available for restoration.

The recently approved amendment to the City’s LCP for the SEADIP area (LCP-5-LOB-18-0026) can be used for guidance in determining the proposed project’s consistency with Coastal Act policies. The amended LCP includes the same general oil and gas facility consolidation policy, but includes the additional requirement that consolidation of an existing facility must ultimately result in a decrease in land area used for oil and gas facilities of 75% (see Appendix B). As described above, the proposed project would result in an overall decrease of 86% in land area used for oil and gas development, consistent with requirements included in the LCP.

### **Geologic Conditions and Hazards**

Coastal Act Section 30262 also requires that oil and gas development be performed consistent with the geologic conditions of the site, not contribute to subsidence hazards, reinject oilfield

brines consistent with DOGGR requirements, and initiate a land surface monitoring program where appropriate. These policies are also included in the City's amended LCP. These issues are addressed in depth in Section J (Geologic Hazards) of this report but are summarized here.

The proposed project includes several features intended to ensure safe operation of the facilities and equipment given the geologic conditions of the site. As described earlier, the Newport-Inglewood fault is in immediate proximity to all proposed project facilities. The proposed pipeline traverses directly over the fault line, and the two proposed oil facilities are in close proximity to the fault zone. To address seismic concerns related to the pipeline, BOM proposes to design all facilities to withstand the maximum potential ground motion, including installation of expansion loops and automatic shutoff valves. The pipeline would be installed above ground, allowing it to float above the surface in a seismic event, and facilitating daily visual inspections. BOM would also install seismic monitoring equipment that would communicate with control equipment at both facilities and initiate a shutdown in the event of seismic activity. Both the Pumpkin Patch and LCWA facilities would also be designed to operate under the geologic and seismic conditions present at each site. All facilities are designed to withstand maximum predicted potential ground motion and include several types of protections, including shutoff valves, pressure-release valves, and fire detection equipment to ensure safe operating conditions. Although not anticipated, the proposed project includes an emergency flare that can be used to avoid the release of hazardous gases associated with oil and gas production. Finally, during drilling operations, Blow Out Prevention Equipment (BOPE) would be installed to prevent an uncontrolled release of reservoir fluids.

To further minimize concerns related to seismic hazards, **Special Condition 19** requires BOM to submit a revised Oil Spill Prevention and Response Plan that includes a comprehensive risk assessment to fully assess of an oil spill and ensure that proposed measures are adequate to address the worst case discharge scenario. In addition, **Special Condition 3** requires BOM to submit a site-specific Pipeline Geotechnical Analysis and Safety Plan that includes a geotechnical analysis evaluating fault rupture hazards and an engineering analysis demonstrating that the pipelines have been designed to withstand the maximum horizontal and vertical fault displacements derived from the geotechnical analysis. Furthermore, **Special Condition 21** requires that BOM submit a Seismic and Geotechnical Analysis and Hazard Mitigation Plan that, similar to the Plan required in **Special Condition 3**, requires an updated geotechnical analysis and engineering analysis for other structures that are part of the proposed project, including all new proposed oil facilities, berms and buidlings.

Coastal Act Section 30262 also requires that the oil and gas development address subsidence hazards, and reinject oilfield brines consistent with DOGGR requirements. BOM proposes to reinject produced water back into the oil formation to address concerns related to subsidence. The number of reinjection wells and volumes of produced water to be reinjected would be determined and regulated by DOGGR.

Lastly, Coastal Act Section 30262 requires that where appropriate, monitoring programs to record land surface movements be initiated in locations of new large-scale fluid extraction. The condition also requires that the costs of monitoring and mitigation be borne by the liquid and gas extraction operators. This type of monitoring was not included in the proposed project. To

ensure consistency with this requirement, **Special Condition 18** requires that BOM submit a Land Surface Monitoring Plan to the Executive Director for review and approval. The Plan shall include baseline data for land surface elevations and movement in areas that overlay the oil reservoir, monitoring protocols, development of criteria to identify when significant changes have occurred and reporting requirements. Further, if monitoring results indicate significant changes have occurred and can be wholly or partially attributed to the proposed oil and gas activities, BOM shall submit a Land Surface Mitigation Plan to the Executive Director for review and approval that identifies additional measures the Permittee will take to address the causes and effects of the identified changes in land surface elevation or movement.

With the incorporation of **Special Conditions 3, 18, 19 and 21**, the proposed oil and gas development will be carried out in a manner that consolidates existing oil and gas facilities and addresses geologic conditions and potential hazards, and monitors for land surface movement. Thus, the Commission finds the proposed project consistent with the portions of Coastal Section 30262 related specifically to the requirements for new oil and gas facilities.

## H. OIL SPILL

Section 30232 of the Coastal Act states:

*Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

See Appendix B, Policies A.3 ( p. 1); D.3.b (p. 10-11); D.3.d (p. 12); D.4.f (p. 12) for applicable LCP policies

### Potential Project-Related Oil Spills

Construction and operation of new oil production facilities on the Pumpkin Patch, LCWA and City sites could result in the accidental release of petroleum hydrocarbons into wetlands or marine waters. The Final EIR for the proposed project identified the worst case spill scenario on each site and a cumulative worst case scenario that involves failures on multiple sites.

On the Synergy site, the EIR identified the worst-case spill scenario as a rupture of the existing oil gathering line which could result in a release of up to 150 gallons. This estimate assumes that the existing North Side Tank farm (Tank Battery #2), has been decommissioned as proposed. BOM estimates that removal of the North Side Tank Farm will occur by the middle of the third year of project construction. The EIR, however, assumed removal of this tank farm as the baseline condition and thus did not account for a potential oil spill scenario in which one of the tanks ruptures prior to being removed. According to the current Oil Spill Contingency Plan for the Synergy Oil Facility (last verified on 1/24/18), under current conditions (and conditions prior removal of the tank farm), the worst case spill scenario for the Synergy site would be the rupture of one of the two largest oil tanks on the site. A rupture of either tank could result in the discharge of 2,500 barrels (105,000 gallons).

On the City site, the EIR estimates that the worst case spill scenario could result in the release of 30,816 gallons associated with a rupture of the 2,200 above-ground pipeline system. This estimate assumes that the entire line volume spills plus five minutes of peak pump rates and that all pipelines are operating at 65 percent of peak volume except the dry oil line, which is assumed to be operating at 100 percent of the daily production rate. This scenario is based on BOM's proposed pipeline alignment that bisects the City site ([Exhibit 12](#)). The Oil Spill Prevention and Response Plan submitted by BOM also describes a worst case oil spill scenario for the Perimeter Alignment, which, due to the longer length of pipeline, could result in total spill volume of 35,478 gallons. The EIR does not provide a worst case spill scenario under existing conditions. The City site does not contain an active tank farm, and so a worst case spill scenario would likely be the rupture of the existing gathering line. Based on the estimate provided for the larger Synergy site, a rupture of the existing gathering line on the City site could be on the order of 150 gallons.

The EIR estimates that the worst case spill scenario for the Pumpkin Patch site would involve the rupture of the proposed storage tanks, which could lead to the release of up to 5,000 barrels (210,000 gallons). Similarly, on the LCWA site, a worst case spill scenario would result from the rupture of all four tanks proposed for the site, resulting in a maximum discharge of 61,000 barrels (2,562,000 gallons). In the unlikely event of an uncontrolled blowout, BOM estimates, based on reasonable peak production levels at the nearby Wilmington field, a worst case flow rate for any individual well on the Pumpkin Patch or LCWA site would be 1,712 barrels of oil per day, or about 71 barrels per hour.

The EIR described the cumulative worst case scenario for the proposed project as a simultaneous failure on all four sites, resulting in ruptures of the gathering line at the Synergy site, the proposed oil production pipeline system at the Synergy site, and tank ruptures at the Pumpkin Patch and LCWA sites. This cumulative worst-case scenario results in a total spill volume of 2.8 million gallons or approximately 66,740 barrels. For comparison, the existing worst case spill scenario on the Synergy and City sites is estimated to be approximately 105,150 gallons or 2,504 barrels.

In addition to operation of the new oil facilities, the proposed project has a potential to result in oil spills associated with construction activities. Petroleum products, including gasoline, diesel fuel, lubricants and other compounds used in construction operations could be inadvertently released into the environment

### **Oil Spill Prevention**

The first test of Coastal Act Section 30232 requires the applicant to provide "protection against the spillage of crude oil, gas, petroleum products, or hazardous substances..." As described above, the proposed project could result in an accidental oil spill. To minimize the risk of an oil spill, BOM proposes several prevention measures. These measures are described in the Oil Spill Prevention and Response Plan (revised November 2018) submitted as part of the application for this CDP and are described in detail below.

According to the Oil Spill Prevention and Response Plan, "The Project was designed to incorporate state of the art technology and to meet, if not exceed, industry standards." Tanks,

facility piping and pipelines shall be built to conform to applicable industry standards issued by the American Petroleum Institute and the American Society of Mechanical Engineers and to be consistent with state law. All storage tanks on the Pumpkin Patch and LCWA sites would be equipped with primary leak detection systems, secondary leak detection systems, overflow protection, and instrumentation to monitor temperature and pressure. Pipelines would include fiber-optic leak protection systems that can detect small and large leaks, ground movement, pipeline deformation and third part disturbances. The water injection, gathering and dry oil lines will also have instrumentation to monitor flow, pressure and temperature. BOM estimates that closure of automatic shutoff valves would occur within five minutes of detecting a leak.

The proposed project also includes design features to specifically address the potential for seismic activity. As the Newport-Inglewood Fault Zone traverses through the proposed project area, oil spills associated with seismic shaking and rupture are a concern ([Exhibit 6](#)). To address this concern, consistent with local and state building codes, all facilities are designed to withstand maximum potential ground motion, defined as the motion due to an event with a 1% probability exceedance within a 50-year period. The pipeline system connecting the Pumpkin Patch and LCWA sites is designed to include expansion loops, allowing the pipeline to flex as the ground shifts. As proposed by the applicant, the pipeline would be designed to accommodate two-thirds of the Maximum Considered Fault Displacement. BOMP would confirm the adequacy of the size and location of expansion loops during the final design. The pipeline will be installed aboveground, allowing the pipelines to “float” on the ground in a seismic event and will include automatic shutoff valves at both ends of the Pipeline within the City site. Finally, BOM proposes to install seismic monitoring devices in the trench that will hold the Pipeline. The seismometers will communicate directly to instrumentation at the Pumpkin Patch and LCWA sites via radio communication. After detecting a seismic event, the system would be programmed to begin a staged shutdown of pipelines and equipment to a safe state. If the event is minor and damage is not detected, the system would be programmed to resume operations immediately after the earthquake.

Oil spill prevention measures proposed by BOM to minimize the potential for an oil spill also address containment. The proposed project incorporates primary, secondary, and in some cases tertiary containment in the event of an oil spill. Primary containment comes from the pipe or vessel itself. Secondary containment provides additional protection and storage capacity in the event that the primary containment is breached. On the Pumpkin Patch site, the storage tanks will be sited within a common, walled containment area. This secondary containment area is designed to hold the contents of the largest tank plus a 25-year storm event, or approximately 4,788 barrels (201,100 gallons). The LCWA site also includes a common, walled containment area. However, given the larger size of the tanks on the LCWA site, the secondary containment area is also larger, and can hold approximately 48,904 barrels (2,054,000 gallons). If rainwater accumulates within the containment areas, it will be removed by vacuum-truck to maintain capacity within the secondary containment areas.

At the Pumpkin Patch and LCWA sites, tertiary containment is provided by the well cellars. The site will be graded to drain towards the well cellars, and would provide an additional 6,000 barrels of capacity on the Pumpkin Patch site and nearly 8,200 barrels of capacity on the LCWA site. Finally, both the Pumpkin Patch and LCWA sites will be surrounded by a perimeter wall,

which would be a final barrier to prevent fluids from leaving the site. At the Pumpkin Patch site, secondary and tertiary containment capacity is sufficient to contain the worst case spill scenario. At the LCWA site, the worst case spill scenario, resulting from the simultaneous failure of all four tanks, would result in an excess of 9,600 barrels that would not be contained within the secondary and tertiary containment areas. Although the perimeter wall could contain some of the spill on the site, it is possible that some volume of oil could be discharged from the site.

The Pipeline connecting the Pumpkin Patch and LCWA sites would be contained within two earthen berms on either side along its entire alignment through the City site. The berms would be approximately 1 foot tall with a three foot wide corridor in between and would be constructed out of low permeability clay soil and compacted to a minimum of 90%. The total containment provided by the berm would range from 114,500 to 148,000 gallons depending on the pipeline alignment selected, providing a minimum of 72% surplus containment above the total volume of the pipeline. To ensure that the final design of the pipeline and containment berm provide the level of containment and protection asserted by BOM, **Special Condition 3** requires that BOM submit the final design plans and analysis for the pipeline to the Executive Director for approval. The condition requires that the analysis demonstrate that the pipeline, including the expansion loops, and the containment berm can withstand the maximum considered fault displacement for the Newport-Ingelwood fault, instead of  $2/3^{\text{rds}}$  of the maximum considered fault displacement as dictated by industry standards.

Another important type of oil spill prevention at the two new oil drilling sites is Blow Out Prevention Equipment (BOPE). BOPE is a safety system used during drilling and workover operations to prevent an uncontrolled release of reservoir fluids and to shut off the flow of fluids to prevent releases. BOPE generally consists of a stack, actuation systems, a choke manifold, stop systems and other equipment. BOPE also includes an independent backup power system in the event that the drilling rig loses power. The State's Division of Oil, Gas and Geothermal Resources (DOGGR) sets the rating for each BOPE system based on the maximum potential pressure expected at the well head and the proximity of the well to residential and/or commercial development.

To further prevent an oil spill, BOM proposes to conduct inspections of all facilities and ancillary equipment on a regular basis. All containment berms and structures, tanks, valves, connections and the Pipeline route through the City site will be observed daily. Formal inspections of these structures and equipment will be conducted on a monthly basis. Any mechanical or structural issues are recorded and reported internally for repair. Integrity and leak detection testing for all pressure storage vessels are conducted at 5 year intervals unless conditions dictate increasing the frequency of inspections. Standard pipeline pigs will be used to clean out the interior of the pipelines. Pressure testing and visual inspections of all pipelines will be used instead of smart pigs. All inspection documents and reportable spill information will be retained for a minimum of three years.

The measures described above will be critical in preventing an oil spill. To further ensure that all possible prevention measures are designed and implemented appropriately, **Special Condition 19** requires that BOM submit a revised Oil Spill Prevention and Response Plan. The revised plan shall include a comprehensive risk analysis that quantifies the risk that an oil spill will occur



at the proposed facility, including a probability analysis for the range of potential spills based on size, frequency, location and other factors. The Plan must also demonstrate that the prevention measures identified are adequate to address the magnitude of risk as determined in the risk analysis. In addition, the Plan must include detailed site and grading plans that match the narrative in the Plan, and provide evidence that the content of the Plan is consistent with California Office of Oil Spill Prevention and Response (OSPR) regulations related to prevention and safety measures and preparedness training and emergency planning. **Special Condition 19** also requires that the Plan include provisions for conducting internal pipeline integrity testing using smart pigs, unless it is technically infeasible or BOM can demonstrate that an equivalent internal integrity monitoring technology is already required by another regulatory agency. Finally, **Special Condition 19** requires BOM to maximize secondary containment around all tanks. As described above, BOM includes secondary containment for all tanks. However, for both the Pumpkin Patch and LCWA sites, a worst case oil spill scenario results in overtopping of the secondary containment wall. **Special Condition 19** will require BOM to incorporate additional containment, potentially through a taller containment wall or a larger containment area, if feasible.

Furthermore, in addition to oil spills from operation of the proposed oil production facilities, the proposed project could result in smaller spills and leaks during construction and oil facility decommissioning activities. To ensure that potential for these types of releases is minimized, **Special Condition 11** requires that BOM prepare a Construction and Pollution Prevention Plan that lists all hazardous materials that would be present on the site and includes spill prevention measures, equipment storage and inspection protocols and requirements, and spill response measures that will be implemented during project construction and decommissioning of existing oil infrastructure.

With these measures incorporated, adequate measures to protect against the spillage of crude oil, gas and petroleum products would be in place. Thus, the proposed project is consistent with the first test of Coastal Act Section 30232.

### **Oil Spill Response**

The second test of Coastal Act Section 30232 requires the applicant to provide effective containment and cleanup equipment and procedures for accidental spills that do occur. Despite the prevention measures proposed by BOM, the possibility remains that an oil spill could occur during project activities. The presence of the Newport-Inglewood fault zone in immediate proximity to the two oil production facilities with the connecting pipeline crossing directly over the fault line adds an element of uncertainty and risk that cannot be fully mitigated. Even without the added complexity of seismic risk factors, history in California and in other parts of the U.S. has shown that despite all efforts to the contrary, oil spills can and do occur. Thus, despite the preventative measures taken by BOM, the potential for an accidental release of hydrocarbons during construction and operation of the proposed oil production facilities still exists.

In the event of an oil spill, the Oil Spill Prevention and Response Plan describes emergency response procedures, potential remedial actions and communication protocols to be implemented to cleanup and reduce the impacts of a spill. The Plan identifies a series of steps, including

notification of onsite Spill Response Coordinators that employees are to follow in the event of a spill. The Plan also includes procedures for notifying and reporting a spill to appropriate local, state and federal agencies. Finally, the Plan includes a description of annual training and drills that will be conducted with all employees to ensure that all staff understand and can implement oil spill prevention and response protocols.

BOM will be contracted with Patriot Environmental Services, an Oil Spill Response Organization (OSRO) providing oil spill response services in both northern and southern California. Patriot is approved as an OSRO with the U.S. Coast Guard and the California Department of Fish and Wildlife Office of Oil Spill Response for both terrestrial and marine oil spills. BOM will contract Patriot to respond within 6 hours of any release of fluids. Although the Oil Spill Prevention and Response Plan submitted by BOM contains most of the necessary elements, it is not adequate to ensure protection of coastal resources. To address these deficiencies, **Special Condition 19** requires BOM to submit a revised Oil Spill Prevention and Response Plan. In addition to the elements described in the previous section, the Plan must include updated worst case spill scenarios incorporating the perimeter pipeline design, and must demonstrate how the oil spill response measures identified in the Plan address the worst case spill and the magnitude of oil spill risk as determined in the required risk analysis. Finally, the Plan must include evidence that BOM has obtained a Certificate of Financial Responsibility from the California Office of Spill Prevention and Response demonstrating that the operator has the financial ability to pay for the costs and damages caused by an oil spill. With these elements in place, BOM will be better equipped to prevent and respond to an oil spill. However, notwithstanding the extensive oil spill containment and cleanup capabilities that BOM and Patriot Environmental would have in place, the Commission finds that the second test of Coastal Act Section 30232, which requires “effective” containment and cleanup equipment for spills that do occur, cannot be met. As mentioned above, and discussed at length in Section J (Geologic Hazards), the risk of a major seismic event at the project site is significant. In the event of significant ground shaking or rupture, it is possible that prevention and containment measures will fail, resulting in the release of oil into the surrounding environment.

