Exhibit A

Final

MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM

Initial Study/Mitigated Negative Declaration

Prepared for
City of Monterey

May 2019

ESA

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CHAPTER 1
Introduction

Coastal erosion and beach sediment deficits are ongoing issues facing the state of California and its many sandy beaches, threatening oceanfront facilities and recreational destinations, and requiring thoughtful and proactive management over multi-year timeframes to protect California's resources and address projected sea level rise along the California coast.

Regional management of sediment is the goal of the State of California Resources Agency and the U.S. Army Corps of Engineers (USACE), the founding partners of the California Coastal Sediment Management Workgroup (CSMW). The California CSMW is working with regional stakeholder groups to develop Coastal Regional Sediment Management Plans (CRSMP) within specific regions of coastal California to help city, county, and coastal managers, and local and state-wide regulatory personnel identify and resolve issues of concern within their region.

In 2005, the Monterey Bay National Marine Sanctuary (MBNMS) and the City of Monterey (City), together with other regional entities, formed the Southern Monterey Bay Coastal Erosion Workgroup (SMBCEW) as a collaborative regional consortium of local, state, and federal agencies, to develop a regional planning approach to address, amongst other issues, coastal erosion in the Southern Monterey Bay (SMB) region. The SMBCEW provided input and review of the CRSMP for SMB (PWA et al. 2008), and is a key stakeholder in the development and future implementation of any proposed sediment management program in SMB.

Several Monterey Peninsula cities (Marina, Monterey, Sand City, and Seaside) are currently seeking to support the Department of Boating and Waterways (DBW) and the California Sediment Management Workgroup (CSMW) in implementation of certain actions identified in the California Coastal Sediment Management Master Plan (Sediment Master Plan). One of the key goals of the Sediment Master Plan and related studies is to develop a process that helps to manage sand on a regional or littoral cell[1] basis. The Cities of Marina, Monterey, Sand City and Seaside are seeking to implement specific regional sediment management through beach nourishment (sand placement) activities, as envisioned in the Sediment Master Plan, as specifically identified in the CRSMP for SMB (PWA et al. 2008) and in the Monterey Bay Sea

[1] Coastlines can be divided into naturally distinct, essentially self-contained units or 'cells' that are geographically limited. Coastal scientists call these self-contained coastal units 'littoral cells,' as Littoral is defined as 'relating to or situated on the shore.' Littoral cells consist of a series of sand sources (such as rivers, streams, and eroding coastal bluffs) that provide sand to the shoreline; sand sinks (such as coastal dunes and submarine canyons) where sand is lost from the shoreline; and longshore transport or littoral drift that moves sand along the shoreline. The balance between the volumes of sand entering and leaving a littoral cell over the long-term govern the long-term width of the beaches within the cell. Scientists use the concept of sand budgets to identify and quantify, to the degree possible, additions and losses of sand that influence beach width. Therefore, the littoral cell and its budget of sediment are essential planning tools for regional and coastal management.

Level Rise Vulnerability Assessment (ESA PWA 2014). Beach nourishment—one form of sediment management—provides erosion control, recreational benefits, and habitat creation and enhancement.

The intent of the Opportunistic Beach Nourishment Program (OBNP, or proposed program), is to define a process whereby available suitable beach material can be stockpiled and/or directly placed on the beach with a streamlined process. Under the proposed program, beach material would be evaluated for compatibility, stockpiled at designated sites if needed, and placed on pre-determined beach receiver sites(s) following methods described in the following sections. Appropriate environmental clearance and permits for the proposed program would be prepared in advance, such that when beach materials become available, there are minimal delays in obtaining approvals for specific placement or stockpiling activities.

The City of Monterey, with grant funding provided by DBW, has prepared the OBNP to address ongoing and future coastal erosion in the SMB region, with a focus on several known critical areas of beach erosion. It is important to note that, as compared to other similar projects in California, the City of Monterey's proposed OBNP would differ as it does not propose the placement of sand within the surf zone, but rather higher up on the 'dry beach,' for reasons briefly mentioned above and detailed in later sections of this document.

CHAPTER 2
Project Description

2.1 Program Overview

2.1.1 Purpose and Need

As summarized in the CRSMP prepared for SMB (PWA et al. 2008), over the next 50 years, the coastal dunes of SMB between the Salinas River mouth and Wharf II in Monterey are predicted to erode at rates between 1 and 6 feet (ft) per year. Over this planning time frame, eight oceanfront facilities are at high risk due to this erosion, and will require measures to be implemented to prevent their loss. Six of these facilities are located along the shoreline of the Cities of Sand City, Seaside, and Monterey: Sand City and Tioga Avenue west of Highway 1, Seaside Pump Station, Monterey Interceptor between Seaside Pump Station and Wharf II, Monterey Beach Resort, Ocean Harbor House condominiums, and Monterey La Playa town homes. The other two facilities are the Sanctuary Beach Resort and Marina Coast Water District buildings, located in Marina one mile south of the CEMEX sand mining operations.

The proposed program is a region-wide opportunistic beach nourishment (sand placement) program which would address certain known areas of coastal erosion within the SMB littoral cell, as identified in the CRSMP for SMB and the Monterey Bay Sea Level Rise Vulnerability Assessment (ESA PWA 2014). The purpose of the proposed program is to capitalize on opportunities to obtain beach-quality sand from construction, development, or dredging projects in the region when it becomes available. The proposed program was developed based on recommendations made in the Sediment Master Plan, the CRSMP for SMB (PWA et al. 2008), and the Monterey Bay Sea Level Rise Vulnerability Assessment (ESA PWA 2014), with direction from the City and the SMBCEW.

As the lead agency, the City's approval of the proposed program pursuant to California Environmental Quality Act (CEQA) and the subsequent receipt of proposed program permits would allow quick and efficient placement of opportunistic beach material as it becomes available. This efficiency would make opportunistic material a viable and cost-effective sand source for the proposed program. The proposed program would be implemented on a site-by-site basis by the collective members in SMB, and monitored over time. Each of the sites may be modified, with resources agencies approval, and pursuant to CEQA requirements, to maintain minimal environmental impacts while maximizing coastal erosion protection and nourishment of beaches and the littoral zone.

Therefore, the proposed program's basic purpose is beach nourishment (for recreation, habitat restoration, and coastal erosion protection). Further the proposed program's overall purpose is to

enable the Cities of Marina, Monterey, Sand City, and Seaside to efficiently and effectively identify, screen, stockpile, and place suitable sand on an identified list of beaches in need of nourishment and/or erosion protection within the SMB, without the costs and delays associated with environmental compliance and permitting of placement activities on a project-by-project basis.

2.1.2 Project Objectives

The proposed program's objectives are to:

- Identify a list of beaches in need of nourishment and/or erosion protection in SMB (also referred to as receiver sites) and obtain environmental clearance and regulatory approvals for the placement of sand at these receiver sites;
- Identify a list of suitable stockpile sites located in close proximity to receiver sites along existing transportation routes and with an existing level of disturbance or degradation, and obtain environmental clearance and regulatory approvals for the temporary storage of opportunistically-derived sand at these stockpile sites;
- Provide both a specific list and a general description of potentially-suitable sources of opportunistic sand in the region, also referred to as source sites, and prescribe the process and requirements for assessing suitable sources and testing material for compatibility with the identified receiver sites;
- Define the design considerations for each planned placement activity, including maximum volume, placement techniques, placement rates and location(s), and transportation methods;
- Define the anticipated process and timeline for obtaining required regulatory permits and environmental approvals for the proposed program, to inform the likely steps the City will need to take to obtain future proposed program approvals, including obtaining approvals for each desired placement activity;
- Work with regulatory and/or resource agencies, through the future permitting and approval process, to define the specific monitoring, adaptive management, and maintenance activities to be carried out at stockpile and/or receiver sites to evaluate project efficacy, maximize proposed program benefits, protect sensitive resources, and minimize potential adverse impacts of the proposed program;
- Define the proposed program to enable cost-effective and streamlined environmental compliance and permitting processes for future implementation of projects under the proposed program; and,
- Define the proposed program to maximize the benefits of opportunistic beach nourishment activities while avoiding significant adverse impacts to water quality, sensitive species and/or habitats (including the waters of the MBNMS), cultural resources, traffic and transportation, nearby businesses or residences, and human uses including multiple forms of coastal recreation.

2.2 Program Description

The proposed program is designed to facilitate sand placement in order to mitigate ongoing coastal erosion and the effects of future sea level rise, resulting in multi-objective long-term

benefits with minimized short-term adverse effects. Under the proposed program, the cities would undertake multiple distinct sand placement activities (hereafter called projects) as opportunistic sources become available and are determined compatible. As envisioned under the proposed program, there may be up to three types of projects:

1. The transport of sand from an inland opportunistic source site to a stockpile site (to await funding and/or clearance for placement at a receiver site);
2. The transport of sand from a stockpile site to a receiver site (following clearance); and
3. The transport of sand from an inland opportunistic source site directly to a receiver site for placement.

Each project would likely be small in quantity (i.e., 1,000 to 100,000 cubic yards [CY]), but in aggregate with other projects, would result in a net positive effect on coastal habitats, recreation, and coastal infrastructure in SMB. The cities would implement the proposed program, including monitoring and maintenance of receiver and stockpile sites, to maximize proposed program benefits, protect sensitive resources, and minimize potential adverse impacts of the proposed program. If determined appropriate in the future, the cities could add or remove identified receiver and/or stockpile sites, to improve or increase the scale of the proposed program, after obtaining the necessary environmental approvals.

The proposed program generally consists of the following elements, as further described in the following sections:

1. Identification of appropriate receiver and stockpile sites;
2. Explanation of the volume of sediment needed at each site, to counteract long-term shoreline erosion;
3. Identification and characterization of specific known opportunistic sand sources and, more generically, other potential economically-feasible sand sources that may become available in the future;
4. Identification of the process expected for obtaining required regulatory permits and approvals for the proposed program and for future implementation of placement projects;
5. Development of protocols and methods for testing opportunistic sand sources for compatibility with receiver sites as sources become available;
6. Development of appropriate design considerations and avoidance and/or minimization measures for future sand placement projects, to ensure minimal impacts, including site and access route preparation (if necessary), stockpiling methods, beach placement techniques including quantity and timing, and the use of site-specific compatible sand-size material;
7. Future development of monitoring and reporting protocols for receiver and stockpile sites, in coordination with regulatory and/or resource agencies as part of the future permitting and approvals process; and,

8. Future development of long-term maintenance procedures, including adaptive management provisions and a process by which new sites may be added in the future, in coordination with regulatory and/or resource agencies as part of the future permitting and approvals process.

The City is currently seeking approval of the proposed program pursuant to CEQA, including: the list of specific receiver and stockpile sites identified; the specific known sand sources and a general description of potential opportunistic source sites (that may become available); the specific protocol for seeking final permits and approvals in order to carry out proposed program activities in the future (when funding and suitable sand becomes available); the specific testing protocol and methods for evaluating compatibility of opportunistic sand now and in the future (for known source sites and as opportunistic sand becomes available); the specific design considerations to be followed for sand placement projects in the future (when funding and suitable sand becomes available); the future development of specific monitoring and reporting protocols to be followed after implementation of sand placement projects, to be developed as a part of the future regulatory and/or resource agency permitting and approvals process; and, the future development of specific long-term site maintenance and adaptive management measures to be followed for both specific sand placement projects and the overall proposed program to be developed as a part of the future regulatory/and or resource agency permitting and approvals process.

This CEQA document will serve the City in its approval of the proposed program, as well as the projects within its jurisdiction in the City boundaries. The other participating cities may choose to use this document in their roles as lead agencies for their approval of the proposed program and the projects within their individual jurisdictions to make efficient use of this document. Following CEQA approval, and subject to adequate funding, the cities will pursue regulatory permits and approvals for the proposed program in 2019, with a goal of implementing specific sand placement projects in 2020 and beyond (subject to funding and the availability of compatible opportunistic sand).

2.2.1 Receiver and Stockpile Sites

Receiver sites were assessed for potential nearby stockpile sites where suitable sand could be temporarily stored until subsequent placement on the beach. Reasons to stockpile include: waiting to accumulate sufficient volume of sand to justify mobilization of construction equipment; avoiding sand placement during environmentally sensitive periods (i.e., snowy plover nesting season); and, avoiding sand placement during high recreational periods (summer). Stockpile locations would be located in accessible areas near placement sites that are disturbed or unvegetated. Critical areas of erosion identified in the CRSMP that were used to identify the location of receiver sites include:

1. Areas where any facility is located on the dune top and is under threat over the next 50 years through continued erosion of the dune face;

2. Areas where a facility is located beneath the beach and is under threat over the next 50 years from exposure due to beach lowering as the shoreline profile migrates landward; and,

3. Areas where armoring of the facility exists reducing the local supply of sand to the beach, causing passive erosion and increasing the potential for undermining the armoring once it is impacted by waves, as well as retreat of the beach on either side.

Considering these critical areas of erosion and existing access, the following five receiver sites along the SMB, shown in **Figure 1**, are prioritized under the proposed program:

- Del Monte,
- North Monterey,
- Sand City/Seaside,
- Marina, and
- the CEMEX Sand Mine.

Maximum sand placement volumes for each receiver site are reported in the sections below, and assume the following dimensions:

- Sand lift placed on beach, starting from beach berm (which is above the Mean High Water (MHW) line at 4.8 ft North American Vertical Datum (NAVD) in this program) to the backshore, 30 ft minimum width, 3 ft maximum depth;
- Sand berm at back of the beach (behind the 30-ft minimum beach lift), at a 3 Height (H):1 Vertical (V) slope, 50 ft maximum width;
- Maximum 50% of reach to be placed at any time, to limit ecological impacts (either contiguous placement at 50% of receiver length or in 100-ft long placements spaced at 100 ft); and,
- Representative beach widths obtained from the 2009-2011 Coastal California TopoBathy Merged Project Digital Elevation Model.[2]

Receiver sites and nearby stockpile sites are described in more detail below.

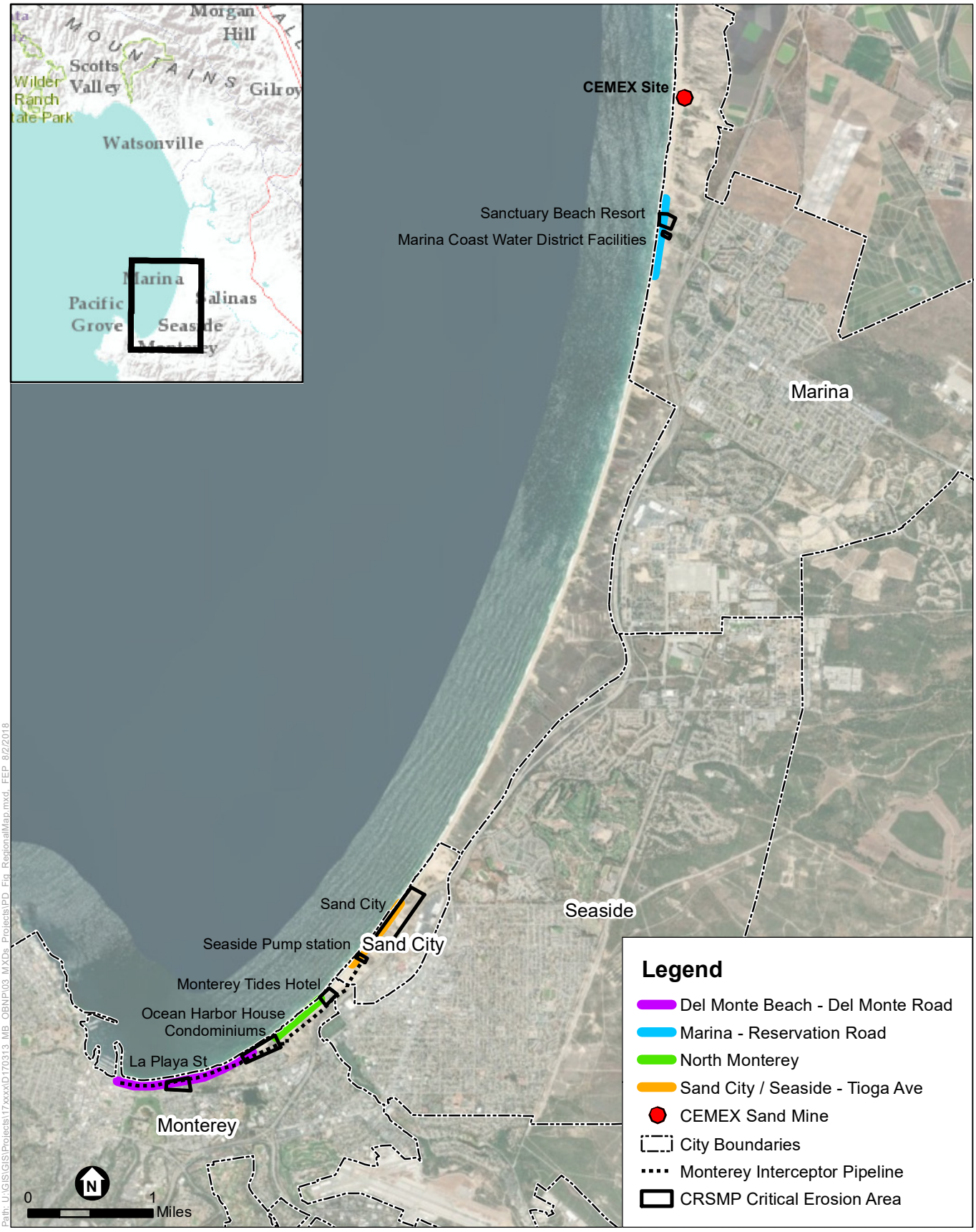
Del Monte

Receiver Site

This receiver site at the south end of Monterey Bay spans approximately 6,000 linear ft of shoreline from Wharf II to the terminus of Beach Way at Del Monte Beach (**Figure 2**). The site is entirely within the City of Monterey. The immediate backshore along this reach of coast is mostly undeveloped dunes and coastal bluffs with three primary backshore assets: Monterey Beach House nearest the wharf, Monterey La Playa Town Homes at La Playa Street and the Monterey Pump Station and associated structures. The site is accessible to vehicles via Del Monte Avenue south to the unnamed access road to the Monterey Pump Station. Assuming a maximum sand placement of 50% of the total reach width and the placement parameters described previously, the Del Monte receiver site could accept approximately 17,000 CY of sand at one time (assuming 42 ft of available beach above 7.2 ft NAVD).

This site was selected due to structures at risk as well as recreational value of having a wide beach in this area. The La Playa town homes are located in the dunes at the end of La Playa Street in Monterey. The westernmost condominium sits only 20 ft from the dune edge and is protected

[2] Metadata available here: https://inport.nmfs.noaa.gov/inport/item/49417.



SOURCE: ESRI, ESA

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Figure 1
Regional Map of Receiver Sites

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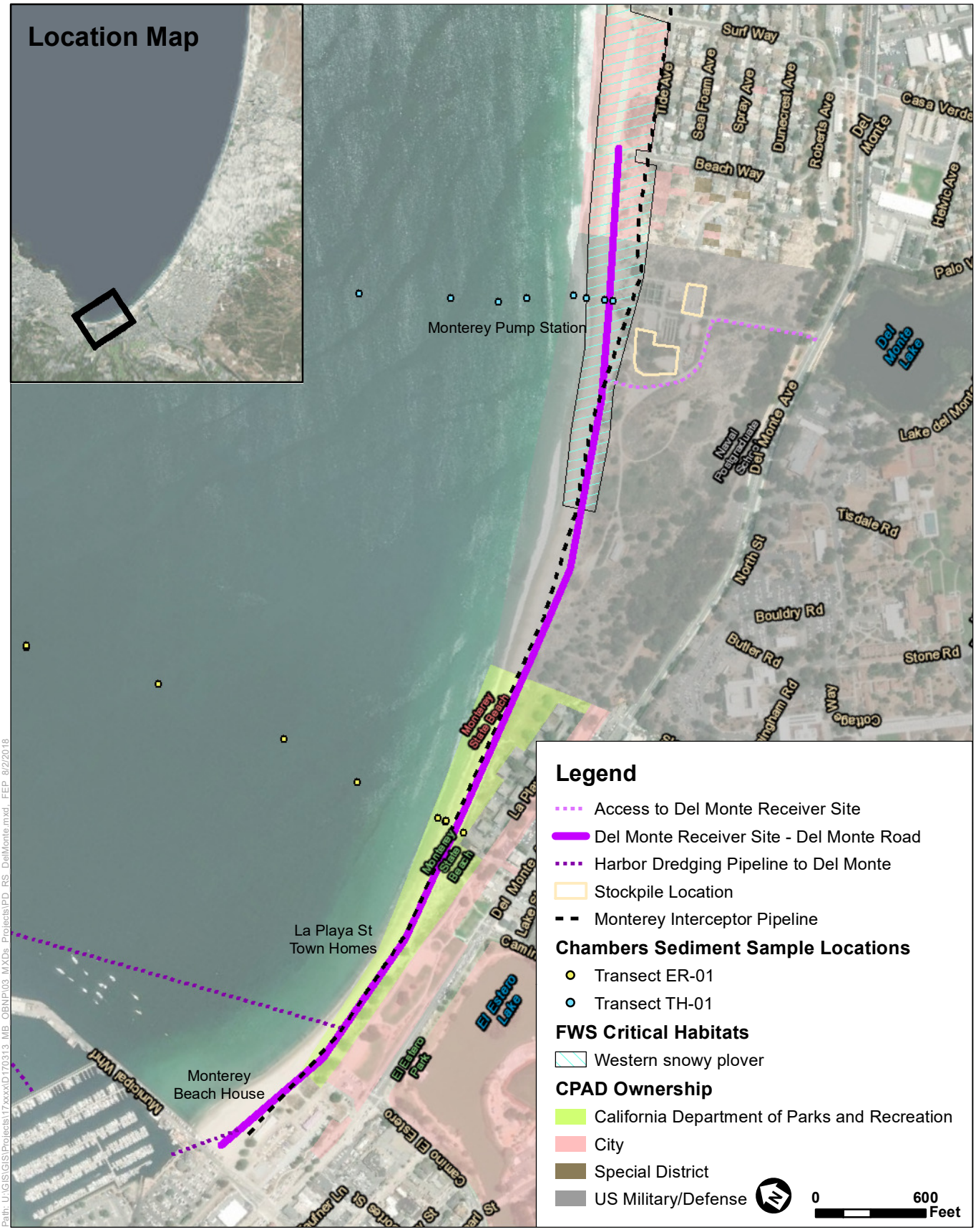

SOURCE: ESRI, ESA, Chambers, FWS, CPAD

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Figure 2
Del Monte Receiver Site, Access and Dredging Pipeline Range

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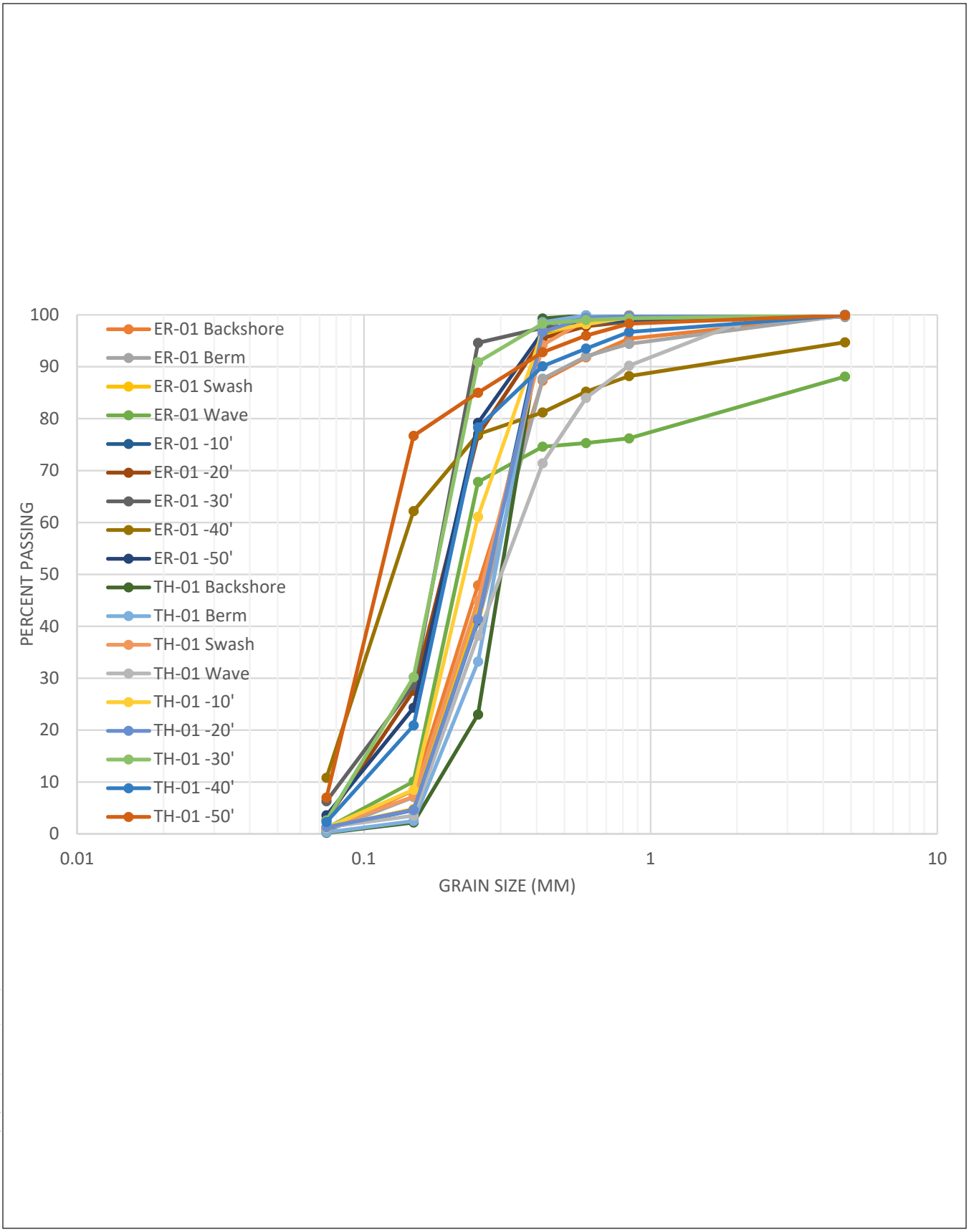
by a small pile of riprap. Long-term future erosion rates are estimated to be approximately 1 ft/year (PWA et al. 2008), and therefore structures towards the western end of the complex are at high risk of erosion over the next 50 years. In addition, the structures could be vulnerable to wave damage and flooding due to the low elevation of the fronting dunes, compared to the base flood elevation (BFE – maximum elevation of wave run-up and overtopping during a 100-year flood event) at this location of 13 to 17 ft NAVD (FEMA 2017).

This site has been used recently to periodically dispose of dredged sand from Monterey Harbor, when sand slurry is pumped up onto the beach above the mean high water line. Although this activity is expected to periodically continue (with slurry placement activities along the southern portion of the receiver site), it is outside of the scope of this proposed program. For the purposes of this project, stockpile locations are identified below to facilitate the beneficial reuse of inland sand sources along the northern portion of the receiver site. A physical and biological survey of the Del Monte receiver site was last conducted by Chambers in 2014. Samples were taken along two transects at nine stations including the backshore, berm, swash zone, surf zone (wave), and at -10 ft, -20 ft, -30 ft, -40 ft, and -50 ft mean lower low water line (MLLW). Sediment samples were taken (as shown in Figure 2) and were classified as poorly graded fine to medium sand. Grain size distributions for each sample from two shore transects are shown in **Figure 3**. The median grain size of sediment samples ranged from 0.11 to 0.29 mm along the Del Monte transects. Grain size distributions for each sample are shown in **Table 1**.

TABLE 1
DEL MONTE RECEIVER SITE RESULTS OF SEDIMENT SAMPLE SIEVE ANALYSIS

Sample ID	Designation	Sieve Size % Passing							
		#4 4.75 mm	#10 2 mm	#20 0.84 mm	#30 0.6 mm	#40 0.42 mm	#60 0.25 mm	#100 0.15 mm	#200 0.07 mm
ER-01	Backshore	99.8		95.4	91.8	87.3	47.9	8.4	0.7
ER-01	Berm	99.9		94.4	92.0	87.7	40.8	7.1	0.6
ER-01	Swash	100.0		99.2	98.3	96.1	43.2	4.8	1.2
ER-01	Wave	88.1		76.2	75.3	74.6	67.8	10.1	1.1
ER-01	-10'	100.0		99.7	99.4	98.1	41.2	4.6	1.1
ER-01	-20'	99.8		98.7	97.8	95.5	76.8	27.6	2.7
ER-01	-30'	99.6		98.8	98.2	97.5	94.6	28.7	6.3
ER-01	-40'	94.7		88.2	85.2	81.2	77.0	62.2	10.8
ER-01	-50'	99.9		99.0	98.4	96.7	79.2	24.3	3.6
TH-01	Backshore	100		99.9	99.9	99.3	23	2.2	0.2
TH-01	Berm	100		99.9	99.9	98.6	33.2	2.5	0.3
TH-01	Swash	100		99.9	99.0	94.2	44.9	7.2	1.2
TH-01	Wave	99.7	98.3	90.2	84.0	71.4	38.2	3.5	1.3
TH-01	-10'	100		99.5	98.2	96.8	61.1	8.5	1.2
TH-01	-20'	100		99.8	99.4	96.7	41.4	4.6	1.3
TH-01	-30'	99.9		99.3	99.0	98.3	90.9	30.2	2.6
TH-01	-40'	99.9		96.7	93.5	90.1	78.3	20.9	2.3
TH-01	-50'	99.9		98.3	96.0	92.8	85.0	76.7	7.0



SOURCE: ESA, 2018

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Figure 3
Del Monte Sediment Grain Size Distributions

Stockpile Sites for Del Monte

A representative from the Naval Postgraduate School recommended the potential stockpile locations at the old facilities shown in Figure 2 and indicated that the location of a soon to be demolished building would provide more space for stockpiling. These locations could be used to stockpile smaller quantities of acceptable sand from inland sources.