The pipeline corridor is particularly vulnerable as it crosses directly over the fault line. The soil berm provides secondary containment in the event of a pipeline leak or rupture, but if the berm itself is damaged or breached in a seismic event, oil could be discharged into the surrounding areas that include wetlands and other sensitive habitat. Furthermore, the long-term vision for the City site (described in more detail in Sections E (Dredging and Placement of Fill in Coastal Waters) and N (Override)) is to restore the former oil field to tidal wetlands. If this restoration moves forward, and an oil spill were to occur from the pipeline that breached the containment berm, discharged oil could have a direct pathway through the wetlands to the San Gabriel River, Alamitos Bay and the Pacific Ocean. Furthermore, even before the restoration is completed, it is possible that oil spilled on the City site could reach the San Gabriel River and Pacific Ocean through existing drainage pathways on the City and neighboring sites. In addition to potential spill pathways from the pipeline, a major seismic event could lead to discharges of oil from the Pumpkin Patch and LCWA sites. As described above, both sites have been designed to include primary, secondary, and tertiary containment, which should be adequate to contain the worst case spill scenario at the Pumpkin Patch site, and all but the simultaneous rupture of all four tanks at the LCWA site. However, if ground shaking or

displacement associated with a seismic event resulted in the damage or breach of one or more containment structures at the same time as the primary vessel is damaged or breached, significant volumes of oil could escape from the oil production sites. Given the close proximity of both sites to wetlands, the San Gabriel River and the Los Cerritos Channel, the effects of an oil spill, should it occur, could be devastating.

A release of oil into wetland and subtidal areas in the vicinity of the project sites would result in significant adverse impacts. Oil released into wetland areas would contaminate soils and vegetation and result in a range of effects for wildlife, from habitat exclusion to death. Required clean-up measures would likely result in the complete loss of affected wetland areas. Wetland channels could also provide a direct pathway to marine waters. If an oil spill reaches the San Gabriel River, Alamitos Bay or the Pacific Ocean, impacts to marine habitat and species, coastal recreation and other coastal resources could be devastating. Laboratory testing of oil recovery equipment indicates a recovery effectiveness of approximately 50% in relatively calm waters, with decreasing effectiveness as turbulence increases<sup>4</sup>. The effectiveness of booms and skimmers, commonly used in marine oil recovery operations, is limited by wave height and wind speed and can be ineffective under certain conditions.

Therefore, because the ability to effectively contain and cleanup an oil spill does not exist at this time, the Commission finds that the proposed project is inconsistent with the second requirement of Coastal Act Section 30232. Although the project cannot be found consistent with the Section 30232, it may nevertheless be approved if it is consistent with Coastal Act section 30262, which allows oil and gas development that would otherwise be inconsistent with the Chapter 3 policies of the Coastal Act if certain tests are met. See Section G for the analysis of Section 30262, including proposed conditions that could mitigate the adverse visual impacts of the project to the maximum extent feasible.

## I. VISUAL RESOURCES

Section 30251 of the Coastal Act states:

*The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

See Appendix B, Policies A.8 ( p. 2) for applicable LCP policies

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<sup>4</sup> Staff recommendation for CDP E-96-14 (December 10, 1997)

### **Standard of review**

Coastal Act section 30251 requires that the scenic and visual qualities of coastal areas be considered and protected, that permitted development be sited and designed to protect views to and along the ocean and scenic coastal areas and be visually compatible with surrounding areas, that public views to water areas and public open spaces be maintained and enhanced to the maximum extent feasible, and that visual quality be restored and enhanced in visually degraded areas, where feasible. The City's LCP, used as guidance here, includes these same requirements as well as screening requirements and height limits for some types of industrial equipment and storage tanks. In addition, the City's Municipal Code includes requirements meant to reduce light and glare impacts from new development such as the proposed project.

Additionally, some of the project elements would affect views from nearby sections of the Pacific Coast Highway ("PCH"), which is designated as eligible for Scenic Designation status under the state's Scenic Highways Program. This program, administered by the California Department of Transportation, identifies scenic highway corridors to preserve and protect for their aesthetic values. The Program includes "adopted" scenic corridors that have been officially designated as such, as well as "eligible" scenic corridors that may be designated when proposed by a local jurisdiction, subject to approval by the Department. The approximately two mile-long section of the PCH that runs past the proposed project site is considered an "eligible" Scenic State Highway.

### **Background on visual resource assessment**

Visual resources, and their effects on a viewer, are dependent in part on the viewer's perceptual and situational context. Determining the effect and significance of a visual effect relies on individual perception, but must also take into consideration the context of the visual element in the site and surrounding area, the social context in which the visual element exists, the degree of change that a new visual element introduces into an area, and other similar issues. These considerations and the resulting perceptions are often heightened within California's coastal zone, where scenic views are especially valued and expected, and are provided a greater degree of importance due to Coastal Act and LCP policies such as those cited above.

In conducting environmental review of expected visual effects, identifying the difference between pre- and post-development visual components is most often based on a comparison of photographs and visual simulations that show the existing and proposed development from various key viewpoints. While this method can be useful for showing relatively objective visual differences between pre- and post-development conditions, it does not adequately capture the experiential nature or perspective of an individual or group encountering or interacting with these visual components. Comparing pre- and post-development photos from a viewpoint may provide a starting point for judging whether a change is considered significant or insignificant, but that actual level of significance may be very different depending on a viewer's actual experience of the site. In the case of this proposed project, there is the additional consideration of the viewer's

perception or expectations regarding oil development within the coastal zone, and of certain viewers' perception of the site as an important cultural resource, either of which would likely affect their judgment of how significant or how adverse the visual components might be. Therefore, while the descriptions and exhibits herein and in the project EIR capture some basic visual elements involved in determining significance, they must be considered as only a part of viewers' overall perceptions of this coastal development.

### **Current and proposed visual conditions at the project sites**

#### *Existing visual conditions*

The overall project area is within a large coastal plain, much of it within the current or former floodplain of the San Gabriel River. It is generally a low-lying area that extends along about 20 miles of the coast. The flat terrain results in what are often extensive viewsheds, within which some project elements would be visible for several miles.

- **Synergy site:** The southern part of the site consists of a mix of wetlands and oil facilities, including wells, an above-ground pipeline, a wastewater disposal and vapor recovery area, two tank farm areas, sheds, numerous transformers, and many roads. The wetlands are sparsely vegetated, primarily with non-native ruderal vegetation. The northern part of the Synergy site is a relatively pristine wetland area, including an open water channel and vegetated marsh.
- **City site:** This area is similar to the Synergy site, with a mixture of wetland habitat and oil production facilities. The wetland habitat is generally sparsely vegetated with non-native ruderal vegetation, although the northwest corner of the site contains a more robust brackish wetland with some native vegetation. The oil facilities include wells, pipelines, and storage tanks. The site is bordered by commercial on one side and a former oil field, now vacant, that is slated for restoration.
- **LCWA site:** This is a flat, industrial site that includes some ornamental vegetation and non-native trees. It is generally used to store various industrial items, wooden pallets, and other materials. It is adjacent to, and provides non-public views of, Steamshovel Slough. The site itself is visible from the PCH, 2<sup>nd</sup> St, Studebaker Rd. and the San Gabriel River bike trail.
- **Pumpkin Patch site:** This site consists of two main areas, with the eastern area containing wetlands and two oil wells, and the western part of the site consisting of a parking lot that is used primarily during the fall and winter months as a "pumpkin patch" and a Christmas tree sales lot. The site is bordered by the PCH, the San Gabriel River, a business park, and part of the City site.

#### *Visual conditions after development of the proposed project*

The project would involve removal of some existing visual elements and introduction of a number of new visual elements, with the main ones described below.

- **Synergy site:** This site would change significantly during the first few years of the project, with removal of about 95% of the existing above-ground pipelines and tanks, grading and removal of part of a berm, and restoration of part of the oil field. The existing visitor center would be moved and elevated to a new location within the site. The removal and construction activities would be visible and would adversely affect scenic views from the public roads surrounding the site, as well as the nearby bike trail, though their impacts would be temporary, lasting about three years.

Longer-term changes include restoring additional areas on the northern portion of the site, which would involve planting vegetation and constructing trails and viewing platforms meant to provide unobstructed views of Steamshovel Slough and the newly-restored areas. For the southern portion of the site, and during the first 20 years of the project, BOM would remove wells and above-ground structures and plant native upland vegetation, which is expected to result in a visual improvement to the site.

- **City site:** This site would also change significantly during the first several years of the project, with removal of about 95% of the existing above-ground pipelines and tanks and construction of a new above-ground pipeline and low berm. The berm will block views of the new pipeline from the nearby bike trail and one of the adjacent public roads, though some of the remaining activities would represent an adverse visual effect from the public roads surrounding the site and the bike trail. These would be temporary, however, lasting up to about three years.

Longer-term changes (i.e., within 20 years) would represent an improvement of the existing visual landscape and of the views expected during construction. These would include removal of wells and their associated aboveground structures, followed by planting of native vegetation.

- **LCWA:** This site would experience relatively little demolition or remediation work, as it is largely a flat, paved area. The initial activities during the first two years would include site grading and creation of soil stockpiles during the first year, along with construction of a 10-foot high perimeter wall with adjacent vegetation and a bikeway along Studebaker Road and Westminster Avenue. These would be followed by construction of various oil processing facilities, including a pipe rack, tanks of up to 70 feet high, well cellars, and an emergency flaring system, as well as energy production equipment that would include natural gas turbines. This site would later include activities associated with drilling and production from up to 70 new wells.
- **Pumpkin Patch:** During the first several years of the project, activities at this site would include site clearing and construction of well cellars, three gas turbines, tanks and other production components, an office building and warehouse, and an 18-foot perimeter wall. The perimeter wall would be one of the first structures to be constructed, which would result in most of the construction activities and equipment being screened from public accessways. This wall could create its own substantial visual impact in the project area, especially when viewed from the nearby bike trail, but the project also includes planting a vegetative buffer along much of the wall to soften its visual effects.

The project's most significant visual impacts would result from the presence on the LCWA and Pumpkin patch sites of two new drill rigs – one about 160 feet high, and another about 140 feet high. The 160-foot tall drill rig would be on the Pumpkin Patch site for about eight years and on the LCWA site for 12 years. The 140-foot tall re-drilling rig would be present periodically at different parts of the site throughout the project life for up to 50 hours per week. These drill rigs would cause significant adverse visual impacts:

- The rigs would be the tallest structures for several miles around the site, as tall or taller than the towers on the recently repowered Alamitos Energy Center and Haynes Generating Station power plant structures that are about a mile distant. Although the City's zoning code does not include a specific height limit for oil equipment such as the drill rigs, they are substantially higher than the City's height limits for other structures in the SEADIP area of the City.<sup>5</sup>
- As noted above, the surrounding area is primarily a low-lying and level coastal plain, and the two drill rigs could be seen from up to about 16 miles away in most directions.
- The two rigs would be present for about twenty years, which although described in the project EIR as a temporary impact, would represent a long-term adverse visual impact in this area.
- The rigs would not be in character with the nearby naturalistic features of the existing and soon-to-be restored wetland areas, and their presence may conflict with expected viewer experiences of those wetlands.
- The rigs would be a highly visible element of oil development on a culturally-significant site, as described elsewhere in these Findings. This would likely create a conflict with some viewers' values associated with the site.

### **Minimization/Mitigation**

BOM has included several measures as part of the project that are meant to reduce the adverse visual effects of the project. For example, construction of the 18-foot wall around the Pumpkin Patch site during the project's initial construction phase would substantially reduce the visual impacts of construction activities at that site, even though the wall itself will create adverse visual impacts. Standard construction fencing used elsewhere as part of the project would also provide some reduction in visual impacts. The project schedule, in which most of the existing industrial elements would be removed from the various project locations during the first few years of the project, would also reduce the project's overall visual impacts and in some cases, would represent a visual improvement.

Regarding the significant adverse visual impacts represented by the drill rigs, BOM has proposed surrounding the rigs with cladding that would cover their industrial appearance (see [Exhibit 32](#)). While this would change their appearance, the cladding would also increase the overall bulk of the rigs and would therefore create a larger-scale visual impact within the affected viewsheds. Under either scenario – clad or non-clad – and for the reasons expressed above, the rigs would

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<sup>5</sup> In the surrounding SEADIP area, the City allows for heights of up to 30 feet for residential structures, 35 feet for non-residential structures, and up to 80 feet for some limited mixed-use structures.

represent an adverse visual impact that would be inconsistent with the visual character of the surrounding area.

To offset some of the proposed project's remaining adverse visual effects, BOM has proposed planting several dozen trees along about 3,500 feet of shoreline at the nearby Alamitos Bay Marina (see [Exhibit 33](#)). While this proposal may provide some useful amenities to the immediate Marina location, it could also block some existing coastal views. It is difficult to determine the degree of amenities this proposed measure would provide or the views it may block, as the proposal does not include needed details about the types of trees and their expected height and growth patterns, the potential for success of planting immediately adjacent to the Marina shoreline, and other important considerations. Even if this proposed visual offset's potential for blocking views is set aside and it is viewed solely as a visual amenity, it would still be much smaller in scale and would be visible from a much smaller area than the viewsheds adversely affected by the proposed project, particularly those affected by the drill rigs.

While the project would involve several visual improvements over existing conditions, it would also involve development that would not be sited and designed to protect views to and along the shoreline. It would also introduce new visual elements in the form of the drill rigs that would not restore or enhance visual quality at a location with several visually degraded areas. These characteristics do not allow for conformity with the visual resource policies of the Coastal Act. The Commission therefore finds that the proposed development is inconsistent with Coastal Act Section 30251. Although the project cannot be found consistent with the Section 30251, it may nevertheless be approved if it is consistent with Coastal Act section 30262, which allows oil and gas development that would otherwise be inconsistent with the Chapter 3 policies of the Coastal Act if certain tests are met. See Section G for the analysis of Section 30262, including proposed conditions that could mitigate the adverse visual impacts of the project to the maximum extent feasible.

## **J. GEOLOGIC HAZARDS**

Section 30253 of the Coastal Act states, in relevant part:

*New development shall do all of the following:*

- (a) Minimize risk to life and property in areas of high geologic, flood, and fire hazard.*
- (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

See Appendix B, Policies A.9-10 ( p. 2); D.3.a.iv, vii, viii (p.10), D.4.a-b,e (p. 12); D.5 (p. 13) for applicable LCP policies



## Geologic Setting

The project sites are located in the southeastern portion of the Los Angeles Basin, within the coastal floodplain of the San Gabriel River. Locally, the coastal plain is bounded by a line of low hills (Dominguez Hills, Signal Hill, Bolsa Chica Mesa) associated with movement along the northwest-southeast trending Newport-Inglewood Fault Zone, which cuts across the project sites ([Exhibit 6](#)). The four project sites predominantly consist of filled, drained or disturbed wetlands that, prior to the extensive development and modification of the area, comprised a substantial portion of the larger Los Cerritos/Alamitos Bay wetlands complex. As such, the project sites are generally flat and low-lying, with elevations ranging from less than a foot above sea level in the lowest areas of the Synergy Oil Field site to approximately +14 feet at the Pumpkin Patch site (Moffat & Nichol 2017).<sup>6</sup> Substrate underlying the project sites consists of recent alluvial deposits (sands, silts, clayey silts) and, in places, artificial fill (e.g., landfill materials) associated with past land use. Recently measured groundwater levels below the project sites ranged from 15 to 30 feet below ground surface (bgs); historical groundwater levels have been reported at 10 - 15 feet bgs (KCG 2016a, b, c).

The project sites are subject to a variety of geologic hazards that must be assessed to determine whether the proposed development will minimize risk to life and property, and to assure stability and structural integrity at the sites. These hazards include seismic activity (including ground shaking, fault rupture, and liquefaction and ground settlement), subsidence, and coastal hazards (including flooding, sea level rise, and tsunamis), each of which is evaluated below.

## Seismic Hazards

Like most of coastal California, the project sites lie in an area subject to earthquakes. The most acute seismic hazards, including the risk of fault rupture, strong ground-shaking and liquefaction, stem from the Newport-Inglewood Fault, a right lateral, slip-strike fault which bisects the Synergy Oil Field and City sites ([Exhibit 6](#)). The LCWA and Pumpkin Patch sites lie just 200 feet northeast and 1000 feet southwest of the fault zone, respectively. Movement along this fault has generated a number of earthquakes in recent history, most notably the magnitude ( $M_w$ )<sup>7</sup> 6.4 1933 Long Beach earthquake, which is thought to have occurred along a trace of the Newport-Inglewood Fault offshore of Huntington Beach. The 1933 earthquake caused 120 fatalities and extensive structural damage in Long Beach and other communities (Parrish 2018), but is not considered to represent the largest earthquake that could occur along this fault system. The USGS estimates that the Newport-Inglewood fault has an approximately 1% chance of generating an earthquake of  $M6.7$  or greater in the next 30 years, with a maximum event of up to  $M7.4$  (Field et al. 2013); more recent paleoseismic and modeling studies of this fault system suggest that an “end-to-end” rupture along the full Newport-Inglewood/Rose Canyon fault

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<sup>6</sup> BOM’s topographic survey of the Synergy site and its flooding analyses report ground elevations relative to the National Geodetic Vertical Datum of 1929 (NGVD2929), which at the time represented a best estimate of mean sea level. NGVD2929 is about 0.18 feet below current mean sea level (MSL).

<sup>7</sup>  $M_w$  refers to the “moment magnitude” scale, which adjusts the more familiar Richter, or local, magnitude ( $M_L$ ) to account for the area of fault rupture, the amount of slip during an earthquake, and the material properties of the rocks and other earth materials through which the seismic waves pass, and thus provides a better measure of the amount of energy released by an earthquake.

system (extending from Los Angeles to San Diego) may be capable of producing M7.4 - 7.6 earthquakes (Leeper et al. 2017; Sahakian et al. 2017).

In addition to the Newport-Inglewood Fault, there are numerous other major, active faults in the region which, though more distant from the project, are nonetheless capable of producing large earthquakes and strong ground-shaking in the project area. The Los Angeles area as a whole is estimated to have a 60% probability of experiencing a M6.7 or greater earthquake within the next 30 years, with the San Andreas Fault (~50 miles northwest of the project site) most likely to cause such an event. In combination, these local and regional active faults are responsible for a number of seismic hazards at the sites, including surface rupture, ground shaking, and liquefaction and ground settlement. Each of these issues is addressed in these findings.

### ***Surface Rupture***

Seismically-induced ground surface rupture is the physical displacement of surficial deposits along a fault during an earthquake. The magnitude and nature of fault rupture varies for different faults, or along different strands of the same fault. Both the Synergy and City sites are crossed by the Newport-Inglewood Fault, and a major (>M6.0) earthquake along this trace of the fault could result in surface ruptures that could damage or destroy overlying buildings, oil field equipment or other structures. The risk is considered to be greatest within the mapped fault hazard zone<sup>8</sup>; however, it is important to note that unmapped, unrecognized subsurface faults can also generate earthquakes and surface rupture.

The proposed project involves the phased removal, over 20 years, of most of the existing oil field infrastructure currently located on the Synergy and City sites, including pipelines, storage tanks, wells and associated structures and equipment. The removal of these various structures would reduce the risk of exposure to fault rupture. However, BOM has also proposed the new construction of several important project components within or across the Newport-Inglewood Fault zone, including (a) a new pipeline system across the City site to transfer oil, natural gas and injection water between the Pumpkin Patch and LCWA sites, (b) earthen berms to provide secondary spill containment for the pipelines, and (c) a new sheet pile wall and berm across the Synergy site to separate on-going oil field operations from the wetland restoration site and provide for flood control. BOM also proposes to retain and relocate an existing building, currently located on the Synergy site within the fault zone, to serve as a visitor center for the wetland restoration project. The potential for each of these key structures to be exposed to damage from fault rupture along the Newport-Inglewood fault is examined below.