North Monterey

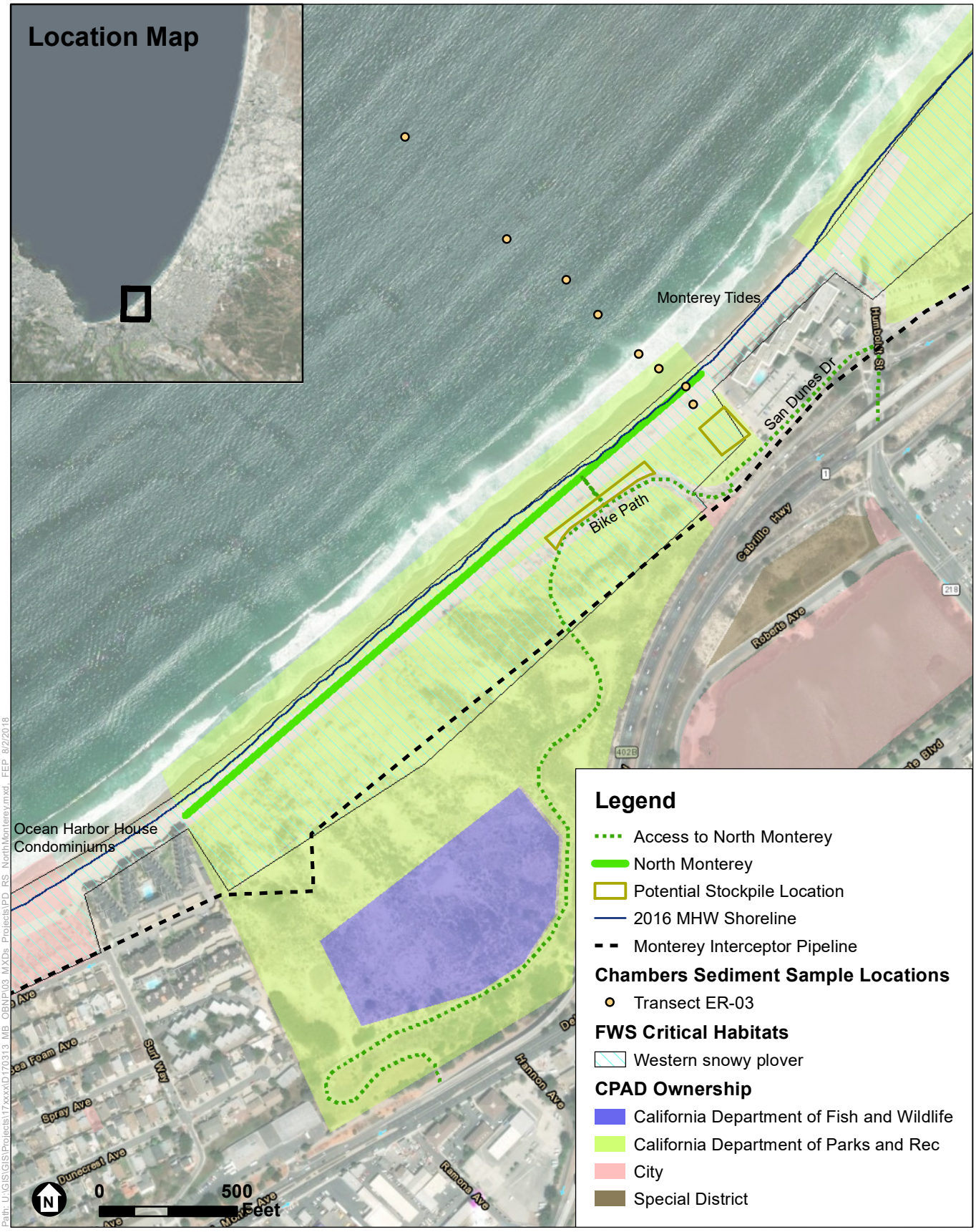
Receiver Site

This receiver site spans approximately 2,500 linear ft of shoreline between the Ocean Harbor House Condominiums to the Monterey Tides hotel (**Figure 4**). The site is entirely within the City of Monterey. The backshore is mostly undeveloped between these two complexes and is comprised of Monterey State Beach dunes immediately northeast of the Ocean Harbor House Condominiums followed by more open space to the northeast and a segment of the Monterey Peninsula Recreational Trail, and a parking lot adjacent to the Monterey Bay Beach Hotel. The site is accessible via Sand Dunes Drive. This receiver site was selected because of the adjacent shoreline developments at risk and the recreational value of having a wide beach in this area. Assuming a maximum sand placement of 50% of the total reach width and the placement parameters described above, the North Monterey receiver site could accept approximately 11,000 CY of sand at one time (assuming 52 ft of available beach above 7.2 ft NAVD). This receiver site is located within a California State Park. Placing sand on State Park beaches and/or using State Park lands will require a right-of-entry permit. This process is relatively simple and takes 4 to 5 weeks to process (personal communication, Stephen Bachman).

A physical and biological survey of the Del Monte receiver site was last conducted by Chambers (2014). Samples were taken along two transects at nine stations including the backshore, berm, swash zone, surf zone (wave), and at -10, -20, -30, -40, and -50 ft MLLW. Sediment sample. Sediment samples collected from locations shown in Figure 4 were classified as poorly graded fine to medium sand. Grain size distributions for each sample from two shore transects are shown in **Figure 5** and listed in **Table 2**.

TABLE 2
NORTH MONTEREY RECEIVER SITE RESULTS OF SEDIMENT SAMPLE SIEVE ANALYSIS

Sample ID	Designation	Sieve Size % Passing							
		#4 *4.75 mm*	**#10** *2 mm*	**#20** *0.84 mm*	**#30** *0.6 mm*	**#40** *0.42 mm*	**#60** *0.25 mm*	**#100** *0.15 mm*	**#200** *0.07 mm*
ER-03	Backshore	100		99.1	94.2	65.6	7.7	0.5	0.2
ER-03	Berm	100		99.9	99.9	98.5	17.1	1.6	0.2
ER-03	Swash	100		99.9	99.6	95.0	28.0	3.4	1.2
ER-03	Wave	99.9		98.1	93.9	74.3	28.6	4.8	1.3
ER-03	-10'	99.9		94.9	90.1	80.3	34.5	5.5	1.3
ER-03	-20'	100		99.7	99.2	97.8	65.0	10.0	1.9
ER-03	-30'	99.9		99.1	98.1	95.5	67.4	12.3	1.9
ER-03	-40'	99.9		99.4	95.9	86.6	73.5	17.4	2.5
ER-03	-50'	88.4		77.2	71.4	61.1	38.9	25.2	19.7



SOURCE: ESRI, ESA, Chambers, FWS, CPAD

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Figure 4
North Monterey Receiver Site

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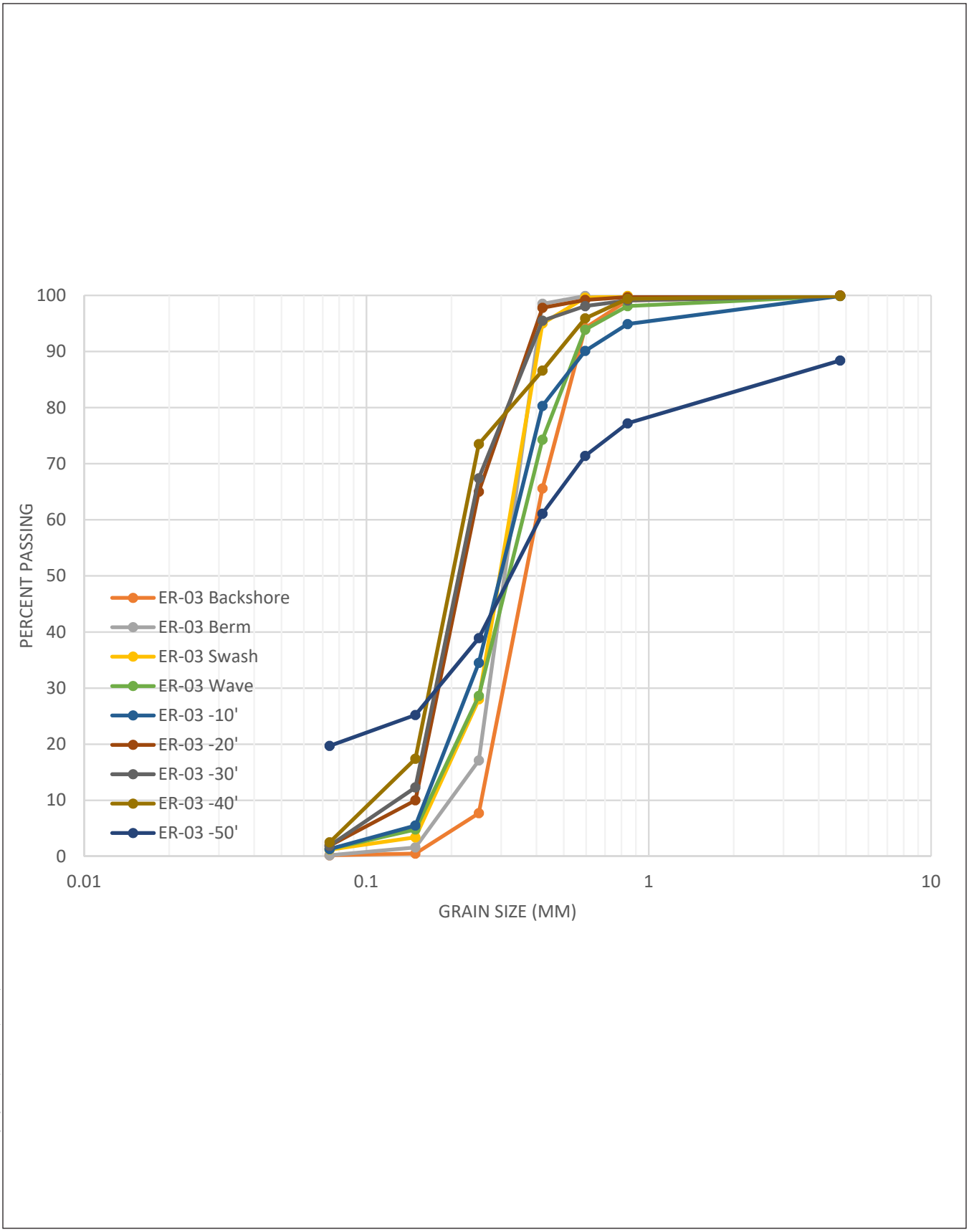

SOURCE: ESA, 2018

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Figure 5
North Monterey Sediment Grain Size Distributions (Chambers 2014)

Stockpile Sites for North Monterey

There are two areas adjacent to the receiver site that could serve as stockpile sites. One is the back beach on the southwest side of Monterey Bay Beach Hotel. The other is along the bike path south of the parking lot, shown in **Figure 6**. While stockpiled and placed sand is expected to behave similarly to the existing beach sand, project proponents may use mitigation measures to limit windblown sand from this stockpile and/or receiver site. These stockpile sites are located within a California State Park with the same constraints on use as mentioned previously.

Sand City/Seaside

Receiver Site

This receiver site spans approximately 3,300 linear ft of shoreline in the vicinity of Tioga Avenue (**Figure 7**, **Figure 8**). The site is entirely within Sand City limits. The Seaside Pump Station and associated outfall is located at the southwest end of the site at the end of West Bay Street. Mar Vista Drive extends about 1,000 ft east along the dune top, then breaks up along the dune top following the alignment to Tioga Avenue. Rubble protects the end of Tioga Avenue and adjacent remnants of a cement mixing facility that is now used for temporary storage of construction equipment. Further northeast, an un-engineered concrete berm covers approximately 800 ft of backshore leading to the Eolian Dunes Preserve. The site is accessible via Tioga Avenue to Sand Dunes Drive and West Bay Street. Assuming a maximum sand placement of 50% of the total reach width and the placement parameters described above, the Sand City/Seaside receiver site could accept approximately 35,000 CY of sand at one time (assuming 75 ft of available beach above 7.2 ft NAVD). As with other sites described previously, this receiver site is located within a California State Park and requires a right-of-entry permit.

A physical and biological survey of the Del Monte receiver site was last conducted by Chambers (2014). Samples were taken along two transects at nine stations including the backshore, berm, swash zone, surf zone (wave), and at -10 ft, -20 ft, -30 ft, -40 ft, and -50 ft MLLW. Sediment samples locations, as shown in 8, were classified as poorly graded fine to medium sand. Grain size distributions for each sample from two shore transects are shown in **Figure 9** and listed in **Table 3**.

Stockpile Sites for Sand City/Seaside

Four accessible stockpile sites were identified near the Sand City/Seaside receiver site. They are shown in Figure 8, as follows:

- Former cement mixing facility immediately north of Tioga Avenue.
- Berm top area immediately south of Topanga Avenue.
- Mar Vista Drive (approximately 850 ft) along the dune top near Seaside Pump Station
- Open space in dunes landward of Mar Vista Drive.

As with other sites described previously, these sites are located within a California State Park and require a right-of-entry permit.