### ***Oil, Gas and Water Pipelines & Containment Berms***

As described in Section B (Project Description), above, BOM proposes to construct a 2,200-foot long pipeline system and utility corridor across the City site to allow for the transfer of oil, water and natural gas, and the connection of electricity and communication lines, between the new, consolidated oil facilities on the Pumpkin Patch and LCWA sites. The system would include

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<sup>8</sup> The Alquist-Priolo Earthquake Fault Zoning Act of 1972 authorizes the State Geologist to establish and publish maps of regulatory fault zones around the surface traces of active faults; the zones typically extend 200 – 500 feet on either side of the known fault trace. With limited exceptions, the Alquist-Priolo Act prohibits the construction of buildings for human occupancy across surface traces of active faults.

three oil pipelines (8-inch oil gathering, 4-inch dry oil, 3-inch oil return), two natural gas pipelines, two water pipelines, a heat pipeline, and bundled power and communications cables. The route of the pipeline corridor will follow the perimeter route, as conditioned by **Special Condition 3**. This route, like the proposed route, crosses the City site and the local trace of the Newport-Inglewood Fault (see [Exhibit 6](#)). A major fault rupture has the potential to result in ground displacement sufficient to breach the pipelines and release oil, gas and/or injection water (which would include produced water containing contaminants) into the environment (see Section H (Oil Spill)).

BOM has proposed a number of design and mitigation measures intended to reduce the risk of pipeline damage and the release of hazardous materials during a seismic event. In the Final EIR, BOM states that the pipelines would adhere to federal and state codes, regulations and guidelines governing pipeline design:

*... the design codes for the liquid lines would include DOT 195, Transportation of Hazardous Liquids by Pipeline and ASME B31.4, Pipeline Transportation Systems for Liquids and Slurries. The design codes for the natural gas lines would include DOT 192, Transportation of Natural and Other Gas by Pipeline and ASME B31.8, Gas Transmission and Distribution Piping Systems. The piping codes provide performance criteria for pipelines crossing geohazards but do not have any specific criteria requiring a formal geotechnical investigation. (FEIR Response to Comment 4b-73).*

Federal Department of Transportation (DOT) regulations sections 192 and 195 provide general design requirements for oil and gas pipelines that would tend to improve structural integrity, but do not directly address seismic hazards. The 2016 American Society of Mechanical Engineers (ASME) B31.4 and B31.8 standards prescribe requirements for the design, materials, construction, assembly, inspection, testing, operation, and maintenance of liquid and gas pipeline systems, including procedures for calculating physical stresses and design allowances. The ASME standards contain a general directive to consider seismic loading in areas vulnerable to earthquakes. The proposed pipeline system would be under the permitting, design specifications, and inspection jurisdiction of DOGGR, as summarized in the DOGGR Publication No. PRC10, *California Statutes and Regulations for the Division of Oil, Gas, & Geothermal Resources*, however, the DOGGR pipeline regulations do not directly address designing for seismic hazards.

Moreover, as noted in the above response, none of the applicable codes and guidelines require a site-specific geotechnical investigation to evaluate geologic factors that could affect the structural integrity of the pipelines. As a partial remedy for this information gap, BOM commissioned a short study to evaluate the proposed pipeline corridor for potential displacement or damage in the event of an earthquake (Honegger 2016). This study included modeling of the response of a single carrier pipeline (containing each of the pipelines noted above) to an abrupt, 10-foot horizontal displacement (i.e., surface rupture) along the Newport-Inglewood Fault, and provided several design recommendations for avoiding and mitigating pipeline damage during such an event. The key findings and recommendations of the Honegger (2016) analysis include the following:

- The pipeline would experience very high bending strains on either side of the fault, and the compressive strain would exceed the capacity of a 0.625 inch wall-thickness carrier

pipe with just 1.5 feet of fault displacement (increasing the wall thickness to one inch yielded only a modest increase in the displacement capacity).

- Use of an above-ground pipeline design and the incorporation of expansion loops and/or “zig-zags” in the pipeline itself (built-in bends in the pipeline design to accommodate displacement and strain – *see* [Exhibit 34](#)) would be necessary to accommodate the amount of displacement that could be expected to occur during a large fault rupture.

In particular, an above-ground pipeline configuration incorporating expansion loops would allow relative lateral displacement to be accommodated by sliding of the pipeline itself on its support structures, and relative axial displacement to be accommodated through flexure of the bends in the pipeline. The study notes that similar design features have been successfully deployed on the Trans-Alaska Pipeline where it crosses the Denali fault, and that this pipeline suffered no damage during a M7.9 earthquake in 2002. Based on the findings of this study, BOM has proposed an above-ground pipeline corridor in which the individual pipelines would be placed in parallel, directly on the ground, between two 1-foot high earthen containment berms ([Exhibit 13](#)).

The Honegger (2016) study provides a “proof of concept” level analysis suggesting that existing technologies and seismic design elements could be adapted for the local geologic setting. However, for the reasons discussed below, the study is not sufficient to demonstrate that the pipeline design, as proposed, would *minimize* risks from geologic hazards and *assure* the stability and structural integrity of the new development, as required under Section 30253(a) and (b):

Lack of final project-specific information: The Honegger (2016) analysis was based on an assumed pipeline route that is different from the final configuration, as conditioned, and assumed that the multiple individual pipelines would be bundled into a larger carrier pipe and installed underground. As proposed, the pipeline system would be constructed aboveground, with the individual pipelines laid directly on the ground in parallel with one another. While it may be possible to design a system in this general configuration that would withstand a major fault rupture, this has not been demonstrated with a design-level geotechnical analysis incorporating the specific measures (e.g., expansion loops in particular locations) that would be necessary.

Incomplete pipeline seismic analysis: The Honegger (2016) analysis assumes that a design displacement capacity of 6.1 feet (horizontal) would provide for adequate pipeline structural integrity “given the environmental sensitivity of the project.” This displacement capacity was determined by multiplying an estimated mean maximum fault displacement for a M7.2 earthquake of 9.12 feet by two-thirds, “in accordance with current industry practice.” In the Final EIR response to comments 4b-74, the City indicated that BOM will design the pipeline consistent with American Society of Civil Engineer (ASCE) 7-16 design standards<sup>9</sup>, and that the structural design of the pipeline will be based on the fault displacement and earthquake magnitude values representing an event with a 1 percent probability of exceedance in 50 years (4,975-yr return interval), as well as current industry guidelines reviewed by Honegger and

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<sup>9</sup> American Society of Civil Engineers (ASCE), 2017. *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, ASCE Standard ASCE/SEI 7-16, Sections 21.2.1 and 21.2.2.

Nyman (2017), which for pipelines recommend designing for “ $2/3 \times$  Maximum Considered Fault Displacement.”

However, neither Honegger (2016) nor the FEIR provide an explanation of the relationship between the selected design criteria and the chosen maximum earthquake magnitude (M7.2) and fault displacement (9.12 ft) values. The selected M7.2 earthquake appears to be equivalent to the 1% chance in 50 year event as determined by the USGS and CGS in 2008 (WGCEP 2008). However, a more recent 2013 USGS/CGS study providing updated earthquake magnitude probabilities for the Newport-Inglewood Fault estimates that the 1% chance in 50 year event exceeds M7.3 – 7.4 (Field et al. 2013). As noted previously, new research suggests that this fault system may be capable of even larger M7.4 – M7.6 earthquakes. This newer information suggests that the Honegger (2016) pipeline analysis may underestimate the risk of a major earthquake and fault rupture in the project area.

Moreover, the Commission questions the reasoning that would lead to a one-third reduction in the design criterion for displacement capacity given the pipeline’s location in an environmentally-sensitive wetland area. Under the current California Building Code (CBC 2016),<sup>10</sup> building design values for seismic ground-shaking are typically adjusted downward from the peak values, based on the principle that a building need not remain usable or structurally sound following the maximum considered earthquake, so long as the building does not collapse and human life is protected. It may be appropriate to apply a similar principle to pipelines passing through areas where neither human life nor valuable environmental resources are at stake; however, in this case, the proposed pipeline would pass through a wetland area (as defined and protected under the Coastal Act) in which tidal flow – and thus direct hydrologic connectivity with the San Gabriel River and the Pacific Ocean – is planned to be restored as part of the restoration project. As discussed in greater detail in other sections, a spill of oil or contaminated injection water in this area would cause direct harm to wetland habitats, sensitive species, water quality and shoreline areas used for public access and recreation. For these reasons, the Commission believes that in this case it is necessary to adhere to the previously proposed earthquake design standard (1% probability in 50 years), without weakening the criterion by applying a two-thirds multiplier.

Finally, the Honegger (2016) analysis appears to evaluate a scenario involving only horizontal displacement along the Newport-Inglewood fault. While movement along this slip-strike fault during a major earthquake is likely to be predominantly horizontal, surface ruptures involving vertical displacement may also occur. It is not clear from the analysis presented by Honegger (2016) whether potential vertical displacement has been accounted for, or what specific design measures would be included in the project to protect the pipeline against vertical ground motion.

**Missing seismic analysis of containment berm:** The aboveground pipeline configuration proposed by BOM would include the construction of one-foot high, three-foot wide earthen berms on either side of the pipeline system to provide for secondary containment in the event of an accidental release of oil or other hazardous fluids. Particularly during an extreme seismic

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<sup>10</sup> 2016 California Building Standards Code (Cal. Code Regs., Title 24), published July 1, 2016, effective January 1, 2017.

event that has the potential to result in surface rupture and damage to the pipelines, the structural integrity of the secondary containment system is of great concern. The Commission recognizes that it may be infeasible to design an unreinforced earthen berm to withstand a major fault rupture; however, BOM has provided no description or analysis of the capacity of the containment berms to withstand fault rupture, of the design elements that could be included to maximize the structural integrity of the berms, or of repair and maintenance activities that would be carried out to maintain these structures in an optimal condition.

In order to rectify these deficiencies in the existing analysis, and to assure the stability and structural integrity of the proposed pipeline system and minimize hazards related to fault ruptures, the Commission is requiring **Special Condition 3**. This condition requires BOM to submit, for the Executive Director's review and approval, a Perimeter Pipeline Alignment Implementation Plan, including a site-specific Pipeline Geotechnical Analysis and Safety Plan which includes the following components: (1) Project plans depicting the final route, configuration and dimensions of the pipeline system and associated containment berms, including representative cross-sections and detail drawings of key components, such as bends and expansion loops needed for seismic safety; (2) a site-specific geotechnical analysis evaluating fault rupture hazards along the final pipeline route, at a minimum evaluating the maximum horizontal and vertical fault displacement that could occur during an earthquake event on the Newport-Inglewood fault with a 1% in 50 year chance of occurrence (1/4,975 annual probability), as determined based on a review of the most current available science; (3) an engineering analysis, using the final route, configuration and dimensions of the pipeline system, demonstrating that the pipelines have been designed to withstand the maximum horizontal and vertical fault displacements derived from the geotechnical analysis, and describing the specific design elements that would be used to accommodate the expected displacements; (4) an engineering analysis of the proposed secondary containment berms describing their capacity to withstand fault rupture and any feasible design measures that would be incorporated to maximize their structural integrity; (5) a repair and maintenance plan describing the measures that would be taken to maintain the pipelines and containment berms in an optimal condition.

#### *Flood Protection Structures*

As a part of the proposed wetlands restoration project and future flood control planning, BOM proposes to construct a barrier, comprised of a sheetpile wall and berm, across the Synergy Oil Field site ([Exhibit 17](#)). This barrier, rising to approximately +9 feet above MSL, would separate the proposed Northern Restoration Area surrounding Steamshovel Slough from the remainder of the Synergy site, which would remain an active oil field for up to 20 years prior to being restored. As discussed in greater detail in the coastal hazards section, below, the sheetpile wall and berm are integral to preventing future flooding in the low-lying portions of the project site, including the Synergy Oil Field and the City site. These features are also critical in protecting wetland areas from impacts associated with existing oil operations and proposed decommissioning activities on the Synergy site. However, like the proposed pipeline system, these structures would also cross the Newport-Inglewood fault zone and would thus be vulnerable to damage related to fault rupture.

In response to Commission staff queries, the City has stated that the sheetpile wall and berm would be "designed in accordance with the CBC, the County of Los Angeles Building Code, and

ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, to withstand seismically-induced ground shaking” based on the ground motion resulting from “an event with a 1 percent probability of exceedance within a 50-year period (or 1/4975 per year)” (FEIR response to comment 4b-82). This response further indicates that a design level geotechnical investigation, providing “site- and development-specific recommendations based upon the potential geologic conditions”, will be completed prior to the construction of these structures, and that the general design objective of the proposed project is to “maintain operation following a minor seismic event and to survive without collapse and provide public safety following a design level event.”

However, to date, no geotechnical or engineering analysis has been completed to determine the amount of horizontal or vertical displacement that the wall and berm could experience during a design-level earthquake, nor to identify the design elements that would be needed to ensure that these structures could withstand fault rupture without failing. Particularly in the later years of the decommissioning period, when the wall and berm may be preventing the flooding of the oil field site on a more frequent basis than under current conditions, the structural integrity of these structures will be of critical importance. Under such a scenario, the appropriate seismic design objective may not be to “survive without collapse”, but rather to *maintain function* even in the event of a major earthquake.

In order to provide for the design-level analysis needed to assure the stability and structural integrity of the proposed flood control structures, the Commission is requiring **Special Condition 21**, which requires BOM to submit, for the Executive Director’s review and approval, a Seismic and Geotechnical Analysis and Hazard Mitigation Plan which includes (1) detailed plans of the final sheetpile wall and berm designs; (2) a site-specific geotechnical analysis evaluating fault rupture hazards along the route of the barrier, at a minimum evaluating the maximum horizontal and vertical fault displacement that could occur during an earthquake event on the Newport-Inglewood fault with a 1% in 50 year chance of occurrence (1/4,975 annual probability), as determined based on a review of the most current available science; (3) an engineering analysis demonstrating that the barriers have been designed to withstand the maximum horizontal and vertical fault displacements indicated in the geotechnical analysis, and describing the specific design elements that would be used to accommodate the expected displacements; and (4) a repair and maintenance plan describing the measures that would be taken to maintain the barrier structures in an optimal condition.

#### *Visitor Center Building*

BOM proposes to repurpose the existing, historic Bixby Ranch Field Office building on the Synergy site as a visitor center, and to relocate the building to a new site approximately 425 feet southwest of its current location. The new location would place the building outside the Alquist-Priolo Earthquake Fault Zone, and thus greatly reduce the hazard from fault rupture during an earthquake. In order to assure that the proposed relocation is carried out, and that fault rupture hazards to this important visitor-serving structure are minimized, **Special Condition 2** requires that BOM submit final project plans for the renovated building demonstrating that it has been relocated outside of the mapped fault hazard zone.

### *Conclusion*

As conditioned, the Commission finds that the proposed project would minimize hazards and assure stability and structural integrity with respect to surface rupture, consistent with Section 30253 of the Coastal Act.

### ***Ground Shaking, Liquefaction & Settlement***

A large earthquake on the Newport-Inglewood Fault, or on one of the other active faults in the region, has the potential to cause high intensity ground-shaking that could damage structures or endanger human life at the project site. The intensity of ground shaking in response to an earthquake is governed by the size and geometry of the fault rupture, the amount of energy released, the distance to the epicenter, the duration of shaking, and the nature of the geologic materials at a site.<sup>11</sup> The California Geological Survey's (CGS) Earthquake Shaking Potential for California map (Branum et al., 2016) portrays the Long Beach area as a region of relatively high seismic shaking potential, with a lesser hazard than areas immediately adjacent to the San Andreas Fault, but with a greater hazard than most other areas of the state. A comparable, quantitative assessment is provided by the U.S. Geological Survey's (USGS) Seismic-Hazard Map for the Conterminous United States, 2014 (Peterson et al. 2015), which characterizes the ground-shaking risk in firm bedrock areas of the Long Beach region as a 2% chance in 50 years (1/2475 per year) of exceeding a peak ground acceleration (PGA) of approximately 0.6 g. At locations underlain by unconsolidated materials, such as the alluvial deposits (and, in some locations, landfill material) at the project sites, ground shaking is likely to be amplified.

Loose, water-saturated granular sediments, such as the silts and sands underlying the project sites, are also susceptible to liquefaction, defined as the sudden loss of strength and fluid behavior of unconsolidated materials subjected to strong ground-shaking. Due to the character of the surface substrates and the relatively shallow depths to groundwater, the entire project area is located within a mapped liquefaction hazard zone (CGS 1999). The damaging effects of strong ground shaking and liquefaction can cause large displacements of the ground surface, including heaving, cracking and buckling, the formation of sand boils, and differential settlement. Of particular concern for differential ground settlement are areas underlain by compressible materials, such as the poorly-engineered artificial fill and landfill materials beneath portions of each of the project sites.

At the project sites, the primary and secondary effects of strong ground shaking could damage or cause the collapse of buildings and foundations, and distort or break wells, tanks and pipelines. Ground shaking and settlement could also damage and impair the function of structures, including berms, cellars, walls and levees, that are intended to protect project elements from flooding or contain spills of hazardous materials.

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<sup>11</sup> Seismic hazards are often discussed in terms of the strength or intensity of ground shaking rather than earthquake magnitude. Measures of ground-shaking account for the attenuation of seismic waves due to distance from a rupture and amplification or damping due to substrate types (e.g., soft sediments vs. hard rock) and thus provide a better estimate of the amount of damage that may occur at a given site. Ground shaking is often expressed as the *acceleration* experienced by an object during an earthquake. The *spectral acceleration* occurs at different oscillation frequencies, which can be plotted to form a ground shaking *response spectrum*. The *peak ground acceleration* (PGA) is a measure of is the maximum force (expressed as a % of the acceleration of gravity, *g*) experienced by a small mass located at the surface of the ground during an earthquake. PGA is often used in seismic design as a hazard index for short, stiff structures.



### *Ground Shaking*

The California Building Code (CBC 2016) requires that all buildings, structures and non-structural components (e.g., architectural, mechanical, electrical and plumbing equipment) be designed and constructed to resist the effects of earthquake motions in accordance with design loads and other requirements contained in the ASCE 7-16 standards. CBC Section 1613 and ASCE 7-16 lay out specific procedures for determining seismic design criteria for different site classes (determined by soil properties) and structure/component risk categories based on probabilistic analysis of seismic loading (i.e., ground acceleration) for a specific location. The CBC mandates the use of USGS *U.S. Seismic Design Maps* for seismic design analysis. The USGS also provides a georeferenced web tool,<sup>12</sup> using earthquake magnitude and probability data from the 2007 fault hazard assessment (WGCEF 2008), for the purposes of calculating ground motion values in accordance with ASCE 7 standards for building and non-structural design.

In several preliminary geotechnical reports prepared for the Pumpkin Patch, LCWA and Synergy sites (KCG 2016a, b, c), BOM conducted seismic design analysis following the procedures and requirements of the previous versions of the CBC and ASCE 7 (CBC 2013; ASCE 7-10), based on 2008 USGS ground-shaking estimates associated with a Maximum Considered Earthquake (MCE, defined as the event with a 2% probability of exceedance in 50 years) of magnitude 7.0, and assuming that the sites are characterized by “stiff soil” (Site Class D). This analysis resulted in a set of ground shaking intensities (spectral accelerations) corresponding to peak ground accelerations (PGA) of 0.601 – 0.603 g. The seismic design provisions of the building code provide for the downward adjustment of the calculated seismic design loads, below the actual peak loads that would occur during a major earthquake, based on the minimum standard that a structure must resist major earthquakes without collapse, but not necessarily without structural damage. The seismic design criteria generated from this analysis would be used in the design and construction of all on-site structures (buildings, berms, tanks, pipelines, walls, etc.), to the extent required by the CBC. In addition, the construction of the oil wells, storage facilities, and pipeline system and utility corridor would be under the permitting, design specifications, and inspection jurisdiction of DOGGR, as summarized in the DOGGR Publication No. PRC10; however, as noted above, the DOGGR regulations do not directly address seismic design.

Commission staff, including the staff geologist, have reviewed the ground shaking analyses provided by BOM (KCG 2016 a, b, c), and have identified several inconsistencies, omissions and updates which, taken together, indicate the need for a more detailed, design-level geotechnical analysis to provide a more complete accounting of the ground shaking hazards and design remedies related to new development at the project sites. These deficiencies are summarized below:

- The ground shaking analyses provided by BOM rely on older versions of the building code (2010) and ASCE 7 guidelines (ASCE 7-10). Newer versions of both are now in effect, and both contain updates addressing seismic design.

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<sup>12</sup> U.S. Geological Survey, *U.S. Seismic Design Maps*, <https://earthquake.usgs.gov/designmaps/us/application.php?>

- The maximum considered earthquake (MCE) and ground shaking intensity information used in BOM’s analysis are from USGS data dating to 2008 (WGCEP 2008). A newer USGS assessment (Field et al. 2013), with updated ground-shaking and earthquake probability estimates, is available, as are other more recent datasets (e.g., NEHRP 2015).
- BOM has not justified the use of site class D (“stiff soil”) to characterize the project site. The field and lab data provided with the geotechnical studies (KCG 2016a, b, c) are not comprehensive, but soil property data from the LCWA site suggest that the use of site class E (“soft clay soil”) may be more appropriate, and certainly more conservative, for characterizing the substrates at the project sites for purposes of seismic design calculations.
- The ground-shaking analysis provided for the Pumpkin Patch site (KCG 2016a) does not specify whether landfill materials that are present beneath the site to depths of over 35 feet, would be removed, partially removed or retained; BOM has since proposed to entirely remove the landfill materials and replace them with compacted fill. The ground-shaking analysis should be updated to account for these changes to the baseline site condition.
- No site-specific ground shaking analysis has been provided for the City site or the proposed pipeline system.

Unless these issues are addressed, there is potential that the existing geotechnical analysis may underestimate the ground-shaking hazards present at the project sites. For example, and for purposes of comparison, staff has consulted a new, beta-version of the *U.S. Seismic Design Maps* web tool (<https://earthquake.usgs.gov/hazards/designmaps/index.php>) which uses more recent parameter values from the 2015 FEMA National Earthquake Hazards Reduction Program (NEHRP 2015)<sup>13</sup>. Using the same site class and risk category inputs as the BOM analysis, this tool generated greater ground shaking intensities for the project site, including a PGA of 0.67 g. Assuming site class E (“soft clay”) soil conditions, the tool returned a site-adjusted PGA of 0.738 g. Though not definitive, this analysis suggests that BOM’s analysis may underestimate the risk to project structures from strong ground shaking, and the ground-shaking analysis should be updated to (a) conform to the current building code and ASCE guidelines, (b) incorporate the most current available scientific information, and (c) reflect the actual site-specific conditions that would be operative at the various sites over the life of the project.

#### *Liquefaction & ground settlement hazards*

All four individual project sites are located in areas susceptible to liquefaction and settlement during strong seismic ground shaking. BOM completed quantitative liquefaction evaluations for the Pumpkin Patch, LCWA and Synergy sites (KCG 2016a, b, c) based on the previously-described ground shaking analysis, using a MCE of M7.0 on the Newport-Inglewood Fault and a PGA of 0.601g. KCG (2016a) and KCG (2016b) estimated that liquefaction could result in 1.3 – 2.7 inches and 2.6 – 4.3 inches of ground settlement at the Pumpkin Patch and LCWA sites,

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<sup>13</sup> Federal Emergency Management Agency (FEMA) National Earthquake Hazards Reduction Program (NEHRP), *Recommended Seismic Provisions for New Buildings and Other Structures*, 2015 version.. This is a design code reference document which has been proposed for use in future editions of the International Building Code and ASCE 7.

respectively. No settlement estimate was provided for the Synergy site (KCG 2016c), and no liquefaction evaluation appears to have been completed or provided for the City site. The geotechnical reports identified a number of general options for mitigating liquefaction and ground settlement hazards (e.g., deep soil mixing, dynamic compaction, jet and pressure grouting, deep foundations), and recommended pressure grouting as a suitable mitigation technique for liquefaction “given the limited affected areas” on the project sites. The reports stated that dry settlement (seismic settlement occurring in soil that does not liquefy) could be best mitigated through structural improvements.

BOM’s evaluation of liquefaction and ground settlement hazards relies on ground-shaking intensities derived from the older, 2007 USGS seismic hazard assessment (WGCEP 2008) and on the analysis framework of the 2013 CBC and ASCE 7-10, each of which has since been superseded by more recent science and updated versions, respectively. As discussed above, the BOM ground shaking analysis may underestimate the shaking intensities that could occur on the project sites during a major earthquake, and as a result, the liquefaction and ground settlement potential may also have been underestimated. Additionally, it is not apparent from the geotechnical reports whether the liquefaction and settlement evaluations took into consideration the existing artificial fill and landfill materials at the sites, and the extent to which the responses of these materials could differ from native soils. No analysis of any sort has been provided for the City site, the proposed location of the oil, gas and water pipeline system. Finally, BOM has provided only a general indication of the types of site preparation and structural design measures that could be used to mitigate liquefaction and settlement hazards, and has not identified the specific measures that would be necessary to assure the structural integrity of the specific structures that would be built at the various sites.

### *Conclusion*

In order to assure the stability and structural integrity of project structures and minimize hazards related to seismic ground shaking, liquefaction and ground settlement, the Commission is requiring **Special Condition 21**. In addition to the elements described in the previous section, this condition requires BOM to submit, for the Executive Director’s review and approval, a site-specific Seismic and Geotechnical Analysis and Hazard Mitigation Plan which includes the following components: (1) Project plans depicting the final locations and dimensions of all new significant structures, including buildings, pipelines, storage tanks, walls and berms; (2) design-level geotechnical analyses, specific to each project site, evaluating ground shaking, liquefaction and seismic settlement hazards based on current building codes (e.g., CBC 2016) and ASCE guidelines (e.g., ASCE 7-16) and the most current, best available science, and recommending specific design and mitigation measures to address these seismic hazards; (3) engineering analyses, specific to each project site and the structures proposed for those sites, demonstrating that project structures would be designed and constructed to withstand expected levels of ground shaking, liquefaction and ground settlement as determined in the geotechnical analysis, and describing the specific design elements and mitigation measures that would be used to assure the integrity of each structure; and (4) a repair and maintenance plan detailing the measures that would be implemented to maintain to assure that all significant structures would continue to perform according to their design bases during an earthquake.

As conditioned, the Commission finds that the proposed project would minimize hazards and assure stability and structural integrity with respect to seismic ground shaking, liquefaction and ground settlement consistent with Section 30253 of the Coastal Act.

***Subsidence & Induced Seismicity***

Historically, the Long Beach area has been subject to severe ground subsidence (the lowering of the surface elevation) due to excessive pumping of subsurface fluids – oil and water – related to oil and groundwater extraction. Past oil and gas production in the Wilmington Oil Field created a land surface “subsidence bowl” of up to 29 feet deep in and around the Port of Long Beach; the City reports that up to 20 square miles of areas adjacent to the Port were affected (City of Long Beach 2018). Since the late 1950s, water injection – in particular, the re-injection of produced water - has been practiced throughout Long Beach oil fields in order to reduce underground compaction and surface subsidence, and for the most part, subsidence in the region has ceased. BOM reports that subsidence “averaged a few tenths of a foot over a period of about 20 years and was generally uniform across wide areas” (KCG 2016b) in areas north and east of the harbor, though it is not clear whether this estimate applies to the project sites, or how recently the subsidence occurred.

In order to prevent subsidence that could result from the proposed new oil drilling, BOM proposes to inject sufficient quantities of water back into the production formation to replace the volume of fluids extracted. The injected water would include both produced water (water pumped from the production formation along with the oil) and “make-up water” pumped from a deep, saline aquifer using separate “source wells.” The number of injection wells and volumes of produced and make-up water to be injected would be determined and regulated by DOGGR, and subject to monitoring and control by the Long Beach Oil and Gas Department. If carried out in compliance with DOGGR and City regulations, the proposed water injection will minimize subsidence hazards related to oil and groundwater extraction.

Subsidence at the project sites could also result from the compaction or collapse of the poorly-characterized landfill materials present beneath portions of the Synergy, Pumpkin Patch and LCWA sites. BOM’s geotechnical assessment found that subsidence risks at the Pumpkin Patch site, in particular, are moderate to high (KCG 2016a). Structures or oil field equipment located in vulnerable areas could be damaged by differential ground settlement associated with subsidence and compaction of the landfill materials. BOM has indicated that these site-specific subsidence hazards would be addressed through (a) compliance with the CBC, and (b) the complete removal of the existing landfill materials, followed by replacement with suitable compacted fill, at all three sites. The Commission finds that implementation of this proposed mitigation prior to construction would minimize subsidence hazards related to the compaction or failure of landfill materials.

An additional hazard related to oil and gas production, and to subsurface water injection and disposal in particular, is that of induced or “triggered” seismicity. Particularly in the central United States (e.g., Oklahoma), recent increases in the occurrence of small to moderate earthquakes has been linked to subsurface wastewater injection into rock formations below the production formation, which apparently results in increases in pore water pressures sufficient to trigger movement along pre-existing faults and fractures (e.g., Walsh and Zoback 2015).

Previous studies focusing on California have found limited evidence for induced seismicity related to water injection (e.g., CCST 2015). A recent USGS study suggests a possible association between pre-1930s earthquake activity in the Los Angeles area, including the 1933 Long Beach earthquake, and previous industry practices (i.e., oil extraction without water injection), but does not suggest a high likelihood of induced earthquakes at present given current water injection practices (Hough and Page 2016). BOM has stated that all water injection would occur within the production formations, in order to maintain existing pore fluid pressures, and would be managed to avoid exceeding pressures that could induce fractures within the rock formation.<sup>14</sup> Additionally, all water injection activities would be conducted in accordance with DOGGR regulations and oversight. For these reasons, the Commission finds that hazards related to induced seismicity are minimal and would be adequately addressed under the proposed project.

In conclusion, the Commission finds that the proposed project would minimize hazards and assure stability and structural integrity with respect to subsidence and induced seismicity, consistent with Section 30253 of the Coastal Act.

## **Coastal Hazards**

### ***Flooding***

The project area is located in between the San Gabriel River and the Los Cerritos Channel. The Synergy site has a direct hydrologic connection to the Los Cerritos Channel, Marine Stadium, Alamitos Bay and the Pacific Ocean ([Exhibit 30](#)). According to the EIR, the City site, located directly north of the San Gabriel River and separated from it by an existing berm, has no direct connection to the River. However, there is a tide gate at the south end of the site, allowing water on the City site to drain into the River. The Pumpkin Patch site is also adjacent to the San Gabriel River, but the western two-thirds of the site, which is flat and at a higher elevation than the eastern one third of the site, does not connect directly to the river, but instead drains to the north. The eastern one-third of the Pumpkin Patch site is an existing wetland that is at the same elevation and hydrologically connected to the southern part of the City site. The LCWA site, which is also relatively flat, drains to the west and has no direct connection to a tidally influenced water body. All four sites are located on the ocean side of a seawater intrusion barrier, called the Alamitos Barrier Project, operated by the Los Angeles Department of Power and Water. Groundwater monitoring data from wells on the Synergy site indicate that groundwater ranges from saline to brackish with distance from Steamshovel Slough.

The proposed project would add several features that could result in a change to the tidal and stormflow regimes for the project sites. At the Synergy site, BOM proposed to restore an approximately 30 acre portion of the existing Synergy oil field to tidal wetlands. Tidal waters would be brought into the newly restored areas through breaches in the existing berm. A new barrier, in the form of a sheetpile wall and earthen berm, would be constructed to separate wetland areas from existing oil facilities to the south. Proposed work on the City site would

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<sup>14</sup> Los Cerritos Wetlands Oil Consolidation and Wetlands Restoration Project White Paper, *Water Injection*, February 2017; Los Cerritos Wetlands Oil Consolidation and Wetlands Restoration Project White Paper, *Induced Seismicity*, February 2017.

involve removal of existing oil facilities and construction of the proposed pipeline and containment berm. New oil and gas production facilities would be constructed on the Pumpkin Patch and LCWA sites. In advance of construction, both sites would be raised and graded. At the Pumpkin Patch site, the final ground elevation of the developed portion of the site would be +13 feet NGVD29. The LCWA site final elevation would be +10 Feet NGVD29.

To further assess the potential for flooding on all project sites from both marine and terrestrial sources, BOM conducted a Hydraulic Modeling Analysis to simulate surface water elevations in response to tidal flows and storm events. The model used tidal data from 1983 to 2001 from the nearest tidal station, Los Angeles Outer Harbor, to create a synthetic tidal series that represents average spring tide conditions. NOAA analyzed tidal data at this station from 1923 through 2006 and determined that the 100-year extreme ocean water level is +5.18 feet NGVD29. This is close to the measured highest tide for Los Angeles Harbor of +5.29 feet NGVD29 and the FEMA 1% base flood elevation of +5.58 feet NGVD29. The model used stormflow data for a 50-year flood developed by the Los Angeles County Department of Public Works for a study on the Los Cerritos channel. Using these data, the modeling results found that under average conditions, the tides within Steamshovel Slough range from +4.28 feet NGVD29 at high tide to -1.55 feet NGVD29 at low tide. Modeling results specific to each site are provided below.

#### *Synergy Site*

The proposed project would result in the preservation of existing wetlands and the restoration of new tidal wetlands areas on the northern portion of the Synergy site, and continued oil production operations and the Visitor's Center on the southern portion of the site. Construction of a new sheetpile wall and berm would separate the two different parts of the site. Modeling results found that tidal connections between the existing Steamshovel slough and the restored areas on the northern portion of the Synergy site would result in increased tidal flooding in these areas, as designed. In addition, modeling also indicated that the elevation of the sheetpile wall and berm (+9.0 feet NGVD29) was sufficient to contain tidal and storm flows within tidally influenced areas, under existing tidal conditions. In fact, the berm would provide more than 3 feet of freeboard over the measured highest tide of +5.29 feet NGVD29, and the FEMA 1% base flood elevation of +5.58 feet NGVD29. The existing berm separating the Synergy oil field from Steamshovel Slough ranges from about 5.4 to 7.6 feet NGVD29. Thus, the proposed berm and sheetpile wall will provide additional flood protection as compared to current conditions and will minimize the risk of flooding at the Synergy site.

#### *City Site*

On the City site, the proposed project provides additional flood protections under existing conditions, but could leave proposed infrastructure on the site vulnerable to tidal and storm-related flooding if the site is restored, as intended, to tidal wetlands in the future. The City site, similar to the Synergy site, is at a relatively low elevation, ranging from approximately 1.5 feet NGVD29 to above 10 feet in a few locations. The proposed project, as conditioned by **Special Condition 3**, would result in the construction of a pipeline around the perimeter of the site. The pipeline would transfer oil, gas, produced water, heat and power between the Pumpkin Patch site and the LCWA site. Final design of the pipeline along the perimeter alignment has not been completed, although the preliminary site plan for this alignment indicates that the pipeline would be placed adjacent to the western and northern boundaries of the site in currently vegetated areas,

and not on an existing road. These areas are likely to be in the middle of the range of elevations at the site.

Under existing conditions, the USACE levee on the southern edge of the site provides flood protection to the site from the San Gabriel River. It was designed to provide protection from the 100-year flood; Moffat & Nichol (2017) reports that the top elevation of the levee ranges from 13.6 to 15 feet NGVD29. In its analysis of potential impacts resulting from the proposed project, the EIR assumes that the USACE will maintain the berm such that it prevents tidal and storm flooding to the City site from the San Gabriel River as a baseline condition. However, this could result in the need for a new or expanded shoreline protective device to protect the pipeline under future flooding conditions, especially when sea level rise is taken into account. A shoreline protective device in this area could have significant adverse effects on the site or surrounding area because it would prevent restoration of the area to tidal wetlands and potentially exacerbate flooding further downstream. Section 30253 of the Coastal Act requires that new development shall be sited and designed to neither create nor contribute to destruction of the site or surrounding area. Accordingly, **Special Condition 20** requires BOM to waive the right to build a future shoreline protective device to protect new development authorized by this Coastal Development Permit. Thus, the pipeline must be designed to fully address any potential existing and future flooding hazards.

Furthermore, as discussed in Section E, one of the principal benefits of the proposed project is opening up these low-lying sites for future restoration to tidal wetlands, once all oil facilities have been removed. Under this future condition, the existing berm would be breached to bring tidal flows onto the site, and the pipeline would be vulnerable to flooding. Increased exposure to water and debris from flooding events could increase the likelihood of corrosion and other damage to the pipeline which in turn increases the risk of an oil spill. To ensure that the pipeline is designed without the need for a shoreline protective device, and in a manner that protects the pipeline itself and the surrounding wetland areas from hazards associated with tidal and storm-related flooding, **Special Condition 3** requires BOM to submit a Perimeter Pipeline Implementation Plan that includes a Supplemental Hydrologic and Flooding Analysis. The Supplemental Analysis must include an assessment of the vulnerability of the perimeter pipeline design and alignment to terrestrial and marine flooding that considers restoration of the City site to tidal wetlands as a baseline condition. Based on results of the analysis, the Supplemental Analysis will also include design recommendations for the pipeline and berm to ensure that impacts associated with flooding are minimized. With this condition in place, the risk of damage from potential flooding at the City site will be minimized.

#### *Pumpkin Patch and LCWA Sites*

Hydraulic modeling was also conducted for the Pumpkin Patch and LCWA sites. The Pumpkin Patch will be raised to a base elevation of approximately +13 feet NGVD29, which is well above the measured highest tide of +5.29 feet NGVD29, and the FEMA 1% base flood elevation of +5.58 feet NGVD29. The LCWA site will be constructed to a base elevation of greater than +10 feet NGVD29, which is also considerably higher than the highest expected tidal and storms flood elevations. Thus, under current conditions, the proposed project includes adequate measures to minimize flooding from tidal or storm flows on the Pumpkin Patch and LCWA sites.