SOURCE: ESA, 2018

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Figure 6
View towards North Monterey Stockpile Site

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SOURCE: ESA, 2018

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Figure 7
Sand City Receiver Site, View South (top) and North (bottom)

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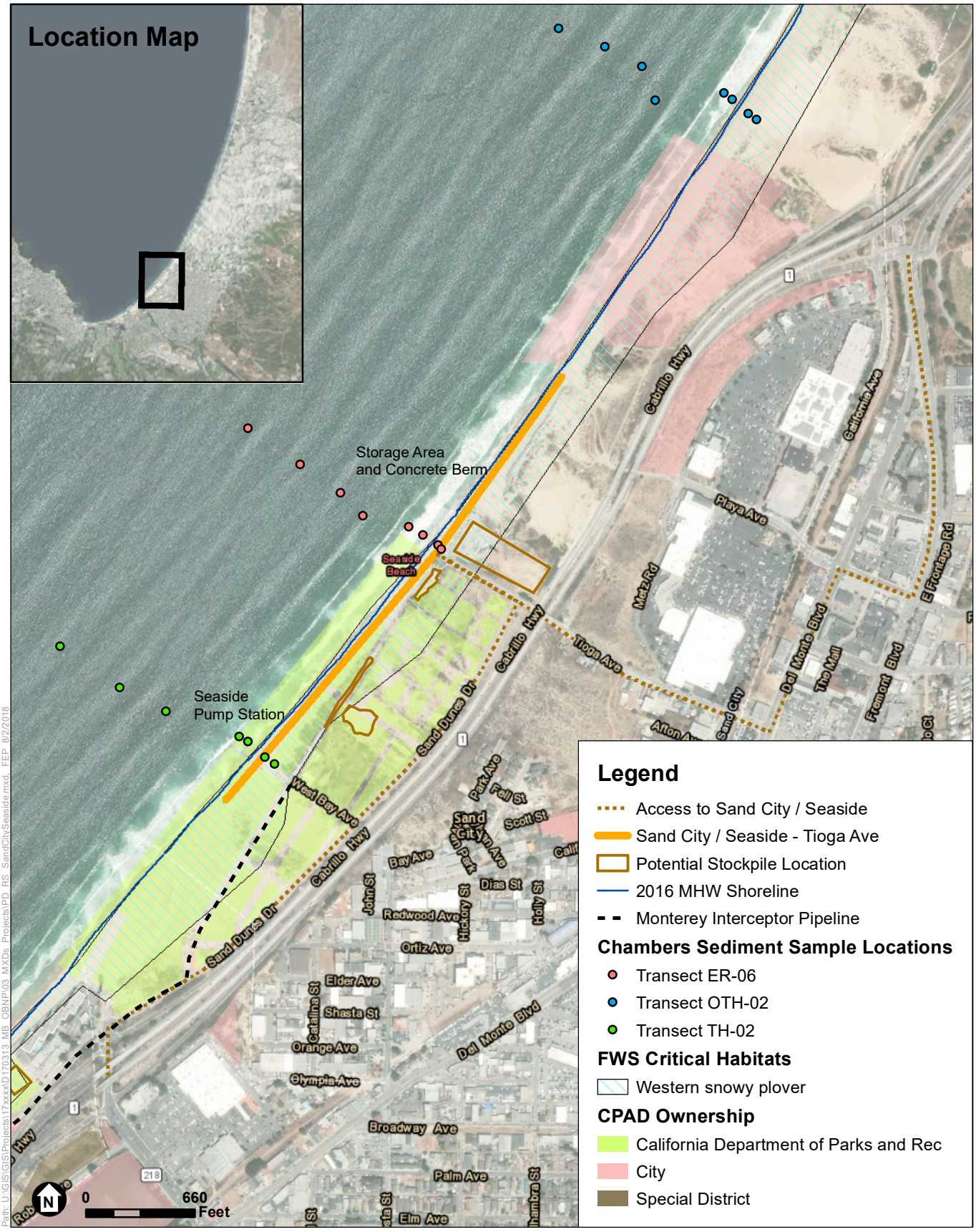

SOURCE: ESRI, ESA, Chambers, FWS, CPAD

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Figure 8
Sand City Receiver Site

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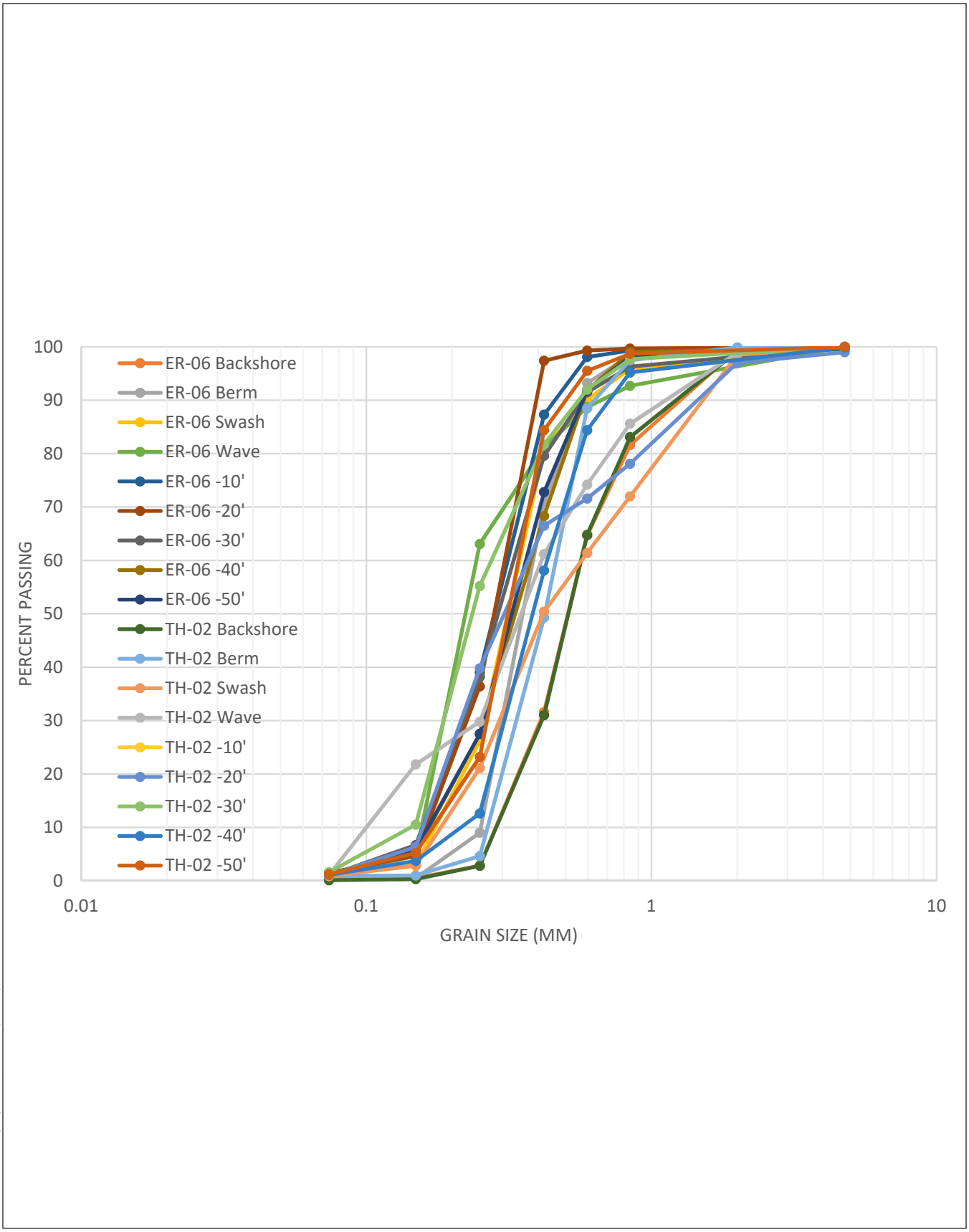

SOURCE: ESA, 2018

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Figure 9
Sand City/Seaside Receiver Site Sediment Sample Grain Size Distributions (Chambers 2014)

ESA

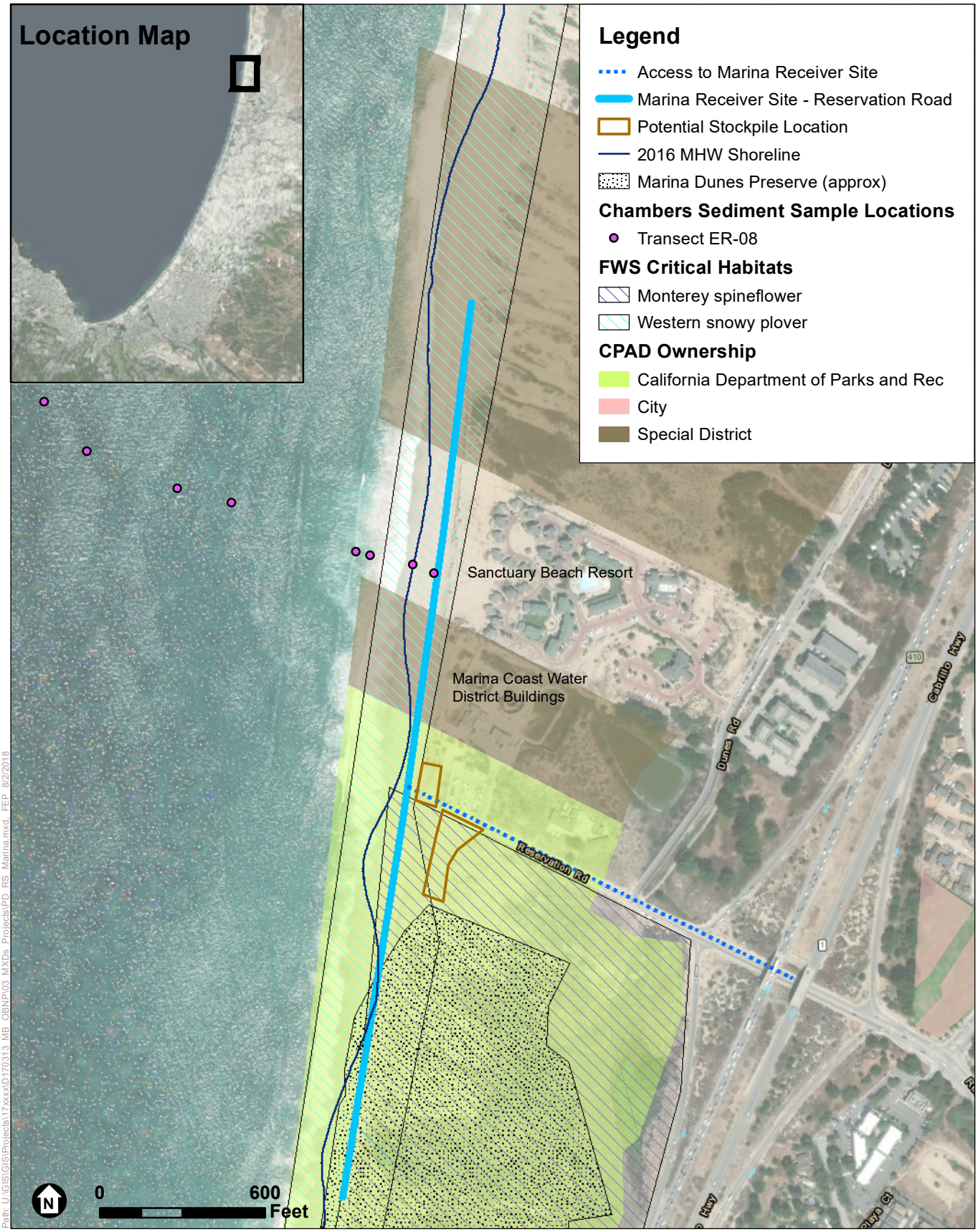
TABLE 3
SAND CITY/SEASIDE RECEIVER SITE RESULTS OF SEDIMENT SAMPLE SIEVE ANALYSIS

Sample ID	Designation	Sieve Size % Passing							
		#4 *4.75 mm*	**#10** *2 mm*	**#20** *0.84 mm*	**#30** *0.6 mm*	**#40** *0.42 mm*	**#60** *0.25 mm*	**#100** *0.15 mm*	**#200** *0.07 mm*
ER-06	Backshore	99.9	99.5	81.6	64.7	31.6	2.8	0.5	0.4
ER-06	Berm	100		98.4	93.2	70.5	9.0	0.5	0.2
ER-06	Swash	100		95.9	90.1	80.9	26.2	2.9	1.1
ER-06	Wave	100		92.7	88.7	81.2	63.1	4.6	1.4
ER-06	-10'	100		99.3	98.1	87.3	39.0	5.1	1.4
ER-06	-20'	100		99.7	99.3	97.4	36.4	4.7	1.5
ER-06	-30'	100		96.3	91.5	79.6	38.2	6.7	1.0
ER-06	-40'	99.9		99.0	91.8	68.3	27.5	5.4	1.2
ER-06	-50'	100		98.1	91.8	72.8	27.5	5.8	1.1
TH-02	Backshore	99.5	99.2	83.1	64.8	31	2.8	0.3	0.1
TH-02	Berm	100	99.9	97.5	88.5	49.3	4.6	1.0	0.9
TH-02	Swash	99.9	98.5	72.0	61.4	50.4	21.1	2.8	0.9
TH-02	Wave	100	98.9	85.6	74.2	61.2	29.8	21.8	1.1
TH-02	-10'	Sample not taken due to hazardous wave conditions							
TH-02	-20'	99	97.0	78.1	71.6	66.5	39.8	6.3	1.1
TH-02	-30'	100		97.7	92.0	81.7	55.2	10.5	1.6
TH-02	-40'	99.9		95.2	84.4	58.1	12.6	3.7	1.1
TH-02	-50'	100		98.7	95.5	84.4	23.2	5.2	1.2

Marina

Receiver Site

This receiver site spans approximately 3,300 linear ft of shoreline in the vicinity of Reservation Road (see **Figures 10 and 11**). The site backshore is undeveloped south of Reservation Road and is comprised of Marina State Beach and Dunes Preserve. A parking lot exists at the end of Reservation Road, followed by a number of Marina Coast Water District buildings and the Sanctuary Beach Resort to the north. The site is entirely within the City of Marina and accessible via Reservation Road. As shown in Figure 10, the Marina receiver site extends south of Reservation Road into the area designated as the Marina Dunes Preserve. Good quality compatible beach sand, which is the focus of this proposed program, is expected to exhibit the same level of wind transport as the sand comprising the existing natural beach, though project proponents may implement avoidance and mitigation measures to reduce windblown transport of any placed sand, to address these concerns. Assuming a maximum sand placement of 50% of the total reach width and the placement parsameters described above, the Marina receiver site could accept approximately 35,000 CY of sand at one time (assuming 75 ft of available beach above 7.2 ft NAVD).



SOURCE: ESRI, ESA, Chambers, FWS, CPAD

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Figure 10
Marina Receiver Site

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SOURCE: ESA, 2018

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Figure 11
Marina Receiver Site, View South (top) and North (bottom)

ESA

Shoreline erosion in this reach may reduce in the near future once the CEMEX facility, located just a mile north of Marina, ceases operations sometime around 2020. However, accelerated sea level rise poses a threat to the facilities located in the area, which could be mitigated with future beach nourishment. As with other sites described previously, this site is located within a California State Park and require a right-of-entry permit.

A physical and biological survey of the Del Monte receiver site as last conducted by Chambers (2014). Samples were taken along two transects at nine stations including the backshore, berm, swash zone, surf zone (wave), and at -10 ft, -20 ft, -30 ft, -40 ft, and -50 ft MLLW. Sediments were sampled at locations shown in Figure 10 and classified as poorly graded fine to medium sand. Grain size distributions for each sample from two shore transects are shown in **Figure 12** and listed in **Table 4**.