### ***Sea Level Rise***

Sea level has been rising for many years. Several different approaches have been used to analyze the global tide gauge records in order to assess the spatial and temporal variations, and these efforts have yielded sea level rise rates ranging from about 1.2 mm/year to 1.7 mm/year (about 0.5 to 0.7 inches/decade) for the 20th century, but since 1990 the rate has more than doubled, and the rate of sea level rise continues to accelerate. Since the advent of satellite altimetry in 1993, measurements of absolute sea level from space indicate an average global rate of sea level rise of 3.4 mm/year or 1.3 inches/decade – more than twice the average rate over the 20th century and greater than any time over the past one thousand years.<sup>15</sup> Recent observations of sea level along parts of the California coast have shown some anomalous trends; however, there is unequivocal evidence that the climate is warming, and such warming is expected to cause sea levels to rise at an accelerating rate throughout this century.

The State of California has undertaken significant research to understand how much sea level rise to expect over this century and to anticipate the likely impacts of such sea level rise. In April 2017, a working group of the Ocean Protection Council’s (OPC) Science Advisory Team released *Rising Seas in California: An Update on Sea-Level Rise Science*.<sup>16</sup> This report synthesizes recent evolving research on sea level rise science, notably including a discussion of probabilistic sea level rise projections as well as the potential for rapid ice loss leading to extreme sea level rise. This science synthesis was integrated into the OPC’s *State of California Sea-Level Rise Guidance 2018 Update*.<sup>17</sup> This Guidance document provides high-level, statewide recommendations for state agencies and other stakeholders to follow when analyzing sea level rise. Notably, it provides a set of projections that OPC recommends using when assessing potential sea level rise vulnerabilities for various projects. Taken together, the Rising Seas science report and updated State Guidance account for the current best available science on sea level rise for the State of California.

The OPC Guidance recommends that decision-makers use the high end of the projected sea level range for this type of project, to inform decisions regarding development. The updated projections in the 2017 Rising Seas report and the 2018 OPC Guidance suggest sea levels are expected to rise between 2.1 and 6.7 feet by 2100 at the Los Angeles tide gauge<sup>18</sup>, depending on future greenhouse gas emissions. The updated Rising Seas science report and OPC Guidance also include an extreme scenario (termed the “H++” scenario) of 9.9 feet of sea level rise by

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<sup>15</sup> <http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf>

<sup>16</sup> Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA (California Ocean Protection Council Science Advisory Team Working Group). *Rising Seas in California: An Update on Sea-Level Rise Science*. California Ocean Science Trust, April 2017.

<sup>17</sup> OPC State of California Sea-Level Rise Guidance, 2018 Update: [http://www.opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20180314/Item3\\_Exposebit-A OPC SLR Guidance-rd3.pdf](http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exposebit-A OPC SLR Guidance-rd3.pdf)

<sup>18</sup> The OPC Guidance provides sea level rise projections for 12 California tide gauges, and recommends using the projections from the tide gauge closest to the project site. The projections for the LA tide gauge can be found on page 72 of the OPC Guidance.



2100 based on recent modelling efforts that look at possible sea level rise associated with rapid ice sheet loss.

As our understanding of sea level rise continues to evolve, it is possible that sea level rise projections will continue to change as well (as evidenced by the recent updates to best available science). While uncertainty will remain with regard to exactly how much sea levels will rise and when, the direction of sea level change is clear and it is critical to continue to assess sea level rise vulnerabilities when planning for future development. Importantly, maintaining a precautionary approach that considers high or even extreme sea level rise rates and includes planning for future adaptation will help ensure that decisions are made that will result in a resilient coastal California.

On the California coast the effect of a rise in sea level will be the landward migration of the intersection of the ocean with the shore, which will result in increased flooding, erosion, and storm impacts to coastal areas. On a relatively flat beach, with a slope of 40:1, a simple geometric model of the coast indicated that every centimeter of sea level rise will result in a 40 cm landward movement of the ocean/beach interface. For fixed structures on the shoreline, such as a seawall, an increase in sea level will increase the inundation of the structure. More of the structure will be inundated or underwater than is inundated now and the portions of the structure that are now underwater part of the time will be underwater more frequently. Accompanying this rise in sea level will be an increase in wave heights and wave energy. Along much of the California coast, the bottom depth controls the nearshore wave heights, with bigger waves occurring in deeper water. Since wave energy increases with the square of the wave height, a small increase in wave height can cause a significant increase in wave energy and wave damage. Combined with the physical increase in water elevation, a small rise in sea level can expose previously protected back shore development to increased wave action, and those areas that are already exposed to wave action will be exposed more frequently, with higher wave forces. Structures that are adequate for current storm conditions may not provide as much protection in the future.

Rising sea levels are exacerbating and will continue to intensify hazards along the shoreline, including inundation, storm flooding, erosion, saltwater intrusion into aquifers, and liquefaction. Some shoreline development will experience increasingly hazardous conditions over time; therefore, to ensure safety and structural integrity consistent with Section 30253 of the Coastal Act, development must be sited and designed in such a way that takes into account the anticipated impacts of sea level rise over the full time span of its economic life. Changing conditions could also alter the anticipated impacts of the development upon coastal resources. In particular, coastal resources such as beaches and wetlands that are located just inland of the sea could disappear if they are squeezed between rising sea levels and a fixed line of development on the shoreline, thus impacting public access, recreation, visual, and other coastal resources. Therefore, to be consistent with the Chapter 3 policies of the Coastal Act, proposed development must be sited, designed, and conditioned in such a way that considers the impact of the development upon coastal resources over its full economic life, avoiding and mitigating those impacts as appropriate.

### *Project-Related Impacts*

The proposed project is located at the interface between the land and the sea. Although not directly on the shoreline, the proposed development is sited immediately adjacent to two tidal channels that will experience rising sea levels in tandem with the Pacific Ocean. Thus, the proposed development is vulnerable to impacts associated with sea level rise and must be sited and designed to minimize impacts to and from coastal hazards. To analyze potential impacts related to sea level rise, the hydraulic model described in the previous section was used to assess the effect of various levels of sea rise on the proposed project. Although the EIR only examined sea level rise to 2.6 feet above current sea level, BOM, at staff's request, conducted supplemental analyses to consider the effects of 1 to 5.5 feet of sea level rise on the proposed project and surrounding coastal resources. Unfortunately, this analysis was completed before the OPC's 2018 update and thus, the analysis only reflects the previous best available science to consider up to 5.5 feet of sea level rise.

### *Synergy Site*

At the Synergy site, most of the modeling effort was focused on predicting how the restored habitat in the northern portion of the site would change with rising sea levels. To accomplish this, BOM used the model to determine inundation frequencies for the proposed restored land surface, and then used relationships established in the literature for Southern California to predict the type of tidal habitat expected for different inundation frequencies. The model then applied increasing amounts of sea level rise to the site to predict how the habitat acreages would change with increasing inundation. [Exhibit 35 \(a through d\)](#) provides the results of this analysis for the restored area on the Synergy site. These exhibits show that the acreages of subtidal and mudflat increase while the acreages of tidal marsh decrease with increasing sea levels. For example, after construction, mudflats in the restored area would comprise approximately 14.4 acres or about 19 percent of the habitat in the northern portion of the Synergy site (including both newly restored habitats and existing habitats associated with Steamshovel Slough). In the future, the acreage of mudflats would increase to a maximum of 50.6 acres with 3 feet of sea level rise as marsh areas convert to mudflat and then decrease to 37.7 acres with 5.5 feet of sea level rise as mudflats are converted into subtidal areas. Conversely, the acreage of high marsh would start at 6.8 acres, decreasing to 1.7 acres with 3 feet of sea level rise and 1.2 acres with 5.5 feet of sea level rise. It should be noted that because of the shallower tidal channels and the existing muted tidal regime that will be maintained in parts of the restored area, the proposed project is more resilient to sea level rise than if the channels were deeper. Thus, although sea level rise would not result in risk to life or property, it would result in substantial changes to the restored habitat types over time. These changes, however, are unavoidable and the restoration project component has been designed, taking sea level rise into account, to maximize the value of the restored area over time.

The model was also used to determine at what sea level the proposed sheetpile wall and berm would be overtopped. As described earlier, the proposed sheetpile wall and berm provide flood protection to the southern half of the Synergy site. With a top elevation of +9.0 feet NGVD29, these structures are likely to be effective to hold back tidal flooding until the Pacific Ocean experiences between 4.5 and 5 feet of sea level rise. At that point, normal sea conditions will result in overtopping of the sheetpile wall and berm. When storm-based flooding is also considered, these barriers will fail to keep floodwaters off the site even sooner. With 3.5 feet of

sea level rise, the FEMA 1% base flood elevation would increase to +9.08 feet NGVD29, which would overtop the sheetpile wall and berm. By the time 3.5 to 4.5 feet of sea level rise has occurred, if the proposed project is approved, all existing oil production infrastructure would have been removed, and the only structure left on the Synergy site would be the Visitor's Center. As proposed, the Visitor's Center would be constructed approximately five feet above the existing ground surface, resulting in final elevations ranging from approximately +8.2 to +8.5 feet NGVD29. Thus, the Visitor Center would be vulnerable to flooding associated with storms and sea level rise at between 3.5 and 4.5 feet of sea level rise once the sheetpile wall and berm are overtopped. However, the sheetpile wall and berm are meant to be an interim barrier separating the existing oil field and the newly restored and existing wetland habitat areas. At the conclusion of the 20-year decommissioning period, the intent is to restore the southern half of the Synergy site as well, which would involve removing the sheetpile wall and removing or breaching the berm. Thus, under this future condition, the Visitor's Center could be vulnerable to flooding even earlier. To ensure that the Visitor's Center is designed to minimize the risks of flooding associated with sea level rise and future storm flows, **Special Condition 2** requires BOM to submit revised site, grading and design plans for the Synergy site that show a final ground surface elevation for the Visitor's Center that is not at risk for flooding from terrestrial and/or marine sources including up to 6.7 feet of sea level rise. The final ground surface elevation will be determined assuming the restoration of the southern portion of the Synergy site to tidal wetlands as a baseline condition. With this condition in place, the proposed project would adequately minimize the risk of both tidal and storm-related flooding taking into account up to 6.7 feet of sea level rise.

As with the City site, one of the principal benefits of the proposed project is the opportunity to restore the rest of the Synergy site to tidal wetlands once the existing oil infrastructure is removed. With rising sea levels, the specific benefits realized from expanded tidal marsh habitat at the site would be expected to decrease over time as marsh is converted to mudflat and subtidal habitat. Thus, in addition to assessing sea level rise impacts related to the proposed project, the hydraulic model was also used to predict what types of habitat would be present at the site (without significant grading) after the 20 year decommissioning period was complete and how these habitats would change with rising sea levels. The model was used to predict tidal habitats over a range of sea levels intended to capture both the lower and upper ends of the range of expected sea level rise over the next 25-80 years, corresponding to 0.5, 1.5, 2.6 and 5 feet of sea level rise. [Exhibit 36 \(a through d\)](#) show the results of these model runs. These results indicate that in 20-25 years when the southern half of the Synergy site is available for restoration, approximately 40 acres of the site would be the appropriate elevation for mid-marsh habitat (assuming a relatively optimistic climate change scenario). That acreage would decrease to 33 acres with 1.5 feet of sea level rise and 22 acres with 2.6 feet of sea level rise. With 5 feet of sea level rise, only 4.7 acres of habitat would be mid-marsh. The vast majority of the site would be mudflat and subtidal areas. Although these habitats are vital to many species of fish, invertebrates and birds, the additional diversity and ecosystem services provided by tidal marsh habitats would only exist at the very edges of the site by about 2090 according to the OPC medium to high risk aversion projection or 2070 based on the H++ scenario. It should be noted that these results assume that no significant grading occurs on the site to either raise or lower the existing ground surface. It is possible that, depending on funding and feasibility, future restoration designs could incorporate raising the land surface elevation to increase resiliency of

marsh habitats to sea level rise. Although not part of the proposed project, these results illustrate how habitats on the southern portion of the Synergy site may respond to sea level rise, as well as the challenge California faces in restoring and maintaining critical tidal marsh habitat into the future.

#### *City Site*

As described in the previous section, flood protection at the City site is currently provided by the USACE berm that separates the site from the San Gabriel River. Under the proposed project, this berm, as well as the new berm and sheetpile wall on the Synergy site would continue to provide flood protection to the site, and specifically the proposed pipeline, during the 20-year decommissioning period. After all oil production facilities are removed, the site would be available for restoration and reintroduction of tidal flows onto the site. Also as described in the previous section, **Special Condition 3** requires BOM to conduct a Supplemental Hydrologic and Flooding Analysis to ensure that the pipeline is designed to adequately mitigate risks associated with tidal and storm-related flooding assuming that tidal flows have been reintroduced on the site. To ensure that the pipeline design also factors in sea level rise, **Special Condition 3** also requires that the Supplemental Hydrologic and Flooding Analysis consider up to 6.7 feet of sea level rise, consistent with the OPC's most recent conservative projections. With this condition in place, proposed development on the City site would minimize flooding risks associated with existing conditions as well as future conditions of increasing sea level rise.

#### *Pumpkin Patch and LCWA sites*

As discussed previously, both the Pumpkin Patch and LCWA sites will be graded to a relatively high land surface elevation before oil facilities are constructed. Modeling results show that at +13.0 feet NGVD29, the Pumpkin Patch site would not be flooded with 5.5 feet of sea level rise. The LCWA site would be graded to approximately +10.0 feet to minimize the risk of flooding associated with 5.5 feet of sea level rise. Although not modeled, both sites are also likely to be at a sufficiently high elevation to minimize flooding at 6.7 feet of sea level rise. Thus, the proposed project includes adequate measures to minimize flooding risks from sea level rise on both the Pumpkin Patch and LCWA sites.

#### **Conclusion**

For the reasons described above, the Commission finds that the proposed project, as modified by **Special Conditions 2, 3, 20 and 21**, would minimize risks to life and property from seismic and flooding hazards and assure stability and structural integrity without necessitating shoreline protection devices, and is therefore consistent with Coastal Act Sections 30253(a) and (b).

## **K. GREENHOUSE GAS EMISSIONS**

Coastal Act Section 30253 states, in relevant part:

*New development shall do all of the following: [...]*

*c) Be consistent with the requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.*

### **Expected Project-related Greenhouse Gas Emissions**

As shown in the project EIR and the CDP application, the proposed project would result in a substantial increase in greenhouse gas (“GHG”) emissions over the emissions from current operations. BOM is proposing to address its emissions through participation in the state’s Cap-and-Trade Program for GHG emissions, as described below. This will require BOM to acquire offsets or credits each year that mitigate its facility-wide emissions from stationary sources, which would represent the majority of emissions from the proposed project. The project emissions, and the mitigation needed to address them, are detailed below.

### **Standard of Review**

The Coastal Act requires that new development such as the proposed project be consistent with relevant requirements of the local air pollution control district (in this instance, the South Coast Air Quality Management District, or “SCAQMD”) or the California Air Resources Board (“CARB”). SCAQMD has identified GHG significance thresholds for projects in this area that may be subject to the District’s Stationary Sources, Rules, and Plans requirements. CARB is implementing the state’s 2006 Global Warming Solutions Act (Assembly Bill 32), which established comprehensive programs intended to substantially reduce GHG emissions in California.

The key CARB program applicable to this proposed project is the state’s Cap-and-Trade Program.<sup>19</sup> This program is designed to reduce GHG emissions from major sources by setting a cap on statewide GHG emissions and allocating allowable emissions among, and requiring offsets by, major emitters. The BOM project would be covered under the Program’s requirement that specified industrial sources, including oil and gas production, that emit more than 25,000 metric tonnes of GHG emissions per year are expected to fully retire or offset an amount of GHG allowances equal to the project’s annual GHG emissions for its covered sources. The covered sources under this Program include emissions from the project’s stationary sources, such as the natural gas turbines that would be used on site and the diesel engines used to power the project’s drilling rigs.

### **Background: accounting for GHG emissions using the “carbon dioxide equivalent”**

The atmospheric heating that is causing climate change results from emissions of several types of gases. Carbon dioxide (CO<sub>2</sub>) is the most common of these gases, though they also include methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and various fluorinated gases – hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and others. Collectively, these are known as greenhouse gases. Each gas has a different capacity for trapping heat in the atmosphere, which is known as its “global warming potential” – for example, nitrous oxide has almost two hundred times the capacity of carbon dioxide for trapping heat.

For ease in accounting for GHG emissions, a project’s emissions of all these gases is combined and expressed as a single value of the various heating potentials, measured as if all the emissions were CO<sub>2</sub> emissions. This value is known as the project’s carbon dioxide equivalent, or CO<sub>2</sub>e,

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<sup>19</sup> 17 CCR Section 95800 et seq.

and is generally expressed in metric tonnes. For example, a project that emits 10,000 tonnes of CO<sub>2</sub> (which has a CO<sub>2</sub>e of 1) and 100 tonnes of nitrous oxide (which has a CO<sub>2</sub>e of 198) would have a total CO<sub>2</sub>e of 29,800 tonnes  $([10,000 \times 1] + [100 \times 198] = 29,800)$ .

### **Calculating emissions for the existing operations and the proposed project**

BOM has provided estimates of its existing emissions and of the expected emissions from the proposed project in two main categories – construction-related and operational:

- **Construction emissions:** BOM estimates that its construction-related CO<sub>2</sub>e emissions would total about 4,720.5 tonnes over the currently proposed 20-year construction period, with most of those occurring during the first four years of the project. These emissions would result from activities associated with demolition, site preparation, construction of well cellars, tanks, buildings, and infrastructure, wetland restoration, turbine commissioning, landfill excavation and fill, and other similar activities. Guidance from CARB allows for a project’s construction-related emissions to be amortized over a 30-year period or over the expected construction period, whichever is shorter.
- **Operational emissions:** BOM’s operational CO<sub>2</sub>e emissions would include those from use of diesel fuel for its drilling rigs and other equipment, combustion of natural gas, use of fuel for oil trucks and worker travel, and other miscellaneous sources. BOM has estimated its gross operational emissions would be about 70,000 tonnes CO<sub>2</sub>e per year.

Commission staff reviewed BOM’s GHG analyses and made several modifications, primarily to reflect differences between BOM’s proposed “potential existing emissions” baseline and the actual existing baseline. Staff’s changes result in an increase of net emissions from the proposed project as compared to BOM’s estimated existing baseline. These modifications, and the overall greater net increase in emissions, are detailed below.

### **Existing Project Baseline and Expected Project Emissions**

The proposed project would emit substantially more GHG emissions than the existing operations, though the increase in emissions will largely be mitigated through BOM’s participation in the state’s GHG Cap-and-Trade Program.

**Recalculation of Existing Baseline:** BOM’s emissions analysis described the existing operational CO<sub>2</sub>e emissions from its projection of potential on-site production, including emissions resulting from electrical usage, drilling operations, oil trucks, and employee travel.<sup>20</sup> However, this analysis did not use the actual production baseline – instead of basing it on the 33 existing wells that are actually in use at a low production rate, it assumed the potential emissions that would be occurring if all 53 of the site’s existing wells were operating at full production.<sup>21</sup>

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<sup>20</sup> See EIR Appendix B, Greve & Associates, LLC, *Greenhouse Gas Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project*, June 21, 2017.

<sup>21</sup> Ibid, page 23. BOM describes its baseline for existing operations as: “Currently 33 wells are in production. However, without any additional permits the field could operate 53 wells in a combination of production wells and

BOM's "potential existing emissions" baseline is therefore much higher than the actual emissions from its existing operations. Using that higher "potential existing emissions" baseline instead of the actual baseline results in the proposed project appearing to represent a smaller increase in emissions over those of the existing operations.<sup>22</sup>

Given that the potential use of all 53 wells is largely speculative and does not, in fact, reflect existing baseline conditions. Commission staff modified the BOM emissions analysis to reflect the actual existing use of fewer wells at lower production levels and determined that actual baseline emissions were much lower than stated in the BOM analysis. This re-calculation is not assumed to be precise, as there are likely differences in the electrical usage and drilling requirements among the various wells, as well as differences in how much work it would take to bring the different wells into full production. However, assuming a proportional reduction of emissions from 33 active wells instead of 53 (i.e., 60% of BOM's "potential existing" baseline) and a proportional reduction in emissions from producing 300 barrels per day instead of 2,500 barrels per day (i.e., 12% of BOM's "potential existing" baseline), the approximate baseline based on actual, existing operations is about 10% of BOM's presumed potential baseline. As shown in Table 2 below, this actual baseline is about 1,636 tonnes per year instead of 22,211 tonnes per year. Therefore, the expected operational emissions from the proposed project represent a much larger increase from the baseline than previously evaluated, and may require more mitigation than previously considered. These differences are detailed below.

**Table 2:** Recalculation of existing emissions baseline

	From BOM – CO <sub>2</sub> e (in metric tons per year):	Reduced from 53 to 33 wells (i.e., 0.6 times BOM column):	Reduced from 2,500 to 300 barrel per day production (i.e., 0.12 times previous column):
Electrical Usage	20,190	12,114	1,457
Drilling Operations	1,133	680	82
Oil Trucks	851	511	61
Employee Travel*	36	36	36
<b>Total Emissions</b>	<b>22,211</b>		<b>1,636</b>

\*Assumed no change.

**Expected Emissions From the 40-Year and 20-Year Proposed Projects:** BOM also provided its evaluation of the expected increase in emissions that would occur during and after the initially

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water injection wells. The oil production is cyclical, and the 53 wells estimate of potential operations is based on existing facilities, existing permits, as well as the cyclical operations and historical operation rates. Estimates were made of emissions for the field operating at its existing potential level.”

<sup>22</sup> While BOM states that it would not need additional permits to operate all 53 existing wells, it would at least need to undertake repair and maintenance work to these wells and existing infrastructure to begin to operate at higher levels of extraction. Repair and maintenance in this location would require a CDP.

proposed 40-year phase-out project as well as the currently proposed 20-year phase-out. However, both were based on the “potential emissions” baseline instead of the actual existing baseline, and therefore understated the expected increase in emissions resulting from the proposed project.

Table 3 below compares the expected emissions from the 40-year project using BOM’s “potential emissions” baseline as well as the actual emissions baseline developed by Commission staff. BOM included its “potential emissions” baseline within its “curtailed emissions” category, which BOM describes as resulting from two main sources – first, the proposed project’s elimination of about 850 tonnes per year of emissions by delivering oil to refineries via pipeline instead of truck; and second, the proposed project’s reduction of the remaining “curtailed emissions” due to phasing out half of the existing wells during the first 20 years and the other half during the subsequent 20 years. These “curtailed emissions,” however, are based on BOM’s “potential emissions” baseline that assumes all 53 wells are currently operating at full production. As noted above, the actual curtailed emissions would start from a baseline of about 1,636 tonnes rather than BOM’s 22,211 tonnes, so using the actual emissions baseline shows an overall greater increase in emissions from both the 40-year and 20-year proposed projects than previously described. Again, the calculations below are not precise, but suggest that the 40-year phase-out would result in an annual increase of about 68,720 tonnes per year of CO<sub>2</sub>e over the current operation’s 1,636 tonnes, about 20,000 tonnes more than BOM had estimated.

**Table 3: Proposed project with 40-year phase-out of existing operations**

Activity	Using BOM’s “potential emissions” baseline <sup>1</sup>			Using actual emissions baseline		
	Years 1-20	Years 20-40	After 40 years	Years 1-20	Years 20-40	After 40 years
<b>Operational</b>	70,356	70,356	70,356	70,356	70,356	70,356
<b>Annualized Construction</b>	157	157	0	157	157	0
<b>Total Annualized</b>	70,513	70,513	70,356	70,513	70,513	70,356
<b>Curtailed</b>	-16,871	-19,558	-22,211	-818 <sup>2</sup>	-818 <sup>2</sup>	-1,636
<b>Total Annual</b>	53,642	50,955	48,145	69,695	69,695	68,720
<b>Total over 40 years</b>	2,091,940			2,787,800		
<b>Annual after 40 years</b>	48,145			68,720		

<sup>1</sup> BOM figures from Greve & Associates, LLC, *Greenhouse Gas Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project*, June 21, 2017.

<sup>2</sup> These curtailed emissions are based on reducing half the actual baseline’s 1,636 tonnes during the first 20 years and half during the second 20 years.

Table 4 below applies this same comparison to the emission information BOM provided for the 20-year project. In an October 11, 2018 memo, BOM assumed the project would result in the same Total Annual Emissions during its first 20 years – i.e., 53,642 tonnes – and the same post-



project emissions – i.e., 48,145 tonnes after Year 20 – as the 40-year project. Again, though, these figures assumed curtailed emissions that were based on the higher “potential emissions” baseline instead of the actual existing baseline, so they understate the increase in emissions that would result from the 20-year project. As shown in the table below, the 20-year project would have emissions of about 68,877 tonnes per year over the current baseline during the first 20 years, followed by emissions of about 68,720 tonnes for each following year. Similar to the 40-year phase-out, this 20-year phase-out would increase emissions about 20,000 tonnes more than BOM had previously calculated.

**Table 4:** Proposed project with 20-year phase-out of existing operations

	<b>BOM 20-year</b>	<b>Actual baseline 20-year</b>	<b>BOM post-project</b>	<b>Actual baseline post-project</b>
<b>Activity</b>				
<b>Operational</b>	70,356	70,356	70,356	70,356
<b>Annualized Construction</b> <sup>1</sup>	157	236	0	0
<b>New Annualized</b>	70,513	70,592		
<b>Curtailed</b>	-16,871	-1,636	-22,211	-1,636
<b>Total Annual</b>	53,642	68,956	48,145	68,720
<b>Total over 40 years</b>	2,035,740	2,753,520		

<sup>1</sup> SCAQMD guidance allows projects to amortize their construction emissions over a 30-year period or the life of the project, whichever is shorter. BOM used the same annualized construction emissions from the 40-year phase-out that were amortized over 30 years; however, Commission staff amortized those emissions over 20 years.

In comparing the 40-year and 20-year phase-outs, there is a relatively minor difference in expected emissions over an evaluated 40-year project life. The 40-year phase-out would result in an increase of 2,787,800 tonnes over current emissions for an annual average of 69,695 tonnes, whereas the 20-year phase-out would result in an increase of 2,753,520 tonnes over current emissions for an annual average of 68,838 tonnes. The difference in annual emissions between the 40-year and 20-year phase-outs would be about 850 tonnes per year.

### **Mitigation**

BOM has identified several mitigation measures it could implement to reduce the increase in its proposed project’s emissions over those of its current operations. For example, it is considering several alternatives for providing electrical power to the project. One alternative would be to use part of the natural gas produced on site for cogeneration, which would provide part of BOM’s on-site power demands. This approach, which would involve using waste heat from its turbine exhaust to provide part of the project’s power, could reduce project emissions by up to about 14,000 tonnes from what would otherwise occur without cogeneration. Another alternative would be for BOM to meet its electrical power demands by purchasing electricity directly off the grid from Southern California Edison. This approach would have the benefit of any future reductions in emissions that result from Edison’s increased use of renewable energy sources,

though it would also result in BOM combusting the natural gas it would otherwise use in cogeneration. BOM is also considering installing solar photovoltaic panels with some of its facilities to further reduce potential emissions. Depending on costs and feasibility, BOM may also consider a combination of these latter two main alternatives, which would presumably result in a lesser emissions reduction than would occur under the cogeneration option. BOM is also proposing other mitigation measures, such as deploying turbines that use Best Available Control Technology (“BACT”), which represents the technology with the lowest possible emissions, and using fuel efficient construction vehicles during the project.

Regardless of which power sources BOM selects, and even with the above proposed mitigation measures, the project’s emissions would exceed the 25,000-tonne threshold of CARB’s Cap and Trade Program. As noted above, the currently proposed 20-year phase-out project is expected to increase emissions over current operations by about 68,838 tonnes per year. Participation in the Cap-and-Trade Program would ensure BOM acquires offsets or credits under the Program equal to all emissions from the project’s stationary sources, which would represent the majority of its annual emissions. Additionally, depending on the power alternative selected and the mitigation measures implemented, the project may also exceed the applicable SCAQMD “significance threshold,” which is currently 10,000 tonnes for industrial projects.

The project EIR includes Mitigation Measure GHG-1, which states:

*The project shall comply with the Cap-and-Trade Program as administered by CARB for covered sources. In accordance with the Cap-and-Trade Program, the project shall retire GHG allowances or offsets equal to the project’s GHG emissions for covered sources. Retiring the GHG allowances or offsets means the project would acquire them through a number of means carefully controlled by CARB, including obtaining allowances and offsets in CARB-controlled auctions with variable and increasing cost, according to projections and decreasing supply. The project shall also comply with all applicable and required reporting requirements and GHG reduction and trading requirements. The project shall also comply with all applicable Cap-and-Trade regulations as they continue to evolve, such as revisions to the Climate Change Scoping Plan, and become adopted by the California Legislature and/or through CARB’s rulemaking process.*

To further ensure the project is fully consistent with requirements of both CARB and the SCAQMD, the Commission is requiring through **Special Condition 22** that BOM submit the annual report required by CARB that documents covered project emissions and mitigation credits obtained, and that it also submit an annual report describing project compliance with SCAQMD requirements or documentation from SCAQMD stating that no such report or compliance is required.

### **Conclusion**

The proposed project would result in an increase in GHG emissions of about 70,000 tonnes per year. However, BOM’s participation in the CARB Cap-and-Trade Program will result in the project offsetting most of its adverse GHG effects through the purchase of credits or offsets for those emissions, consistent with the requirements imposed by CARB. The reporting

requirements of **Special Condition 22** will ensure that BOM has met the applicable requirements of both CARB and SCAQMD; therefore, the Commission finds the project consistent with relevant provisions of Coastal Act Section 30253.

## **L. CULTURAL AND TRIBAL RESOURCES**

Coastal Act Section 30244 states:

*Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

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See Appendix B, Policies A.7 ( p. 2); D.3.c.vi (p. 11) for applicable LCP policies

Coastal Act Section 30244 states that reasonable mitigation measures shall be required where development would adversely impact archaeological resources. These resources may include sacred lands, traditional cultural places and resources, and archaeological sites. As described in the Commission’s Tribal Consultation Policy, adopted on August 8, 2018, tribal cultural resources are not confined to the boundaries of archaeological sites, but instead can encompass landscapes that are significant to Native American tribal groups because of habitation or use for cultural practices

### **Cultural History of the Los Cerritos Wetlands**

There is extensive evidence that the entire Los Cerritos Wetlands area is sensitive for paleontological, archeological and tribal resources, potentially including Sacred Lands, Tribal Cultural Landscapes and Traditional Cultural Property, designated as Native American resources by the Native American Heritage Commission (NAHC). According the City of Long Beach’s EIR for the proposed project, archeological evidence from the Channel Islands indicates that the first people migrated down the California Coast as early as 12,000 years ago. Nomadic groups gave way to more permanent settlements between 8,000 and 3,000 years ago. The Late Period, stretching from 1000 years before present to approximately 1542 A.D., saw inhabitation of the land that now comprises Los Angeles County and Northern Orange County by the Tongva people, who would also become known as the Gabrieleño people after the Spanish colonization of California. The Gabrieleno-Tongva peoples settled in approximately fifty major villages spread out among the prairie and coastal areas. The largest settlements could hold several hundred people, but most villages supported fifty to one-hundred and fifty people.<sup>23</sup> The Gabrieleno-Tongva people were hunter gatherers who used the local wetlands, rivers and streams

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<sup>23</sup> Jurmain, Claudia and William McCawley, “O, My Ancestor.” Heyday Books, Berkeley California and Rancho Los Alamitos Foundation, Long Beach, California. 2009.

to hunt and fish, to gather reeds and willows to build homes and to provide a reliable water source.

Approximately 2 miles from the two proposed oil development sites, on land now occupied by California State University Long Beach, Rancho Los Alamitos Historic Ranch and Gardens, a veteran's hospital and a private residential community, is an important village site of the Gabrieleno-Tongva people called Povuu'ngna or Puvungna. This village site is significant to many native peoples as the place where Chungichnish, a lawgiver and deity, provided instruction to the Tongva. A parcel of land on the northwest corner of the CSU Long Beach campus is the site of at least one prehistoric burial and is listed on the National Register of Historic Places.<sup>24</sup> Local tribal members fought to protect this parcel and after a long court battle, the University agreed to place a non-binding moratorium on developing this parcel. Tribal members currently use the site for ceremonies. At nearby Rancho Los Alamitos, numerous shell middens and other artifacts indicate the presence of native communities.<sup>25</sup>

To assess the potential that the project area contains significant archeological, paleontological and cultural resources, the project EIR includes both a Cultural Resources Assessment and a Tribal Resources Assessment. As part of these assessments, the EIR documented some of the known natural and cultural history of the project area, and included a site-specific investigation of known cultural resources within a half-mile of the project site. Results of a search of the California Historical Resources Information System (CHRIS) indicate that no known cultural resources have been discovered on any of the project sites, and nine cultural resources have been documented within 0.5 miles of the project site. These resources included a human skull, several shell middens and deposits and two archeological sites that had been destroyed (circa 1958) prior to study and recordation. This list also included three more modern sites, including the Long Beach Marine Stadium. Consultation with the NAHC indicated that tribal sites had been recorded in the general area and recommended that the City conduct tribal consultations. Tribal consultations were conducted in accordance with AB 52.

In addition to the records search, the applicant also hired a consultant to conduct an Archeologic and Paleontological Resource assessment. Research into previous studies and historical photographs identified two potential cultural resources – a historic-period refuse scatter on the Synergy Oil Field, likely related to Oil Field operations and a sub-surface landfill on the Pumpkin Patch Site. Both sites were recommended ineligible for listing on the California Register. An archeological resource field survey conducted by the same consultant consisted of a visual assessment of all four sites as part of a walking survey. No resources were discovered. As part of the Paleontological Resource assessment, a locality search with the Natural History Museum of Los Angeles County indicated that the project site consists of artificial fill overlying alluvium material from the San Gabriel River. As such, the shallower layers of material are not likely to contain paleontological resources. However, it is possible to encounter these resources, including potentially significant vertebrate fossils, at a minimum depth of five feet below the current ground surface.

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<sup>24</sup> Ibid p. 104-105.

<sup>25</sup> Ibid p. 106-107.

In August 2018, the Commission approved an amendment to SEADIP, which is part of the LCP for the City of Long Beach. As discussed earlier, LCP policies serve only as guidance for this CDP. Policy D.3.c.vi (see Appendix B) specifies that the analysis include the results of an investigation to determine if paleontological, archeological, tribal and other cultural resources are present in the project area. If applicable, the analysis must also include a monitoring and mitigation plan that describes how the project will avoid or minimize significant impacts to paleontological, archeological, tribal and other cultural resources. In accordance with this new LCP policy, BOM submitted a Cultural Resource Study as part of the CDP application. The Cultural Resource Study submitted by BOM was essentially the same as the study included in the EIR. No additional information or analysis was included.

### **Tribal Consultation**

During the CDP review process, staff reached out to several tribal members for the purpose of consultation and coordination on the proposed CDP. Staff contacted 24 individuals, six of whom were on the Tribal Consultation List provided by the NAHC in a letter dated October 10, 2018. This list was smaller than the list of sixteen tribal contacts staff received from the NAHC for a similar request during review of the LCP amendment to the City of Long Beach's LCP related to this project. This is due to the wider net cast by the NAHC for a planning-level action versus a permitting action for a specific site. However, staff ensured that all tribal contacts on the original LCP-related list were contacted again to provide an opportunity for consultation on the CDP.

After initially contacting tribal members through email, staff held several consultation meetings and conference calls with tribal leaders and members. As before with the LCP amendment consultation, several tribal members responded that the project was outside their ancestral territory and they did not wish to consult further. On November 1, 2018, staff discussed the proposed project with representatives of the Gabrieleno Band of Mission Indians - Kizh Nation who described the tribe's view that the Los Cerritos Wetlands area is sacred land, just as all land, water and animals are sacred. In general, their view is that land conservation principles have not been respected and the land needs to be returned to its natural state to the extent possible. Thus, they are in support of the project because of the wetlands restoration component. They are also in support of including a tribal education component in the Visitor's Center on the Synergy site. They would like an opportunity to share ancient knowledge of the benefits of local natural resources including local plants and animals, as well as the traditional uses of land and traditional foods and medicines. The tribal representatives also described how burial sites are more likely to be in the uplands instead of the wetlands, although it is possible that tribal artifacts could be buried in this area, and that if burials or ceremonial objects are discovered, they should be left in-situ and avoided if possible, or re-buried where necessary. However, if daily use artifacts are discovered, they suggest these items be turned over to tribes for educational use.

On November 2, 2017, staff also engaged in a tribal consultation with representatives of the Gabrieleno-Tongva San Gabriel Band of Mission Indians, as well as a member of the Acjachem Tribe. These tribal members all described the project site as Sacred Lands that are part of a larger area of connected tribal sites that constitute a Tribal Cultural Landscape that may be eligible for listing by the National Register as a Tribal Cultural Property. This Tribal Cultural Landscape includes several significant tribal sites and resources in close proximity to the project site, including the site of Puvungna, the Rancho Los Alamitos (Long Beach area), and the

Hellman Ranch property (immediately on the other side of the San Gabriel River, in Seal Beach). Many of the tribal representatives that participated in this consultation were involved in advocating that these sites be preserved as tribal resources. For example, in the late 90's, tribal representatives petitioned the Coastal Commission to reject the Heron Point Project on the Hellman Ranch property in nearby Seal Beach. Materials provided by the tribal representatives indicate that this area, located to the southeast of Puvungna and the Los Cerritos Wetlands, was actually an extension of Puvungna and the network of villages that existed in this area before the Spanish arrived. They describe several archeological sites in the area of Hellman Ranch including burial sites and ceremonial centers. The Heron Point development received approvals and began construction. During construction, approximately 35 prehistoric burials and several other artifacts were discovered, some of which were dated to between 2300 and 1500 years before present.<sup>26,27</sup> These resources, many of which were destroyed by the developer, are believed to be associated with a Gabrieleno-Tongva settlement in Seal Beach, known as Motuucheyngna<sup>28</sup>, possibly, referred to as Puvungna East by the tribal members. The Los Cerritos Wetlands are located in between Puvungna and Motuucheyngna and is thus considered by these tribal members to be part of the larger cultural landscape of Puvungna and the surrounding villages.

In addition to being culturally connected through the lives and customs of the tribal people that used to live in the area, the tribal members that were part of this consultation described how the project site and surrounding areas are connected biologically. These connections occur through the waterways and the plants and animals present. All the tribal members that were part of this consultation agreed that these biological resources are sacred to tribal people as an integral component of tribal cultural resources.