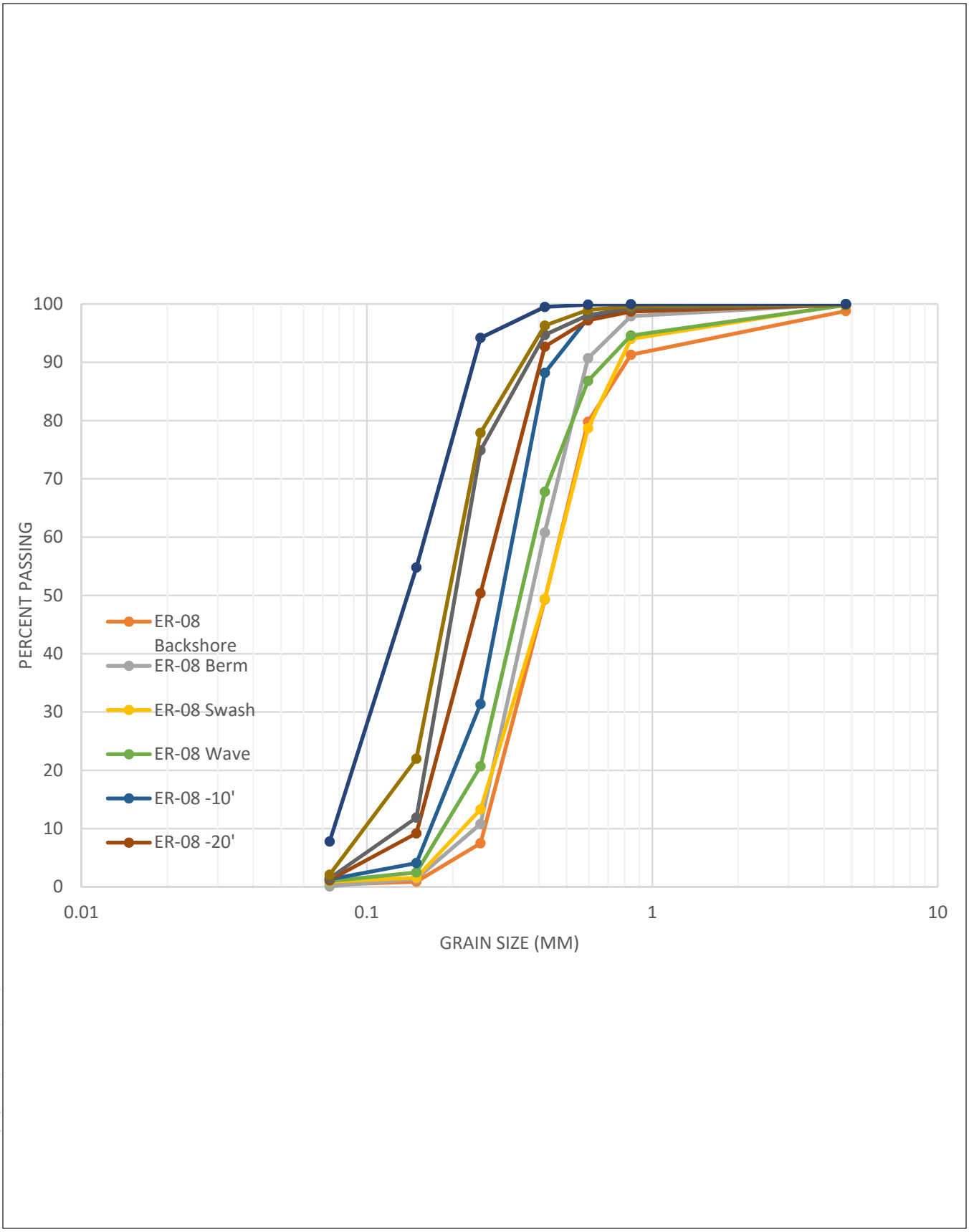
TABLE 4
MARINA RECEIVER SITE RESULTS OF SEDIMENT SAMPLE SIEVE ANALYSIS

Sample ID	Designation	Sieve Size % Passing							
		#4 *4.75 mm*	**#10** *2 mm*	**#20** *0.84 mm*	**#30** *0.6 mm*	**#40** *0.42 mm*	**#60** *0.25 mm*	**#100** *0.15 mm*	**#200** *0.07 mm*
ER-08	Backshore	98.8		91.3	79.8	49.3	7.5	0.9	0.4
ER-08	Berm	100		97.9	90.7	60.8	10.8	1.4	0.1
ER-08	Swash	99.9		94.0	78.7	49.4	13.3	1.6	0.9
ER-08	Wave	99.8		94.6	86.8	67.8	20.7	2.5	1.0
ER-08	-10'	100		99.4	97.6	88.2	31.4	4.1	1.3
ER-08	-20'	99.9		98.7	97.2	92.7	50.4	9.2	1.2
ER-08	-30'	99.9		99.3	98.1	94.7	74.9	11.9	1.5
ER-08	-40'	99.9		99.6	99.0	96.3	77.9	22.0	2.1
ER-08	-50'	100		99.96	99.9	99.5	94.2	54.8	7.8

Stockpile Site for Marina

One potential stockpile location exists in the back beach/dune area south of the parking lot at Reservation Road, in the immediate vicinity of the receiver site (Figure 10). The area is unvegetated and frequently traversed by beachgoers, but is located adjacent to the Marina Dunes Preserve (Figure 10). Mitigation measures such as wind fencing or grass plugs could be used to limit windblown sand from the stockpile site. Additionally, the stockpile footprint could be limited to avoid the dune preserve area, whether or not the area is vegetated. As with other sites described previously, this site is located within a California State Park and require a right-of-entry permit.

A second potential stockpile location exists in the back beach area immediately adjacent and west/northwest of the parking lot at Reservation Road, also in the immediate vicinity of the receiver site (Figure 10). The area is unvegetated and frequently traversed by beachgoers, and it is not adjacent to the Marina Dunes Preserve (Figure 10). Mitigation measures such as wind fencing or grass plugs could be used to limit windblown sand from this stockpile site, if warranted.



SOURCE: ESA, 2018

Figure 12
Marina Receiver Site Sediment Sample Grain Size Distributions (Chambers 2014)

A nearby alternative stockpile location for the Marina site is the CEMEX sand mine, which is about a mile north of the Marina receiver site. The CEMEX facilities will cease operations sometime around 2020, and planned stewardship of the property is currently in flux. At this time, it is not clear whether sand stockpiling at the CEMEX location is compatible with the long-term vision for the site.

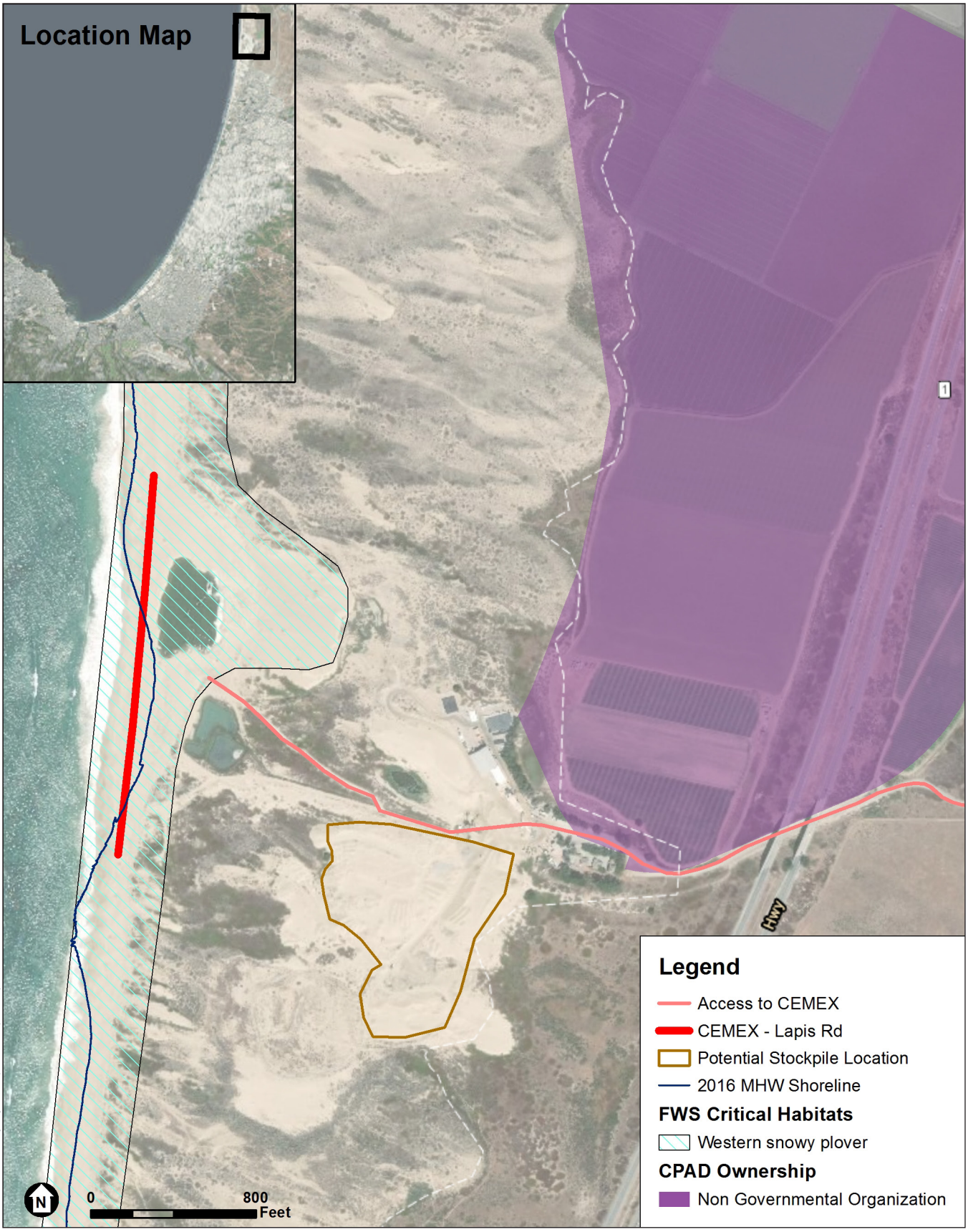
CEMEX Sand Mine Receiver and Stockpiling Sites

This receiver site is located in north Marina, and is the last operating sand mine in southern Monterey Bay (owned by CEMEX since 2005). The mine was identified as the main human factor that exacerbates shoreline erosion along southern Monterey Bay (PWA et al. 2008, Thornton 2018). The CEMEX facilities will cease operations sometime around 2020, and the planning for the successional ownership and stewardship of the property is in process. At this time, it is not clear whether sand stockpiling and/or placement for beach nourishment at the CEMEX location is compatible with the long-term vision or anticipated land use requirements for the site. From a physical and ecological perspective, the dredge pond and adjacent 2,000 ft of beach could serve as an ideal receiver site. In addition, the location of the existing buildings and surrounding paved areas could be ideal for stockpiling, due to their existing level of disturbance. Potential access, stockpiling and receiver locations for the CEMEX sand mine are shown in **Figure 13**.

2.2.2 Sand Volumes, Erosion and Sea Level Rise

The above-mentioned sediment receiver sites were prioritized due to ongoing erosion issues and the proximity to existing development, as presented in the CRSMP (PWA et al. 2008). Placing sand at these sites in sufficient quantities could maintain beneficial beach widths for ecologic and recreational functions as well as limit backshore erosion and associated risks to coastal development and infrastructure. This section provides an explanation of the volume of sediment needed to widen the beach at each site in general, as well as required volumes to counteract long-term shoreline erosion including the effects of sand mining. While the planned closure of the CEMEX sand mine is predicted to reduce shoreline erosion rates in SMB, the anticipated effect has not yet been quantified, so estimated volumes in this report include the effects of sand mining at the CEMEX plant.

To effectively widen the beach, a sufficient volume of sand must be placed that would cover the entire active profile. The active portion of the beach profile extends from the backshore to the depth of closure (DOC), as shown in **Figure 14**. In two dimensions, to widen the beach by a given unit distance (dx), the required area is equal to the profile height times the unit distance (H*dx). This relationship can thus yield the required volume of sand to create an additional square foot of beach (one foot of shoreline length times one foot of beach widening).



SOURCE: ESRI, ESA

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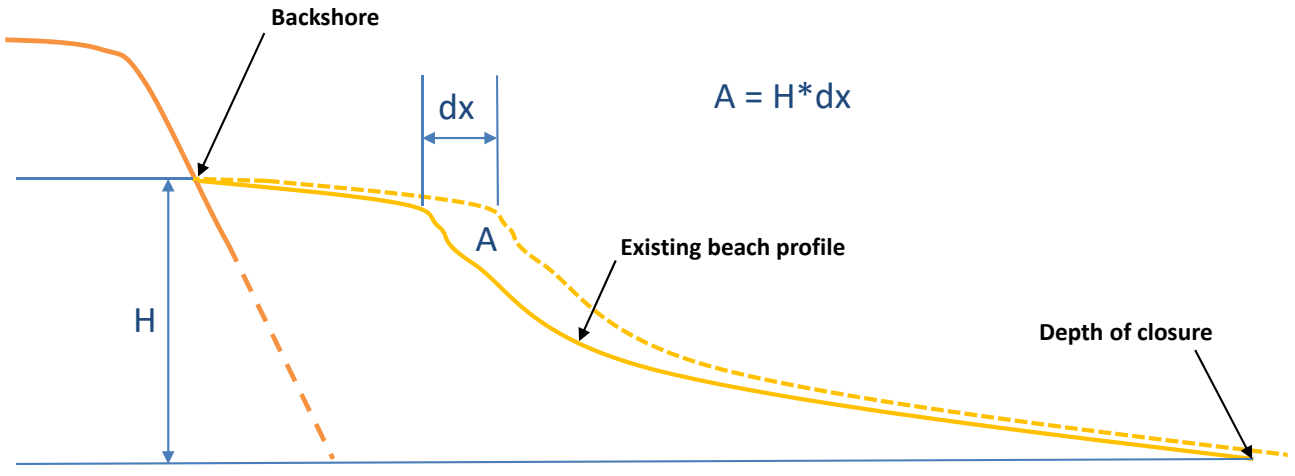
Figure 13
CEMEX Receiver Site



SOURCE: ESA, 2018

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Figure 14
Beach Profile and Unit widening by Distance DX

In order to expand the beach at receiver sites in SMB by one square foot, approximately 1 to 2 CY of sand is needed. From this unit volume, optimal nourishment volumes that effectively counteract long-term shoreline erosion can be estimated. In addition to long term erosion (which may decrease after closure of the CEMEX facilities), shoreline transgression from sea level rise will require future beach nourishment. Both of these mechanisms (long-term erosion and shoreline transgression) can be mitigated through beach nourishment. **Table 5** presents the anticipated volumes of sand required to counteract both long-term shoreline erosion and shoreline transgression from sea level rise, using the following relevant shore characteristics of each receiver site:

- **Length** – the alongshore length of the receiver site
- **DOC** – the offshore depth corresponding to the limit of sediment transport along the profile
- **Profile H** – active profile from backshore to DOC
- **Volume per SF beach** – the volume, in cubic yards, of sand required to create one square foot of beach.
- **Erosion (ft/yr)** – historic erosion rate at receiver site (ESA PWA, 2014)
- **Profile S** – the overall profile slope used to determine shoreline transgression from sea level rise
- **Erosion Balance** – the required volume of sand to counteract shoreline erosion for the entire site length, considering the historic erosion rate.
- **SLR Trans.** – shoreline transgression distance per foot of sea level rise, based on overall profile slope. The latest sea level rise projections considered by the state of California range from 0.5 to 1 ft by 2030, 1.5 to 3.9 ft by 2060 and 3.4 to 6.9 ft by 2100, considering high emissions (CalNRA & OPC 2017).
- **SLR balance** – the required volume of sand needed to counteract shoreline transgression for the entire receiver site from one foot of sea level rise.
- **Max Placement Vol** – maximum potential onetime sand placement volume associated with a placement along 50% of the reach as described above.

TABLE 5
SHORE CHARACTERISTICS AND BENEFICIAL NOURISHMENT VOLUMES FOR RECEIVER SITES

Receiver Site	Length (ft)	DOC (ft NAVD)	Profile H (ft)	Volume (CY) per SF beach	Erosion rate (ft/yr)	Profile S	Erosion Balance (CY/yr)	SLR 1' Trans. (ft/ft SLR)	SLR 1' Balance (CY/ft SLR)	Max placement Vol (CY)
Del Monte	6000	-16	28	1.0	-0.4	0.052	**2,500**	19	**120,500**	**17,000**
North Monterey	2500	-20	32	1.2	-0.8	0.046	**2,300**	22	**64,000**	**11,000**
Sand City/ Seaside	3300	-24	40	1.5	-1.6	0.046	**8,000**	22	**106,300**	**35,000**
Marina	3300	-35	54	2.0	-3.8	0.035	**25,200**	29	**187,800**	**35,000**

Opportunistic Sand Sources

This section provides an overview and characterization of potential opportunistic sand sources within an economically-feasible distance of the receiver sites. The following sources have been identified by ESA and the City:

- Laguna Grande sediment traps
- Local construction and maintenance activities (excavation related to proposed developments, infrastructure projects, routine highway and road maintenance)
- Regional construction and maintenance activities (e.g. river maintenance, dam removal projects and/or reservoir cleanouts)

Laguna Grande Sediment Traps

Laguna Grande receives inflows from the Canyon Del Rey watershed along with sediment that has required management actions including dredging of Laguna Grande and construction of upstream sedimentation basins in the 1980s (Moffatt and Nichol 1986) that are highlighted by red circles in **Figure 15** and **Figure 16**. A more recent study (Balance Hydrologics 2014) found that little sediment has accumulated in Laguna Grande since it was dredged in the 1980s. We recommend further investigation of the volumes of potential sand at this source, as recent imagery shows a small delta has formed at the upstream end of the lake, shown as Site 3 in Figure 15 and visible in Figure 16.

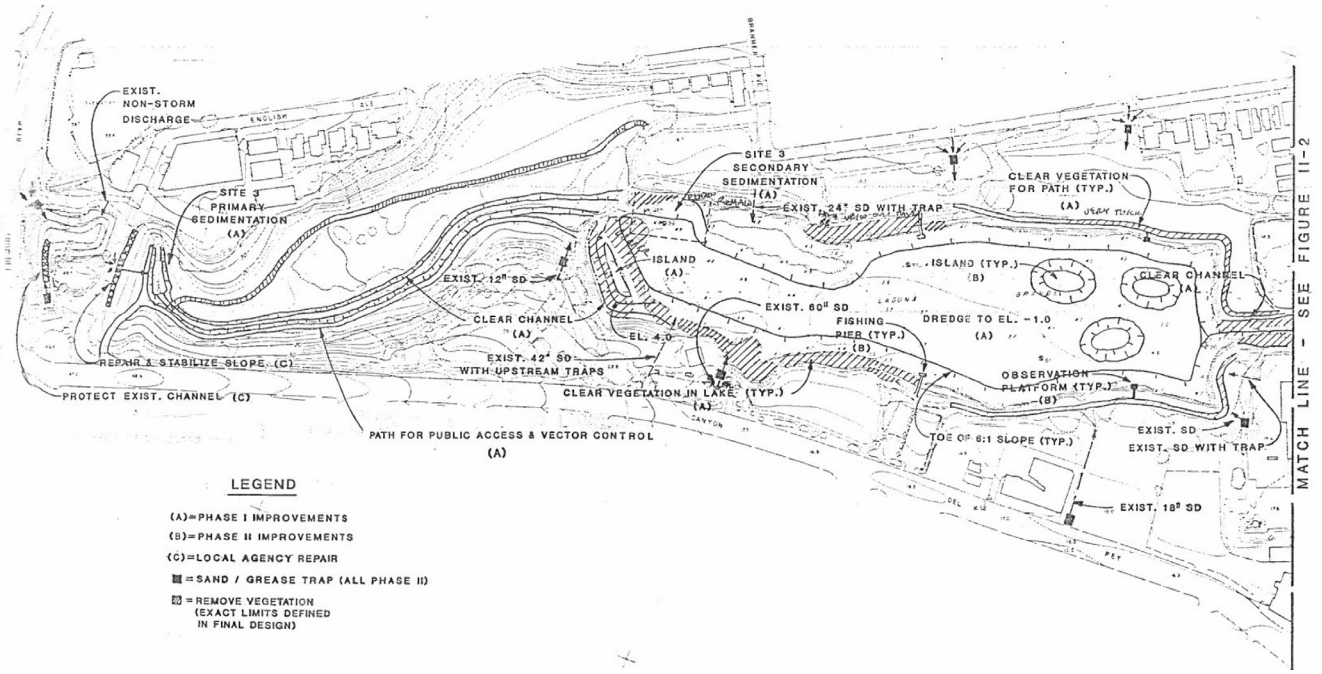
Local and Regional Construction and Maintenance Activities

Opportunistic sand can arise as the result of activities in the watershed such as excavation related to proposed developments, infrastructure projects, routine highway and road maintenance. While all sources cannot be planned for, one example is described here.

The Monterey Bay Shores EcoResort is a proposed coastal development within Sand City that would yield approximately 400,000 CY of dune deposits. It is assumed that this sand would be very suitable for opportunistic beach nourishment as the dunes are formed by windblown sand from the beach. Stakeholders for this proposed program identified other potential local sources of sand that are not explored for this program but serve as other examples of local construction and maintenance:

- A sand stockpile located at the Monterey One Water facilities located 1 mile from the CEMEX sand mine location. Available as of November 2017.
- Monterey City storm drainage maintenance of a box culvert at the Wharf. This source is thought to have potentially high fines and organic content.

Former examples of regional construction and maintenance activities that could be opportunistic sources of sand include the Pajaro River bench excavation and the San Clemente Dam Removal. While these sources are no longer available, similar projects could arise in the future. The Pajaro River bench excavation performed as part of the Elkhorn Slough Tidal Marsh Restoration (ESA 2014) yielded approximately 162,000 CY of material to be used for marsh fill. Sample testing of the excavated material along the Pajaro River excavation area indicated that about 6% was appropriate for beach nourishment (less than 20% fines), totaling approximately 10,000 CY of available sand.



Scale: 1" = 200'

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SOURCE: Moffat & Nichol, 1986

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Figure 15
Laguna Grande Restoration Plan with Sedimentation Areas

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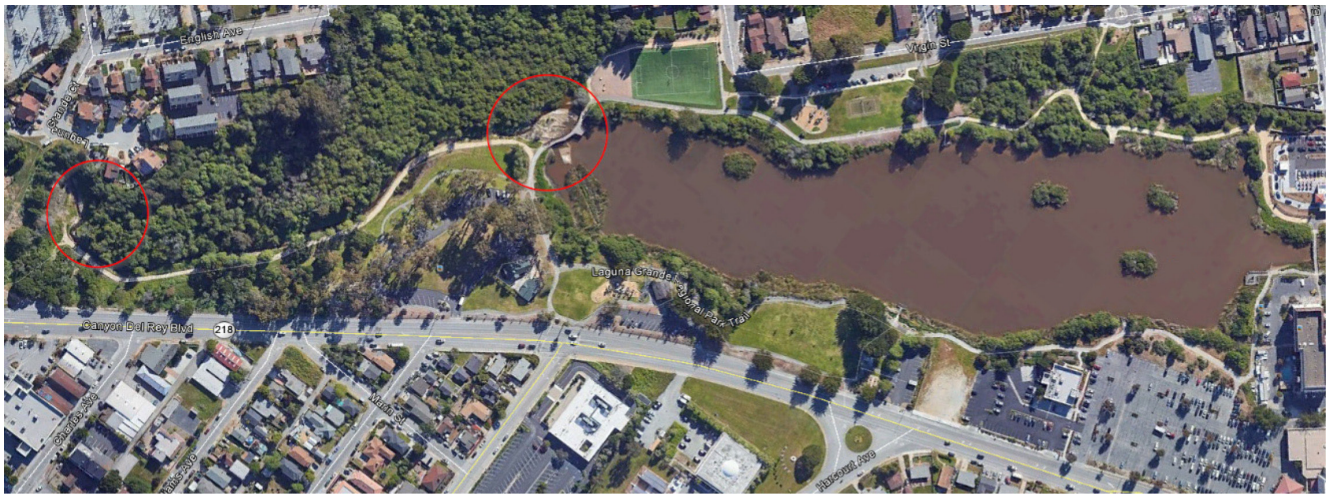

Not to scale

SOURCE: Google Earth

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Figure 16
Laguna Grande Sediment Traps shown in red circles

ESA

Sediment characterization and Comparison Protocols

This section describes the sampling and testing protocols required to analyze the compatibility of inland sources of sand with beach nourishment in southern Monterey Bay. Since the sand would be generated from other activities, the beneficial use is called "opportunistic". The protocols are intended to address the following for candidate sediment sources prior to approval for transport to the designated receive and stockpile sites:

- Sampling and Analysis Plan for testing the opportunistic source sediments.
- Sampling and testing of receiver site(s) sediments for grain size, prepare composite grain size envelope(s).
- Sampling and testing of source material for grain size, and bulk sediment chemistry. If needed, test for solubility and biological effects (Tier II Analysis).
- Determine whether the source material is appropriate for placement at a receiver site.

This proposed program focuses on facilitating the use of optimum beach quality sand (<20% fines) from easily accessible sources such as river, creek, beach and dune deposits that are otherwise headed for upland disposal (e.g. landfill). As such, the proposed program specifies sediment testing protocols for three levels of involvement (and expense):

1. Grain size – baseline testing for source sediment compatibility with receiver sites
2. Bulk sediment chemistry – testing for lead, mercury, pesticides etc.
3. Elutriate and bioassay – if required for solubility and toxicity testing

This program prioritizes the use of good sand sources that by nature may not require extensive chemical testing. More directly, if extensive testing is necessary, we think it unlikely that beneficial reuse on Monterey Beaches is prudent or economical. Hence, the proposed sediment testing in this proposed program is focused on the first two levels, Grain Size and Bulk Sediment Chemistry. Following the intent of this proposed program, we recommend not using materials suspected to or found through bulk sediment chemistry testing to require elutriate and bioassay tests. If background research or bulk sediment chemistry results warrant further testing for a potential sediment source, the project entities should consider whether the associated costs of level three testing outweigh the available volume and quality of the sediment. Ultimately, the receiving city and regulatory agencies (such as the US Environmental Protection Agency (USEPA) should decide the level of testing required (at level two or three above). Protocols and methodology for the sampling and testing of source materials and receiver sites are discussed in the following sections.

Source Sampling

An SAP would be prepared in coordination with the RWQCB and submitted to USEPA and USACE for review and approval prior to initiating sediment sampling. Due to the different processes that exist at each source sites, different sampling techniques are needed to characterize the grain size distribution, physical properties and chemistry at each location.

Source Material

Source materials would be sampled by boring and or surface grab sampling. If background research suggests that a site may have possible contamination, a systematic sampling approach would be used to focus on potential contaminant sources. Systematic sampling is intended to capture the full range of a material's gradation and chemistry within practical limits. Sites that are clearly not contaminated can be sampled in a random manner.

The SCOUP Master Plan specifies the following sampling protocols for sand sources:

- Two sampling locations minimum for each non-contiguous excavation area
- Three sample locations per acre minimum
- Sample borings would extend to the anticipated excavation depth plus two ft lower to fully characterize the source material variability while including the possibility of over-excavation
- Weighting of sampling locations would correspond to the thickness of the material to be excavated
- All material from each boring should be collected
- Sub-samples from individual borings would then be collected from near-surface, mid-depth, and bottom of the boring
- One Composite sample from each boring should be prepared for chemistry analysis, which limits the number of tests needed while isolating the location of contamination if sample levels exceed thresholds of concern
- Each type of sample would be well documented before testing
- Multi-boring compositing may be appropriate for contiguous deposits that are homogeneous, lack pollutants, etc. Refer to USACE guidance for more information (USACE 1989).

These guidelines were developed for a greater range of potential sediment sources in San Diego County, while sand sources that fit within this proposed program may not require as rigorous sampling protocols. Beyond the condition that opportunistic sediment is primarily sand (ideally >90% sand) of similar grain size to local beaches, we recommend that the sampling and testing protocols for opportunistic sediments be comparable to those required by the Monterey Regional Waste Management District (MRWMD) Landfill since it is the likely alternative location of disposal.

Receiver Site Characterization

The project team has already characterized sand at the majority of the selected receiver sites, as detailed later in this section and Appendix A. The following text regarding receiver site characterization provides guidance for reference which may be useful for future re-assessments when needed (including for the CEMEX site, which has not yet been tested as a part of this proposed program).

Sampling at receiver sites is focused on grain size of the surface material. Samples would be taken along transects that are perpendicular to the shoreline at a maximum spacing of ½ mile along each receiver site. Samples would contain 100 grams minimum and consist of no less than the top 6 inches of sediment depth (USACE 1989). As shown in **Figure 17**, samples would be collected along the profile at the backshore, beach berm, swash and surf zones, and at 10 foot increments below mean lower low water (MLLW=0.14 ft NAVD at Monterey).

Testing Requirements

This section describes the testing requirements for potential sediment sources (and receiver sites if needed). Attributes for testing include grain size, chemistry, and compaction. While receiver sites and inland sources of sand may require different sampling techniques, it is important that comparable tests are used for each.