In order to protect the significant tribal resources described above, representatives of the Gabrieleno-Tongva San Gabriel Band of Mission Indians, as well as a member of the Acjachem Tribe are not in support of the proposed project. They wish to see this land, including all four

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<sup>26</sup> Koerper, Henry, "An Unusual Ritual Cache from CA-ORA-263, Seal Beach, California." Proceedings for the Society for California Archeology, Volume 19, 2006.

<sup>27</sup> Beginning in July 2002, the Hellman Ranch/Heron Pointe developer began grading for a housing project and Native American human remains were discovered and unearthed on the site of the 70 single-family home lot subdivision. The developer continued to discover remains as the work progressed, and did not cease construction until the number had reached 22 human remains.

On September 16, 2002, the developer halted grading and construction activities after Commission staff informed them that they were violating the terms and conditions of the coastal development permit by failing to address the discovery of Native American remains in accordance with the requirements of the permit. In light of continuing discoveries of additional remains, and to ensure compliance with the permit, the Executive Director issued a Cease and Desist Order to the developer on September 18, 2002 to temporarily halt grading and construction activities until the Commission could take formal enforcement action.

On December 10, 2002, the Commission issued a Cease and Desist Order that required the developer to comply with the permit and prepare a cultural resources mitigation plan for staff approval and to implement the approved plan. The approved plan, implemented by the developer, required 1) significant avoidance and preservation of the sensitive cultural area known on the site, 2) implementation of field procedures related to discovery of cultural materials once construction had re-commenced on the site, 3) repatriation of exhumed human remains and preservation of reburial areas, and 4) construction of cultural education center in the project area.

<sup>28</sup> Tongva Nation Map, compiled by Militant Angeleno, submitted to staff as part of tribal consultation with the Gabrieleno-Tongva tribe.

project sites, preserved and restored to natural habitat. These tribal members were particularly concerned about Steamshovel Slough. As the last remnant historical wetland left in the Los Cerritos Wetlands, they stated that the Slough must be preserved and the remaining habitat protected both as a biological resource and a tribal resource. They do not support the proposed restoration of the Slough because they are concerned that restoration activities will adversely affect the existing habitat within the Slough and they are not confident that the applicant can implement a successful restoration project. Furthermore, they are concerned about the effects of horizontal oil drilling on the existing ground and surface water resources. They also raised concerns that new oil development in immediate proximity to the Slough, other surrounding waterways and the Newport-Inglewood fault line could result in a devastating oil spill that would destroy what little natural habitat and cultural resources are left. In addition to opposing the project, the tribal representatives stated that the process for reviewing the CDP was moving too fast and did not give staff enough time to respectfully interact with tribal members. Finally, they found the Cultural Resource Study, submitted to Commission staff in accordance with LCP Policy D.3.c.vi was inadequate.

A second consultation call was held on November 18, 2018 with representatives of the Gabrieleno-Tongva San Gabriel Band of Mission Indians, as well as a member of the Acjachem Tribe and a professional archeologist, Chester King, from the Long Beach area was invited by the tribe to be a part of the call. Mr. King had conducted a records search that included a wider radius than the 0.5 miles radius used in the search reported in the EIR. Mr. King used a 1 to 1.5 mile radius when searching the CHRIS and reported a high concentration of Native American sites on higher ground on both sides of the San Gabriel River. He confirmed that the project area is located in between two areas with high concentrations of resources and that the nature of the specific resources discovered connected the two areas. He also confirmed that in his professional opinion, the project site should be considered part of the Puvungna complex. Furthermore, Mr. King described a project he had worked on at Ballona Creek where different types of tribal resources were discovered at different elevations, including some resources in areas of the floodplain with a relatively low surface elevation, similar to what could be found in the Los Cerritos Wetlands. He thought it would be feasible and worthwhile to do additional investigations and sampling of the soil layers at the Project sites to discover additional resources.

At the request of the Gabrieleno-Tongva San Gabriel Band of Mission Indians, staff also met with Professor Eugene Ruyle, a retired professor of anthropology from CSU Long Beach. Dr. Ruyle confirmed the significance of Puvungna and described his involvement in protecting the site on the CSU Long Beach Campus.

### **Potential Impacts associated with the Proposed Project**

Section 30244 of the Coastal Act provides that where development could affect archeological or paleontological resources, reasonable mitigation measures shall be required. The first component of an analysis under this section is to determine what, if any, archeological (including tribal and cultural resources) or paleontological resources exist in the project vicinity that could be adversely affected by the proposed development. The analysis in the EIR concluded that tribal resources had been recorded in the larger vicinity, although no specific known resources are present on the project sites. Tribal consultations on the EIR, conducted with two tribes,

indicated that the area was sensitive for tribal resources, but did not identify specific tribal resources or a broader cultural landscape.

*Impacts to Archeological and Paleontological Resources*

Although the project site does not contain any known archeological resources, given the prevalence of archeological sites in the vicinity, it is likely that tribal artifacts and possibly burial sites also exist on this site, especially beneath layers of existing fill. It is potentially less likely for burial sites to exist within the wetland sites because of their low elevation and flooding potential. However, given the amount of change the landscape has likely experienced over time, including uplift, subsidence, altered river courses, as well as the transfer of fill from upland areas into the wetlands to support oil development, the presence of burial sites cannot be ruled out. In addition, based on information provided by the Natural History Museum of Los Angeles County and reported in the EIR, it is also possible that deeper soil layers may contain paleontological resources. Thus, although no specific archeological or paleontological resources have been discovered on the site through surface investigations to date, the potential exists for these resources to be present.

Project-related activities could result in adverse impacts to unknown archeological and paleontological resources present in the project area. On all project sites, excavation associated with wetlands restoration, decommissioning of existing oil facilities including contaminated soil cleanup, site grading and construction of new oil facilities, including drilling of up to 120 new oil wells, could disturb or unearth previously unknown resources.

In order to address the concern that the site has not been adequately investigated for archeological resources, **Special Condition 23** Subsection a, requires BOM to submit an Archeological Research Plan (ARP) for review and approval by the Executive Director. The purpose of the ARP is to describe additional archeological research and testing that will be conducted on the project sites to better characterize the potential for archeological resources on the site, to identify and accurately delineate any resources that may be present, and to avoid disturbance to any discovered deposits by any of the development contemplated by the applicant in its proposal. This ARP would be submitted and implemented prior to issuance of the CDP. The condition requires that the ARP include an expanded records search out to a 1.5 mile radius as well as additional research that specifically addresses the location and nature of resources likely to be present in the project area, especially within wetland and other low-lying areas, and the broader cultural and tribal setting of the Project site. The 1.5 mile radius for the records search is required to provide a broader context for cultural resources in the area that will inform a more robust analysis of the tribal cultural landscape in the project vicinity. The ARP also requires additional testing including soil core sampling and other appropriate methods to characterize the various soil layers, including artificial fill, present at the project site. In addition, the ARP includes provisions for required monitoring of all ground disturbing activities, significance testing if resources are discovered, and submittal of a revised ARP if significant resources are identified. Finally, **Special Condition 23** Subsection a, requires that the ARP be peer-reviewed by an Archaeological Peer Review Committee, Native American Groups and agencies to ensure that tribal people with connections to the project area have a voice in determining how testing is implemented, how any discovered resources are assessed, and appropriate mitigation measures to avoid or minimized impacts to those resources.



Once the ARP has been implemented and the results incorporated into a revised ARP, **Special Condition 23** subsection b, requires that any identified mitigation measures or changes to the proposed development be incorporated into an archaeological monitoring and mitigation plan for the protection of archaeological/paleontological resources during project grading and construction activities. This plan shall include the following components: (a) protocols, including dispute resolution protocols, for monitoring of all ground-disturbing activities by a qualified archeological monitor and by a minimum of two tribal monitors, (b) procedures to follow in the event that cultural resources are discovered, (c) significance testing on any discovered resources, (d) submittal of a Supplementary Archaeological Plan following an Executive Director Determination that cultural deposits are significant, (e) peer review of all required plans by an Archaeological Peer Review Committee, Native American Groups and agencies, and (f) submittal of a final report. This condition ensures that if resources are discovered on one of the project sites during grading and excavation activities, BOM will conduct significance testing of those resources if necessary and submit a peer-reviewed Supplemental Archeological Plan that describes mitigation measures that will be used to protect any discovered resources. The peer review process will ensure that tribal people can provide input into the determination of significance of any discovered resources as well as appropriate mitigation measures to employ, from in-situ preservation to recovery and/or relocation. Lastly, the condition requires the applicant to apply for an amendment to revise the project plans to avoid the found resources.

In addition to addressing concerns under the Coastal Act, **Special Condition 23** is also consistent with LCP Policy D.3.c.vi, requiring that the applicant conduct an analysis of archeological, paleontological and tribal resources. The LCP policy requires that this analysis include the results of an investigation to determine if paleontological, archeological, tribal and other cultural resources are present in the project area and, if applicable, a monitoring and mitigation plan that describes how the project will avoid or minimize significant impacts to paleontological, archeological, tribal and other cultural resources. Although the applicant did submit a Cultural Resources Analysis as part of the CDP application, the requirement to expand on this Analysis as described above will result in a more robust analysis that addresses concerns raised by tribal groups.

#### *Impacts to Cultural Resources*

In addition to potential disturbance of previously unidentified archeological and paleontological resources, the proposed project has the potential to affect a tribal cultural landscape as described by members of the Gabrieleno-Tongva tribe. Information gathered from tribal consultations on the CDP for the proposed project indicate that some tribal members view the project area as Sacred Lands and as part of a Tribal Cultural Landscape that they believe is eligible for listing by the National Register as a Tribal Cultural Property. As described in the staff report for Newport Banning Ranch (CDP 5-15-2097),

*A Tribal Cultural Landscape is any place in which a relationship, past or present, exists between a spatial area, resource, and as associated group of people whose cultural practices, beliefs, or identity connects them to that place. A tribal cultural landscape is determined by and known to a culturally related group of indigenous people with a relationship to that place rather than being determined by external*

*criteria. Relationships may vary from group to group and may be defined temporally or geographically through oral traditions and cultural practices...*

*A Traditional Cultural Property is considered by the National Register to be a type of significance rather than a property type, is determined based on a set of specific criteria, and it can contain and often does contain a complex or a district of 1 or several archeological sites...*

*A Traditional Cultural Property can be a Tribal Cultural Landscape and is broader than the individual archeological sites, and is often a religious or ceremonial site because of unique landscape features, such as a mountain top or a bluff top, a place with significant natural views, a place with rivers or estuaries, special vegetation or wildlife that may contribute to its significance, a place with evidence of cultural traditions or evidence of burials, or a place with religious artifacts or monuments.*

The location of the project site in walking distance of both the cultural center of Puvungna and the neighboring village of Motuucheyngna on the other side of the San Gabriel River support the assertion that the wetlands served as an important resource to the native people, both historically and today. Although the smaller village site of Puvungna (located on the campus of CSU Long Beach) was added the National Register in the 1970s, tribal groups have not yet applied for a Sacred Lands designation from the NAHC, or to the National Register for designation of the larger Puvungna complex as a Tribal Cultural Property, although several tribal members stated that they are currently pursuing such a designation.

As described above, tribal groups with ties to the Los Cerritos Wetlands and the surrounding area believe that the area encompassing all four project sites rises to this level of significance and is eligible for listing as a Tribal Cultural Property. In addition, some tribal members have asserted that the Cultural Resource Analysis presented in the EIR and provided to Commission staff as part of the CDP application was inadequate because it analyzed the sites in a very narrow context and did not assess the project site within the larger cultural context of the current and historical use of the area by the Gabrieleno-Tongva and other native people. Furthermore, some tribal members object to the submitted archeological study because it did not include input from tribal peoples connected to the Los Cerritos Wetland area.

The proposed project could result in adverse impacts to the Tribal Cultural Landscape described above. The construction and operation of oil facilities on the Pumpkin Patch and LCWA sites would add additional industrial development that could block views, contribute to noise and light pollution, and preclude restoration or access to these sites indefinitely. These factors would make it more difficult for tribal members to connect or reconnect to this place, especially in the larger context of the surrounding wetlands. Furthermore, if an oil spill were to occur, it could result in devastating impacts to wetland and upland areas that are part of the existing landscape. These factors would likely create a conflict with the values many tribal people place on these and surrounding site. To partially address these concerns, BOM included several measures in the project to reduce nuisances to surrounding areas. These include restrictions on night lighting, noise, and vibration for all project facilities. Furthermore, **Special Condition 14** requires that BOM submit a Revised Nuisance Minimization Plan that provides an implementation plan listing

specific measure BOM will employ to meet the identified lighting, noise, and vibration restrictions. Finally, **Special Condition 19** requires BOM to submit an Oil Spill Prevention and Response Plan that describes, in detail, the prevention measures BOM will implement to reduce the likelihood of a spill, as well as demonstrating that it has adequate response measures in place to mitigate the effects of the spill in the event that an oil spill does occur.

In contrast, restoration of northern portion of the Synergy site and the decommissioning of existing oil and gas facilities on the Synergy and City sites would improve the Tribal Cultural Landscape by reversing a century of filling and development of the Los Cerritos Wetlands and converting a large area back into natural habitats. Proposed activities would restore and expand existing wetland habitat as well as removing infrastructure to facilitate restoration in the future. This would expand natural wetland areas that are a critical component of the Tribal Cultural Landscape in this area. Several tribal members raised concerns that the proposed restoration activities could have a detrimental effect on the existing high-quality habitat in Steamshovel Slough. To address this concern, **Special Condition 10** requires that BOM submit a Pollution Prevention Plan specifically for Steamshovel Slough. The Plan would describe erosion control measures in place to prevent sedimentation in the Slough as well as a monitoring protocol to verify that the Slough is not degraded by the restoration work. If monitoring shows adverse effect within the Slough, restoration activities would stop until effective remedial measures are implemented. **Special Condition 11** also requires BOM to submit and implement a Pollution Prevention and Construction Responsibilities Plan to control erosion and prevent pollution resulting from project construction.

Finally, to address project-related impacts to cultural resources raised by the Gabrieleno – Kizh Nation, BOM has proposed to include a tribal educational component within the Visitor's Center to educate the public on tribal history and culture in the Los Cerritos Wetlands. To ensure that a tribal educational component within the Visitor's Center is designed and implemented in a fair and timely manner, **Special Condition 24** requires BOM to develop and implement a Tribal Cultural Education Plan, with approval from the Executive Director and with direct involvement from tribal members on the NAHC list for this site. The Plan requires BOM to solicit information from tribal people on what should be included in the Visitor's Center, develop a draft plan based on input from tribal people, and submit the plan back to tribal members for review and comment. The Plan shall also incorporate maintenance and upkeep of educational materials and a process for re-evaluating and updating materials every five years. Once approved by the Executive Director, BOM shall implement the Plan within one year.

### *Conclusion*

The proposed project would result in potential impacts to paleontological and archeological resources. With the inclusion of **Special Conditions 10, 11, 14, 19, 23 and 24**, the proposed project would include critical measures to further characterize the nature of potential resources in the project area and the likelihood of encountering resources, and to ensure that the proposed development is protective of those resources. The proposed project would also result in adverse impacts to cultural resources by approving development that is not consistent with the characterization of the project area as a Tribal Cultural Landscape. As conditioned, the proposed project includes reasonable mitigation measures that would partially address but do not eliminate this impact, and there are no additional reasonable mitigation measures available that could fully

eliminate this impact. Coastal Act section 30244 requires reasonable mitigation measures, and the Commission finds that reasonable mitigation measures have been imposed and thus, the proposed project is consistent with Coastal Act Section 30244.

## **M. PUBLIC ACCESS AND RECREATION**

Coastal Act Section 30210 states:

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coastal Act Section 30214 states, in relevant part:

*(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*

- (1) Topographic and geologic site characteristics.*
- (2) The capacity of the site to sustain use and at what level of intensity.*
- (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*
- (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.*

The proposed project will result in new public access and recreation opportunities within the Los Cerritos Wetlands. The proposed Visitor Center, overlook terrace and picnic facilities, and trail system on the Synergy site would promote public access on a site that has been private and closed to the public for almost a century. This will provide an opportunity for the public to visit and learn about the Los Cerritos Wetlands, an important coastal resource, both past and present. As proposed, the public will have access to the site from dusk until dawn, seven days a week. The proposed project also includes the construction of new bikeways or bikeway improvements and sidewalks on the frontage of several of the sites. These amenities are intended to result in an increase of visitors to the area. The EIR estimates that the new park area could draw between 15,000 and 20,000 visitors every year.

Coastal Act Section 30214 requires, however, that public access be implemented in a manner that takes into account the need to regulate such access, including consideration of the capacity of a site to sustain use and at what level. Thus, balancing the benefits of public access and recreation with natural resource protection is of critical importance, particularly at this site where there are sensitive wetland and upland ecosystems. As described in Sections E and F, Steamshovel Slough is a highly-functioning and productive tidal wetlands system that provides critical habitat to many special status species. It is likely that a significant part of the reason Steamshovel Slough has persisted for as long as it has in such an urbanized and developed environment, is because it is located on private property and not open to development or public

use. Thus, it is critical that the habitat values of the existing Slough as well as the proposed restored areas are protected from overuse by the public. To partially achieve this goal, the trail system has been designed to maintain a significant buffer from wetland resources on the site. The Studebaker Trail is up on a higher elevation area on the eastern edge of the site ([Exhibit 16](#)). Placement of the trail in this location will provide a good vantage point from which to view the wetlands but is sufficiently far away from habitat areas to avoid direct impacts. The Visitor's Center and Overlook Terrace are located on disturbed areas on the southern portion of the site, and thus, separated from the Slough and proposed restored areas by the proposed berm.

To further ensure that public access on the site is maximized, while still ensuring coastal wetlands and habitats on the site are protected, and to minimize any indirect impacts on these habitats from public use of the site, **Special Condition 15** requires BOM to develop a Management and Maintenance Program for Public Access, Recreational Use, and Open Space Areas. The purpose of the Plan is to manage public access and recreation on the site to ensure the continued protection of sensitive biological resources on and adjacent to the site, consistent with Section 30214. The Plan requires BOM to propose to the Executive Director for review and approval, restrictions on timing, locations, number of people allowed on all public access features, and group activities for public access and recreation on the site that ensure disturbance to surrounding habitats is minimized. It also requires BOM to implement signage, appropriate fencing or barriers, public education programs and any other appropriate measures to ensure successful implementation of the approved access and associated restrictions. The Plan also requires that BOM develop a Signage Plan to facilitate navigation of the site, communications regarding site rules, and provide information on the resources. Finally, the Plan requires that BOM identify funding for management and maintenance activities to ensure that these public access facilities are maintained and available into the future.

With **Special Condition 15** in place, maximum public access and recreation will be provided, while also being appropriately managed in a manner that protects the surrounding natural resource. Thus, the Commission finds the proposed project consistent with Sections 30210 and 30214 of the Coastal Act.