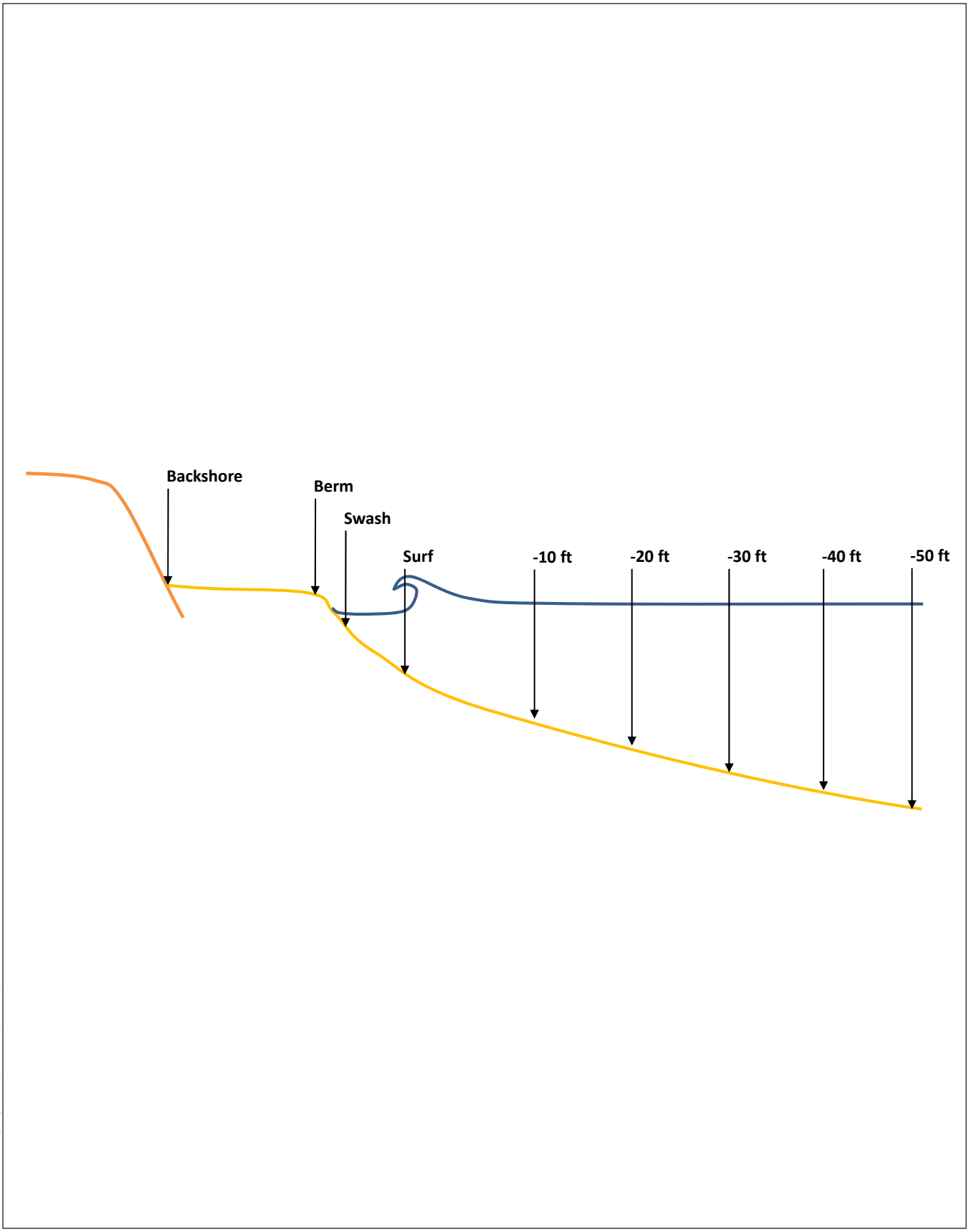
Grain Size

As a rule of thumb, good quality beach sand preferably contains less than 20% fines, while less than 10% fines is preferred. Testing for grain size at receiver sites and sediment sources provides the primary criteria of compatibility for opportunistic nourishment. Sample Grain size analysis would be conducted on all sediment samples in accordance with ASTM C136 - *Sieve Analysis of Fine and Coarse Aggregate*. This standard uses sand sieve sizes specified in the Unified Soils Classification (UCS) shown in **Table 6** below.

TABLE 6
SAND SIEVE SIZES AND DESIGNATIONS FOR SAND COMPATIBILITY ANALYSES (UCS)

Soil Type	Sieve	Size (Mm)
Gravel (Optional)	Sieve3/8"	9.5
Coarse Sand	Sieve4	4.76
	Sieve8	2.38
	Sieve10	2
Medium Sand	Sieve16	1.19
	Sieve30	0.59
	Sieve40	0.42
Fine Sand	Sieve50	0.3
	Sieve60	0.25
	Sieve100	0.149
	Sieve200	0.074
Silt	--	<0.074

Each receiver site and source sediment sample would be tested for grain size using the sieve sizes presented in Table 6. A grain size distribution should be developed for each sample using the Number 4 sieve as the coarsest limit and the 200 sieve for the finest limit. Wash testing of grains finer than sieve 200 is not necessary.



SOURCE: ESA, 2018

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Figure 17
Example Receiver Site Profile showing appropriate Sampling Locations

Grain size analysis results and grain size envelopes were prepared for the receiver sites by Chambers (2014) and are presented in Appendix A for reference. The receiver site grain size analysis can be updated as needed or desired by the receiving city or regulatory agencies as projects arise, or on a regular basis (e.g. every three years) as funding allows. In order to prepare the grain size envelope, each sample would be sieved according to Table 6 and a gradation curve be made for that sample similarly to the source material procedure described above. The SCOUP Master Plan specifies eight samples per profile, a minimum of 16 sieve results are combined to generate the composite grain size envelope. An example composite grain size envelope is shown in **Figure 18** that is comprised of gradation curves for samples taken at multiple locations along the Marina transect. Results of the grain size analysis of the potential source material would be compared to the grain size envelope of the receiver sites to assess compatibility for placement or stockpiling.

Chemical

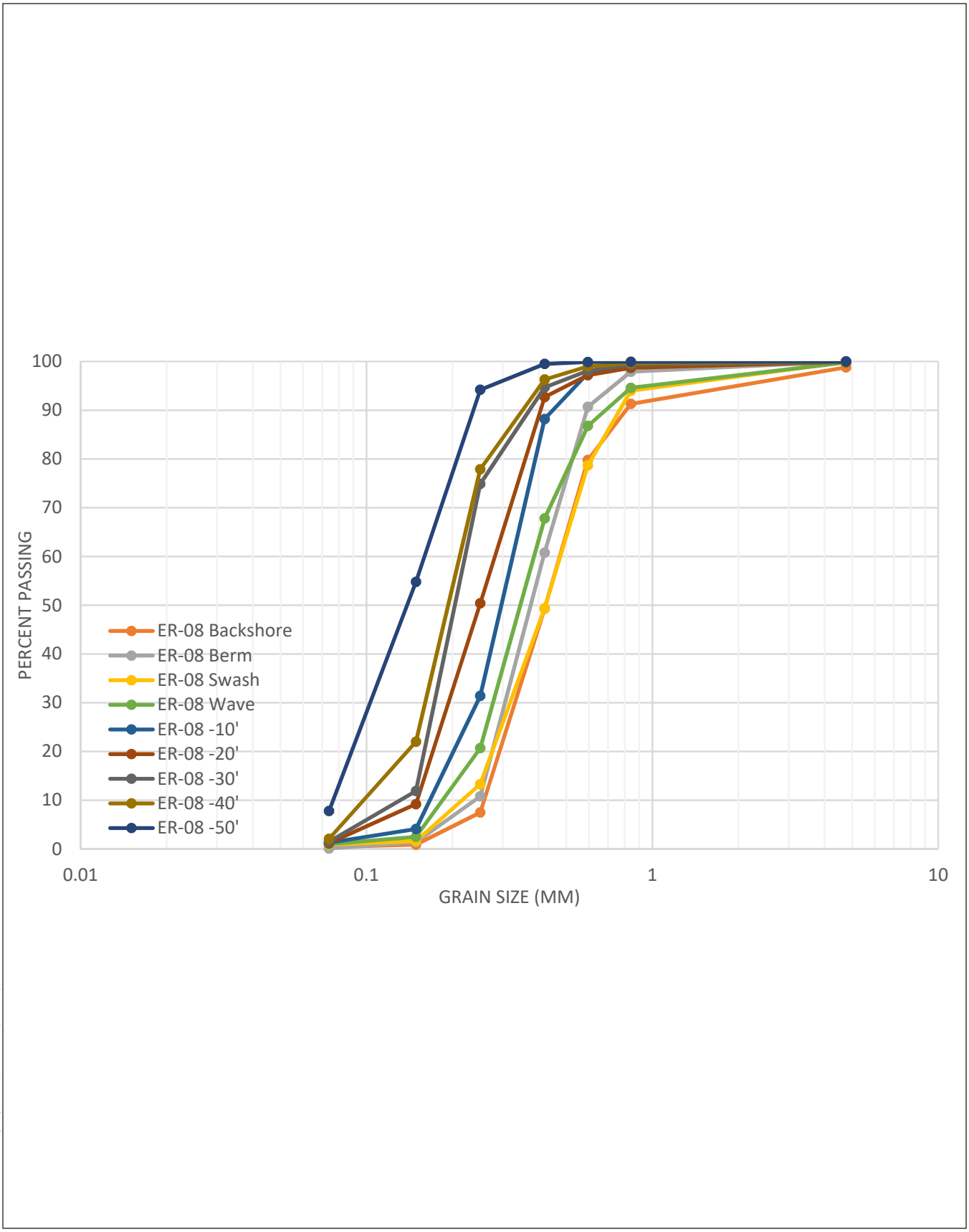
This proposed program is focused on the beneficial reuse of good quality beach sands that would otherwise end up in a landfill or other inland disposal site. Therefore, to compete with the alternate disposal options, chemical testing is focused bulk sediment chemistry (what is required for sediment disposal at a landfill). Further testing may be pursued if bulk sediment results indicate contamination and the project entities decide the cost is outweighed by the potential volume and quality (grain size compatibility) of available beach sand.

Compactibility

Because placement of opportunistic materials will take place above regular reach of tides to avoid MBNMS impacts, it is desirable that the material does not harden or form a crust (hardpan) preventing reworking by waves. Desirable sources of sediment sought under this proposed program are anticipated to not require compactibility testing. If the source material contains more than 20% fines, it may need to be tested for compactibility depending on the discretion of the project entities, receiving city and the RWQCB. Compactibility testing may be accomplished with an Attenberg (plasticity) test or a real-life pilot test in which a few cubic yards of material is placed on the beach and monitored for hardpan formation.

Material Compatibility Assessment

The results of the grain size and chemical testing will determine whether an opportunistic source of sediment is suitable for stockpiling or beach nourishment at one of the receiver sites. Generally, a potential source material is suitable for opportunistic sand placement if there are no chemical contaminants present and the grain size distribution of the source falls mainly within the composite distribution envelope of a receiver site. Sediment sources with less than 20% fines are preferable. Ideal sand would also be similar in color to sands at the receiving site and would not be too angular. This condition can typically be met by using sands from the watersheds in the same littoral cell as the beach receiver sites, because these inland sands are the same that would natural reach the beaches.



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SOURCE: ESA, 2018

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Figure 18
Example composite grain size envelope, for Marina Receiver Site

ESA

Design Considerations

General Considerations

This section describes the design considerations for the placement of compatible sand under three different project types described previously, per the compatibility of material and stockpile/ receiver site conditions. Unlike some other SCOUP programs which include opportunistic placement of beach sand in the surf zone, design considerations for this proposed program are aimed at maximizing efficacy and benefits of opportunistic beach nourishment (for erosion protection, recreation, habitat restoration) while minimizing potential adverse effects on ecology and recreation, as well as minimizing associated regulatory costs and delays. This includes designing opportunistic Projects to avoid certain permits and environmental compliance needs (i.e., MBNMS permit and associated NEPA analysis) and to require no to minimal additional CEQA Analysis following analysis of the proposed program.

Sand placement dimensions on a typical southern Monterey beach profile are shown in **Figure 19** below. Generally, sand would be placed at or above the existing beach berm (and well above the MHW contour) to avoid impacts to the MBNMS, and sand would be placed both above and below the High Tide Line (HTL) which is roughly equivalent to 7.2 ft NAVD. Measures to further avoid sensitive habitats are discussed further in the following subsection.

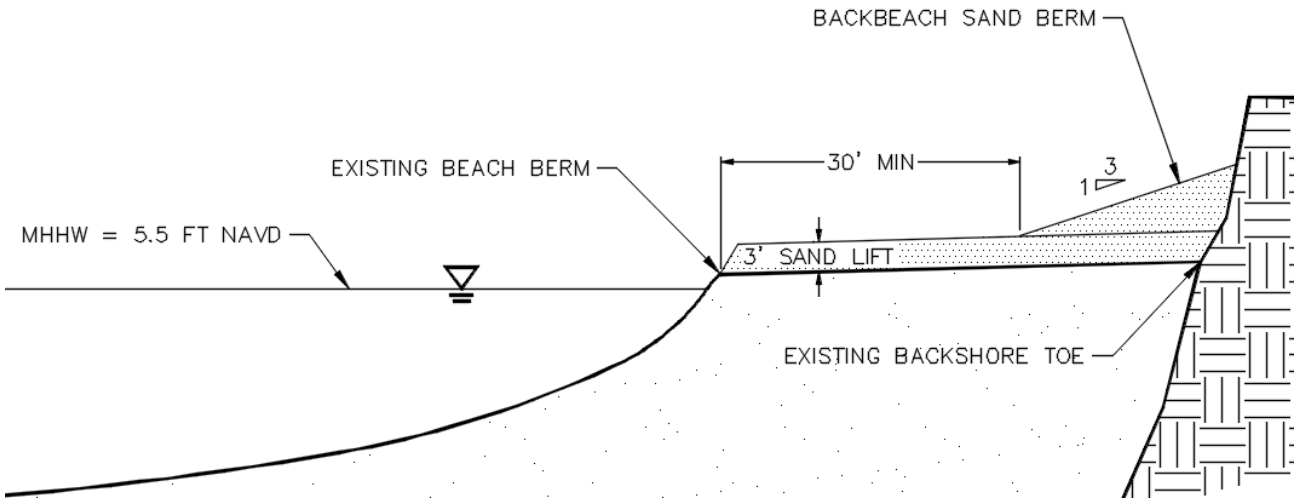
Placement Details

Placement methods: Sand will be hauled from the source(s) by truck and placed at stockpile and/or receiver sites with dozers and/or front loaders. Stockpile sites are located adjacent to the receiver site, so material could be spread by front loaders and dozers across to the receiver site with a reduced need for heavy truck transportation from stockpile to receiver site.

Sand placement in this proposed program is focused on the back of the beach, to limit impacts to the shoreline and intertidal zone ecology and to MBNMS waters offshore. A benefit of placing sand on the back beach is that construction timing is not further limited by the tides. Sand would be placed on the back beach by dump truck and spread with low ground pressure dozers in 3-foot maximum lifts (extents to be determined based on site-specific conditions, see Avoidance and Minimization measures below). Depending on available sand volumes and available space along the beach, additional sand can be placed at a 3H:1V sloped berm at the backshore (as shown in Figure 18).