## N. OVERRIDE

Coastal Act Section 30260 states:

*Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.*

Coastal Act Section 30262 (Oil and Gas Development) states:

- a) Oil and gas development shall be permitted in accordance with Section 30260, if the following conditions are met:*
- (1) The development is performed safely and consistent with the geologic conditions of the well site.*
  - (2) New or expanded facilities related to that development are consolidated, to the maximum extent feasible and legally permissible, unless consolidation will have adverse environmental consequences and will not significantly reduce the number of producing wells, support facilities, or sites required to produce the reservoir economically and with minimal environmental impacts.*
  - ...*
  - (5) The development will not cause or contribute to subsidence hazards unless it is determined that adequate measures will be undertaken to prevent damage from that subsidence.*
  - (6) With respect to new facilities, all oilfield brines are reinjected into oil-producing zones unless the Division of Oil, Gas, and Geothermal Resources of the Department of Conservation determines to do so would adversely affect production of the reservoirs and unless injection into other subsurface zones will reduce environmental risks. Exceptions to reinjections will be granted consistent with the Ocean Waters Discharge Plan of the State Water Resources Control Board and where adequate provision is made for the elimination of petroleum odors and water quality problems.*
- (b) Where appropriate, monitoring programs to record land surface and near-shore ocean floor movements shall be initiated in locations of new large-scale fluid extraction on land or near shore before operations begin and shall continue until surface conditions have stabilized. Costs of monitoring and mitigation programs shall be borne by liquid and gas extraction operators.*

See Appendix B, Policies A.12 ( p. 2); D.3.a (p. 10) for applicable LCP policies

Coastal Act Section 30262 regulates the development of oil and gas facilities in the Coastal Zone. Part (a) of the policy states that oil and gas development shall be permitted consistent with Coastal Act Section 30260 if the remaining provisions of Section 30262 are met. Sections G and J of this report discuss the proposed project's consistency with Section 30262 and find that as conditioned it is consistent with Sections 30262(a)(1-9). Thus, the remaining question is whether the project can be permitted in accordance with Section 30260. Coastal Act Section 30260 provides for special approval consideration for coastal-dependent industrial facilities, as well as tanker facilities and oil and gas development, that are otherwise found inconsistent with one or more policies contained in Chapter 3 of the Coastal Act. If Chapter 3 policy inconsistencies are identified, the development may nonetheless be approved if it meets a three part test. The first test requires that the Commission find that alternative project locations are "infeasible or more environmentally damaging." The second test requires that the Commission find that to not approve the project would adversely affect the public welfare. Finally, the last test requires that the Commission find that the project has mitigated all adverse environmental effects to the maximum extent feasible.

As described in Section I (Visual Resources) and Section H (Oil Spill) of this report, BOM's proposed project is not consistent with Coastal Act Sections 30232 and 30251. Since the project is an oil and gas facility development, the Commission may approve the project if the three requirements of Coastal Act Section 30260, as well as the remaining requirements found in 30262(a), are satisfied.

***Requirement 1 – Alternative Locations***

The first test of 30260 requires a finding that alternative project locations are “infeasible or more environmentally damaging.”

The proposed project would result in extraction of oil and gas from a reservoir located beneath the Synergy site and surrounding areas. Historically, wells were drilled perpendicularly from the surface down to the desired depth, thus limiting the location of surface infrastructure to directly above the reservoir and resulting in sprawling oil fields with widely dispersed wells. In Long Beach, similar to other Southern California coastal areas, oil was often discovered under wetland areas, resulting in the diking and draining of large tracts of land to facilitate oil drilling and production. However, with the advent of directional or slant drilling, which allows an operator to drill at different angles from the surface to the reservoir from a significantly compressed footprint, the siting of oil and gas drilling facilities has become less constrained.

The Synergy oil field has been producing oil and gas since 1926. In 1998, Samedan Oil Corporation, the operator at the time, applied to the Coastal Commission for a CDP to establish a new oil drilling site and slant drill up to 12 new wells. The Commission denied CDP application E-97-25 finding that 1) the project did not satisfy Coastal Act Section 30262(b)'s requirement that new or expanded oil and gas development be consolidated to the maximum extent feasible, and 2) the applicant did not conduct a sufficient alternative sites analysis. The Commission also concluded that the proposed project was not designed with consideration of the wetland restoration goals of the Los Cerritos wetland complex.

When the current operator reached out to staff in 2012 to explore options for expanding oil production at the Synergy site, the Commission staff shared the findings of the Commission's 1998's denial of Samedan's proposal and urged the operator to address these deficiencies in any new application to expand production of this oil field. The proposed project, which includes relocating oil operations out of the wetlands, reflects BOM's efforts to be responsive to Commission direction given in the form of the denial of Samedan's proposal in 1998.

The EIR, prepared and certified by the City of Long Beach, examined several alternative locations for the proposed development. Several of these alternatives were dismissed as infeasible and not examined further. For example, the “Reduced Development Footprint” alternative would limit all new oil operations to either the Pumpkin Patch or LCWA site, thus avoiding impacts related to construction and oil operation activities on one site and the connecting pipeline. Although this alternative would be less environmentally damaging, the EIR determined this alternative was infeasible because the proposed project relies on revenue from oil production on both sites to make the project economically feasible. The EIR also examined the “No Pipeline” alternative, which would eliminate construction of the connecting pipeline. Under this scenario, each site would need to operate independently with its own wells and

processing facilities. According to the EIR, each site is not big enough to physically accommodate all the necessary equipment and still be economically feasible. Thus, similar to the “Reduced Development Footprint,” this alternative is less environmentally damaging, but it was deemed infeasible.

The EIR also assessed alternative off-site locations. It analyzed the alternative of placing oil and gas processing facilities on the “Bryant” property. The Bryant property, located south of 2<sup>nd</sup> St./Westminster Ave. and to the immediate east of the City site, is a former oil field that was acquired by the LCWA in 2017 with the intent to restore it to tidal wetlands. However, the site, which is significantly larger than either the LCWA or Pumpkin Patch sites, contains wetlands and other sensitive habitat areas that would be adversely affected by the proposed development. Furthermore, given the site’s location immediately adjacent to the San Gabriel River, its restoration potential far exceeds that of the LCWA site or Pumpkin Patch site. Thus, The EIR concluded this alternative would be more environmentally damaging. Other off-site locations were generally explored, but no additional sites could be found that were available for acquisition and development.

Finally, the EIR considered two alternative pipeline alignments for the pipeline corridor connecting the Pumpkin Patch and LCWA sites. As discussed in Section E, the first alternative would locate the aboveground pipeline corridor on a wider oil service road located on the eastern portion of the City site. This alternative would avoid all wetland and tarplant impacts associated with construction of the pipeline. However, it would maintain the fragmentation of existing habitat and limit future restoration options on the site. Under this alternative, tidal influence would not be introduced to the majority of the site and the areas to the north and west of the pipeline would be isolated from the restored tidal wetlands to the south and east of the pipeline alignment. This is in direct conflict with stated goals of the Los Cerritos Wetlands restoration effort to maximize wetland functions and contiguous wetland areas. Thus, although this alternative would avoid a relatively small area of direct impacts to existing degraded wetlands and tarplant, it would also preclude optimal future restoration of the site and result in fewer acres of tidal wetlands in the future. Furthermore, in locating the pipeline further to the east, closer to the San Gabriel River, the potential for an oil spill to reach the river increases. This could result in substantially more widespread damage to marine waters, habitat and species. Thus, this alternative is more environmentally damaging than the perimeter pipeline required by the Commission through this permit.

The second alternative would locate the pipeline corridor along the western and northern perimeter of the site. This alternative is described in detail in Section E. In summary, this alternative would result in additional impacts to existing wetlands and increase the volume of a potential worst-case spill. However, locating the pipeline on the perimeter of the wetland instead of the interior would improve existing habitat contiguity and maximize future restoration potential on the site. In addition, locating the pipeline further from marine waters would likely reduce the magnitude of adverse effects from an oil spill. Furthermore, the potential increase in worst case spill volume can be mitigated by installing additional automatic shutoff valves in the middle of the pipeline. For these reasons, as described in Section E (Dredging and Fill of Wetlands), the perimeter pipeline alignment is a feasible less environmentally damaging alternative, both under Coastal Act Section 30233(a) and Section 30260. To reflect this finding,



**Special Condition 3** requires BOM to submit a Perimeter Pipeline Alignment Implementation Plan for the pipeline corridor connecting the Pumpkin Patch site with the LCWA site that incorporates the perimeter alignment.

For the reasons discussed above, the Commission finds that alternative project locations are more environmentally damaging as compared to the proposed project location, as conditioned.

### **Requirement 2 – Public Welfare**

The second test of 30260 states that non-conforming oil and gas development may be permitted if “to do otherwise would adversely affect the public welfare.” The test requires more than a finding that, on balance, a project as proposed is in the interest of the public. It requires that the Commission find that there would be a detriment to the public welfare were the Commission to object to a proposal.

The proposed project includes two main components: (1) construction and operation of new oil and gas facilities, and (2) restoration of a small area to tidal wetlands, preservation of an existing high-functioning wetland, and the ability to restore substantial wetland acreage in the future. Although the public would receive an indirect benefit from the first project component, or the availability of additional local petroleum products for consumption, it is not likely that the public would be adversely affected if these oil and gas resources were not developed. This is due, in part, to state trends in oil consumption and commitments to increase renewable energy sources.

Although the state is currently a significant consumer of crude oil, the additional crude oil provided by the project is not likely to have a significant effect on the State’s energy portfolio. In 2016, California consumed 671.9 million barrels of crude oil<sup>29</sup>. The total maximum production from the proposed project is 8.64 million barrels per year at full buildout, which would not occur for at least 12 years after construction commences. This corresponds to approximately 1% of California’s 2016 consumption. However, California’s consumption of petroleum products is on a downward trajectory in response to increases in renewable energy sources. In September of this year, Governor Brown, in an effort to combat climate change, signed SB100, which calls for California to meet its energy needs using 60% renewable energy sources by 2030 and 100% renewable energy by 2045. Governor Brown also set a statewide goal of 5 million clean cars on the road by 2030. In response to these ambitious goals, the renewable energy sector has expanded rapidly. In 2017, the California Energy Commission estimates that 32 percent of retail electricity sales in California were served by renewable energy.<sup>30</sup> Thus, although there will be continued need for petroleum products in California in the future, that need is rapidly shrinking. Thus, if the proposed project were not to move forward, it is likely that the loss of the proposed oil products to the market would not be significant. Furthermore, the public would receive an indirect benefit by avoidance of the greenhouse gas emissions associated with extraction and consumption of the extracted oil and gas.

<sup>29</sup> U.S. Energy Information Administration, California State Profile and Energy Estimates. <https://www.eia.gov/state/data.php?sid=CA>.

<sup>30</sup> California Energy Commission, “Tracking Progress – Renewable Energy Overview,” July 2018. [https://www.energy.ca.gov/renewables/tracking\\_progress/documents/renewable.pdf](https://www.energy.ca.gov/renewables/tracking_progress/documents/renewable.pdf).

The principal public benefit from the proposed project would be the restoration of a small area of wetlands and the ability to restore a much larger area in the future. The proposed project would result in the immediate restoration of 29.66 acres of salt marsh and mudflat habitat and about 6 acres of wetlands buffer areas. It would also lead to the preservation of 32 acres of relatively pristine salt marsh, mudflat and subtidal habitat in Steamshovel Slough. The construction of a Visitor's Center and a trail on the adjacent upland would allow the public to access a valuable biological resource that has been locked away on private land for almost 100 years. Tribal communities would have the opportunity to educate the public on their culture and connection to the wetlands and to experience a small part of their cultural landscape returned to a natural state. Perhaps more significantly, the proposed project would open up the possibility of restoring up to 106 additional acres after the 20 year decommissioning period is completed.

However, in addition to the public benefit of current and potential future wetlands restoration, BOM's proposed project also imposes potential risks to the public. A major concern is that the same resources that would be restored and placed back into the public sphere could be severely damaged in the event of an oil spill. As discussed earlier, although the project would upgrade the existing facilities and employ state-of-the-art oil spill prevention measures, it is impossible to fully eliminate the potential for an oil spill. And in the event of a catastrophic spill, the increase in production proposed by BOM results in a significantly larger worst case spill scenario. As described earlier in this report, the Commission has conditioned the permit to address these concerns as thoroughly as possible. But, although the risk of an oil spill would be minimized, it cannot be fully eliminated.

If the proposed project does not move forward, it is uncertain what would happen with the four project sites. Synergy Oil, the current operator of the Synergy and City sites, could continue to operate the oil fields indefinitely. Synergy would have the ability to repair and maintain its existing facilities, which would require a CDP, but the Commission could only regulate the method of the proposed repair and maintenance, not the underlying use; however, any significant upgrade would require a CDP from the Commission in which the Commission could consider the underlying proposed use. The future of the wetlands would also be uncertain. Several years ago, using grants from various federal and state sources, the State Coastal Conservancy made an unsuccessful attempt to purchase the Steamshovel Slough property from the previous oil operator, LCW Oil Operations, Inc. LCW Oil Operations rejected the offer and began development of the proposed project instead. If the proposed project is not approved, it is possible that a similar public-funded purchase offer could be developed for Steamshovel Slough and conceivably the rest of the Synergy property, but Synergy would be under no obligation to accept the offer. What the proposed project accomplishes is providing certainty as to availability of the land and the timeline for wetlands restoration. To leave the restoration potential of these wetlands in limbo, with the prospect of maintaining oil development on potentially valuable biological, cultural and scenic areas, would adversely affect the public welfare. At this time, the only way to ensure restoration of these wetlands on an established timeline would be to approve the proposed project. Thus, for this reason, the Commission finds that the proposed project meets the second test of Coastal Act Section 30260.

### **Requirement 3 – Maximum Feasible Mitigation**

The third test of Coastal Act Section 30260 requires a finding that the adverse environmental impacts of a proposed project have been mitigated to the maximum extent feasible. The discussions below describe mitigation measures included as part of the proposed project meant to address impacts in the areas of policy inconsistency identified above.

#### *Visual Resources*

As discussed in Section I (Visual Resources) of this report, although the project would involve several visual improvements over existing conditions, it would also add a prominent element to the existing public viewscape that is not visually compatible with the surrounding areas. Therefore, the Commission has determined that the proposed project is inconsistent with Coastal Act Section 30251.

The applicant proposes to offset the proposed project's adverse visual effects by planting several dozen trees along about 3,500 feet of shoreline at the nearby Alamitos Bay Marina (see [Exhibits 33a and b](#)). However, the proposal did not include enough information for the Commission to evaluate its potential benefits and detriments. Thus, to ensure that the proposed project's adverse visual effects are mitigated to the maximum extent feasible, the Commission requires **Special Condition 25**. This condition requires BOM to submit a Visual Compensation Plan to the Executive Director for review and approval. The Plan shall include a more robust visual analysis of the proposed project's impacts to the surrounding viewsheds, proposed measures to restore and enhance visual quality within these viewsheds that are roughly proportional in scale to the adverse effects imposed by the proposed project, and a schedule for implementation of the proposed measures. With this measure in place, adverse visual impacts from the proposed project would be mitigated to the maximum extent feasible.

#### *Oil Spill*

As discussed in Section H (Oil Spill) of this report, despite implementing a multitude of state-of-the-art oil spill prevention measures, the location of the proposed oil and gas facilities in immediate proximity to the Newport-Inglewood fault, including the proposed pipeline crossing directly over the fault, make it impossible to eliminate the potential of an oil spill. Furthermore, should a spill occur, again despite state-of-the-art response and cleanup capabilities, the potential exists for significant adverse impacts to wetlands, the San Gabriel River, Alamitos Bay and the Pacific Ocean. Therefore, the Commission has determined that the project is inconsistent with Coastal Act Section 30232.

BOM submitted an Oil Spill Prevention and Response Plan as part of its CDP application. As described in Section H (Oil Spill) of this report, although the submitted Plan includes many critical oil spill prevention and response measures, there are gaps in the proposed measures that must be addressed under Coastal Act Section 30262. Thus, **Special Condition 19** requires that BOM submit a revised Oil Spill Prevention and Response Plan to address these gaps.

Specifically, the Plan should include the following elements:

- A comprehensive risk analysis that quantifies the risk that an oil spill will occur at the proposed facility, including a probability analysis for the range of potential spills based on size, frequency, location and other factors.

- Demonstration that the prevention measures identified are adequate to address the magnitude of risk as determined in the risk analysis.
- Updated worst case discharge volume and containment calculations for the perimeter pipeline route required by **Special Condition 3**
- Provisions to maximize secondary containment of all tanks and develop an inspection protocol implementing smart pigs, if feasible.
- Evidence that the content of the Plan is consistent with California Office of Oil Spill Prevention and Response (OSPR) regulations related to prevention and safety measures and preparedness training and emergency planning.

One of the riskiest components of the proposed project is the pipeline that connects the Pumpkin Patch site with the LCWA site. The pipeline, which traverses the City site, would be immediately adjacent to existing wetlands in a location where plans for future restoration of tidal influence and salt marsh are underway. As described above, opening up these existing oil field/former tidal marsh areas for full restoration is the principal public benefit of the proposed project. Thus, to mitigate to the maximum extent feasible and to ensure that the public benefits of the project are achieved, it is crucial that the proposed project be designed and constructed in a manner that facilitates maximum restoration of both the City and Synergy sites.

On the City site, **Special Condition 3** requires BOM to construct the pipeline along the perimeter of the site, in part, to maximize the restoration potential for the remainder of the site. The perimeter pipeline route would also minimize adverse impacts of an oil spill by placing the pipeline as far away from tidal waters as is possible on the site. However, the design of the pipeline, and specifically the elevation at which the pipeline is constructed, was based on the current use of the site as a diked oil field, instead of the intended future condition of restored wetlands. Once decommissioning of the site is complete, restoration plans as currently conceptualized by the LCWA and multiple agencies and stakeholders would introduce tidal flows into the site. This could result in an increased potential for flooding from the tides and from sea level rise, resulting in increased likelihood of an oil spill and significant impacts to the surrounding wetlands. To address this concern, **Special Condition 3** requires that as part of the Perimeter Pipeline Alignment Implementation Plan, BOM conduct a supplemental hydrologic and flooding analysis for the pipeline that assesses vulnerability of the pipeline to terrestrial and marine flooding and up to 5.5 feet of sea level rise, assuming a baseline condition of restoration of the City site to tidally influenced wetlands. **Special Condition 3** further requires that the Study recommend measures to address any identified vulnerabilities, and implement those measures to ensure the pipeline is designed and constructed to minimize the potential for impacts to wetlands. The Plan would be submitted to the Executive Director for review and approval. If recommended measures would result in additional development that is not contemplated in this permit, BOM would be required to submit an application to amend the CDP. With **Special Condition 3** in place, the proposed project would have mitigated potential oil spill impacts to the maximum extent feasible.

With BOM's mitigation measures and with the imposition of the Commission's **Special Conditions**, the Commission finds that the project meets the third test of Section 30260.

## **Conclusion**

The Commission finds that the proposed project meets all of the tests of section 30260. It therefore exercises its discretion to approve this oil and gas development project, despite its inconsistency with Coastal Act policies requiring protection of scenic and visual resources and the protection against oil spills.

## **O. CALIFORNIA ENVIRONMENTAL QUALITY ACT**

Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The City of Long Beach, acting as lead CEQA agency, certified an Environmental Impact Report for the proposed project on January 16, 2018.

The proposed development has been conditioned to be found consistent with the Chapter 3 policies of the Coastal Act. Mitigation measures, including conditions addressing dredge and fill of coastal waters, biological resources and water quality, oil and gas development, oil spill, visual resources, hazards, air quality, cultural resources and public access will ensure that the project does not result in any unmitigated significant adverse environmental impacts. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project is the least environmentally-damaging feasible alternative and is consistent with the requirements of the Coastal Act to conform to CEQA.