Placement rates: rates of sand placement depend on available sources, stockpile and receiver site size, and other factors such as biological resource considerations. Two characteristic sand sources are discussed here as representative lower- and upper-limits of sand availability:

- Laguna Grande Sediment Traps (estimated 425 CY per year)
- EcoResort (estimated 400,000 CY available)



Monterey Bay Opportunistic Beach Nourishment Project . 170313

Figure 19
Sand Placement Schematic on a Typical Southern Monterey Bay Beach Profile

The maximum yearly nourishment rates were estimated based on existing available space at each receiver site, and assume that only 50% of each receiver site would be nourished at a given time to limit ecological impacts. The available space is based on average beach widths at each receiver site, determined from light detection and ranging data (collected in 2010) as the distance from the beach berm to the backshore toe. Sand placements are assumed to occur in two elements (Figure 19): A three-foot lift over the available beach width (beach berm to backshore toe) and a back-beach berm extending 3H:1V up to backshore, leaving 30 ft of open beach with just the 3-ft lift. Available beach widths and corresponding volumes for maximum sand placements are presented in **Table 7** below. Note: The CEMEX receiver site is different from others in that there is a large area for sand placement, whereas placement in the other receiver sites is constrained to the dry beach (or at adjacent stockpile areas). A nominal volume of 200,000 CY was chosen for CEMEX due to the greater available space for stockpiling/placement.

TABLE 7
AVAILABLE VOLUMES FOR SAND PLACEMENT IN EACH RECEIVER SITE

Receiver Site	Reach Length (ft)	Beach Width (ft)	Max available volume (CY)	Max placement volume with 50% placement (CY)
Marina	3,300	75	70,000	35,000
Sand City	3,300	75	70,000	35,000
North Monterey	2,500	52	22,000	11,000
Del Monte	6,000	42	34,000	17,000
CEMEX	TBD	TBD	200,000	100,000

The following **Tables 8 and 9** provide the maximum potential equipment hours and associated hauling miles to excavate, haul and spread opportunistic sand from EcoResort location at each receiver site and present a comparison with the hours and miles estimated to excavate, haul, and spread the same sand at the Monterey Regional Waste Management District's Marina Sanitary Landfill (Landfill) located at 14201 Del Monte Boulevard, in the City of Marina, California (note: this comparison is provided to illustrate how the program offers a reduction in equipment hours and miles travelled when using the program's receiver sites, as opposed to hauling the same sand to the Landfill). The equipment assumed for each activity is as follows:

- **Excavation** – 1.5 CY crawler mounted (Cat 320),
- **Hauling** – 16 CY tri-axle (e.g., Peterbilt 328), and
- **Spreading** – 300 HP Dozer (Cat D8T) and 1-1/2 CY Front loader (Cat 930M).

While the Program assumes that the sand will be excavated regardless of acceptance in the program, excavation activity is provided for reference in Table 8. Estimates in Tables 8 and 9 below are provided for 2 scenarios: full site nourishments which would place the 'maximum available volume' (less likely), as well as the recommended nourishment actions which would result in the '50% volume placement.'

TABLE 8
MAXIMUM YEARLY EQUIPMENT HOURS FOR EXCAVATION, HAULING AND SPREADING OF OPPORTUNISTIC SAND SOURCES FROM ECORESORT, UNDER 2 SCENARIOS

	Maximum available volume			50% volume placement		
hrs per year	**Excavation**	**Hauling**	**Spreading**	**Excavation**	**Hauling**	**Spreading**
Del Monte	770	3,360	910	385	1,680	455
North Monterey	770	3,360	910	385	1,680	455
Sand City	242	978	286	121	489	143
Marina Site	374	2,074	442	187	1,037	221
CEMEX	2,200	14,800	2,600	1,100	7,400	1,300
Total	**4,356**	**24,572**	**5,148**	2,178	12,286	2,574
Compare to Landfill	4,356	29,304	5,148	2,178	14,652	2,574

NOTE:
Estimates provided for full site nourishments as well as recommended 50% volume for sand placement.

TABLE 9
TRUCK MILES PER YEAR TO HAUL SAND FROM ECORESORT SOURCE TO RECEIVER SITES, UNDER 2 SCENARIOS

hrs per year	**Max volume**	**50% volume placement**
Del Monte	42,000	21,000
North Monterey	42,000	21,000
Sand City	6,600	3,300
Marina Site	44,200	22,100
CEMEX	420,000	210,000
Total	554,800	277,400
Compare to Landfill	831,600	415,800

Placement timing: Sand placement would be timed to avoid impacts to recreation and ecology. Sand placement would be conducted outside of the western snowy plover breeding season (generally March 1 to September 30) and grunion season (typically March through September). Sand placement would also be timed to limit disturbance to recreational activities, to the extent possible.

Placement location: Sand placement in this proposed program is proposed to occur on the upper beach that is well above both the MHW (4.8 ft NAVD) and the MHHW (5.5 ft NAVD) to avoid need for MBNMS permit (and associated NEPA requirements) and would prioritize disturbed beach areas. Individual placement footprints would vary depending on the amount of sand available and the presence of sensitive plants or wildlife (if applicable), and generally would take the form of a berm along the back beach as shown in Figure 19 that is constructed in lifts. Special avoidance and minimization measures to limit impacts to beach ecology and recreation are described in the following section.

Avoidance and Minimization Measures

The following measures would be taken to avoid impacts to biological, physical, and recreational resources where possible, and otherwise minimize such impacts if unavoidable. These measures are subject to modification or addition following regulatory and resource agency review and input during the CEQA and/or future permitting process.

Biological

A key aspect of the projects analyzed for this proposed program is that they require minimal effort to construct as well as move through the environmental compliance and permitting process. Therefore, placement of sand at receiver sites is focused on placement of sand on the 'dry beach' above MHW (4.8 ft NAVD) and above MHHW (5.5 ft NAVD), which is outside of the MBNMS jurisdiction. Projects would employ the following biological avoidance and minimization measures:

- Pre-construction biological surveys of receiver and/or stockpile sites would be conducted to determine appropriate placement locations, rates, timing, etc. See proposed program Section 8 for more info.

- Avoid sand placement during the snowy plover nesting season (generally March 1 to September 30 of any year).

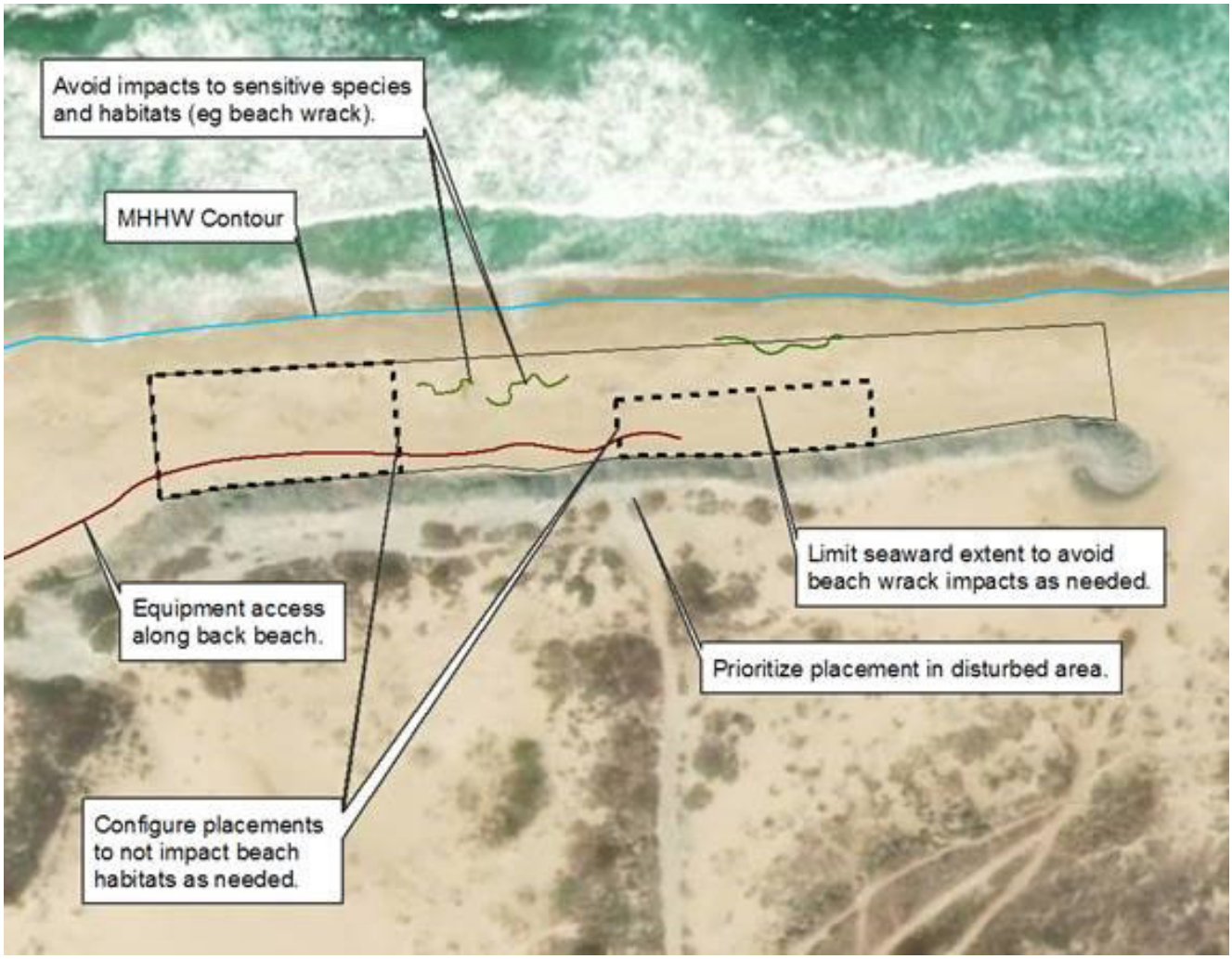
- Avoid placing sand where Wester Snowy Plovers are known to forage.

- Avoid sand placement during grunion runs (typically occurring between March and September of any year) or placement during the month following known grunion runs (during incubation).

- Avoid burying dune plants, beach wrack (i.e., seaweed, surfgrass, driftwood, and other organic material produced by coastal ecosystems that wash ashore on the beach; beach wrack is a known source of food for foraging species including western snowy plover), and beach foreshore invertebrates. Locate sand placement areas to minimize impact to existing dune plants and beach wrack. Move (relocate) beach wrack if necessary, with direction by landowner representatives (State Parks) and/or USFWS representatives.

- Employ wind-blown sand mitigation measures at stockpile sites, where needed, to avoid disturbance of inland dune habitats. The opportunistic sand sources considered in this study by definition are of high quality and match the sediment at beaches and thus do not alter the morphology of the beach, so wind-blown sand potential is not expected to change at sand placement locations.

Figure 20 below illustrates avoidance measures that would be taken to limit impacts to beach ecology. Sand placement at receiver sites would generally take the form of a continuous lift and/or backshore berm (as shown in Figure 19). However, if sensitive habitat is identified in the field during the preconstruction survey, the sand placement footprint should be modified accordingly or alternative receiver sites should be considered.



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Monterey Bay Opportunistic Beach Nourishment Project . 170313

Figure 20
Sand Placement Schematic that includes Ecological Resource avoidance Measures

Physical

Placement would occur above the beach berm, which is above high tides at rates that are limited by available space at receiver sites and/or generation from potential sources, as well as by any site-specific needs to avoid sensitive biological resources (per above). The placement rates (in combination with placement above the beach berm) would be expected to have limited impacts to turbidity and burial of nearshore habitats.

Recreational

The following measures would be taken to limit impacts to recreation:

- Avoid sand placement in peak summer season to limit disturbance to beachgoers.
- Avoid placement on holidays and/or weekends, during higher recreational use of beaches.

Regulatory approvals and permits needed for implementation

The proposed program consists of multiple future beach nourishment activities, or projects, which the cities would undertake as available suitable source material and/or funding allows. The proposed program would require CEQA approval as addressed with this document, future separate CEQA approvals conducted for activities under the jurisdiction of each of the other cities, regulatory and resource agency permits for the proposed program (which ideally would be sought 'programmatically,' to cover regional beach nourishment activities as described in this document, regardless of the project proponent), and regulatory and resource agency notification and approvals of each project.

Following proposed program approval pursuant to this CEQA document, and any separate future CEQA documents required under the jurisdictions of each of the other cities, the cities would then seek regulatory permits and/or approvals required for the proposed program (again, ideally of a 'programmatic' nature), such that future sand placement activities under the proposed program can occur following a predictable and expedited process, when a suitable source of opportunistic sand becomes available.

CEQA

As stated in the proposed program objectives, the proposed program has been designed to minimize potential significant impacts, such that an Initial Study/Mitigated Negative Declaration (IS/MND) is the appropriate document to be prepared. The IS/MND addresses the proposed program and the individual projects as are currently defined previously. The proposed program is also designed such that, following completion and anticipated approval of the OBNP proposed program IS/MND, as the cities prepare to seek final approvals for implementation of specific sand placement activities or their individual projects, minimal additional CEQA documentation would be required. For example, an addendum (an administrative CEQA document with no public noticing pursuant to CEQA Guidelines Section 15164) would be the targeted CEQA document type for projects under the proposed program, if any document is required at all. However, if new or previously-unidentified impacts could result from the proposed placement activities, or if the any of the cities propose to add new source, receiver, or stockpile sites or otherwise significantly modify the approved proposed program, a Supplemental MND (a public

CEQA document, with public circulation) may be required. Finally, it is unlikely that the proposed program would be used if it or any projects under it require an Environmental Impact Report.

NEPA

The proposed program, as currently described, may require no or minimal NEPA documentation. Placement activities are designed to occur above the MHW, in order to avoid the need for an MBNMS permit and accompanying NEPA documentation. Based on planned project placement activities above and below the High Tide Line[3] (HTL), a Section 404 permit from the USACE may be required, which may in turn require accompanying NEPA documentation in the form of a focused EA (to support the USACE's permit decision). The cities would pursue a USACE permit and would prepare the information necessary to support the USACE's analysis of the proposed program pursuant to NEPA, following proposed program approval pursuant to CEQA, and as funding and other logistics (including additional CEQA analysis, if required) allow. As the City seeks approvals for implementation of specific sand placement activities, no or minimal new NEPA should be required.

Permits

Following CEQA approval of the proposed program, and as funding becomes available, the cities would seek permits and approvals for their individual projects. These permits would ideally authorize the proposed program at a 'programmatic' level, rather than being limited to a specific project proponent or entity, meaning that they would authorize the general activities described under the proposed program, and would include the specific receiver and stockpile sites currently identified under the proposed program, as well as any additional sites which may be identified in future CEQA analyses prepared by individual cities. Furthermore, programmatic permits would prescribe the way in which individual projects should be designed to comply with regulatory restrictions and protect sensitive resources (including developing specific monitoring and adaptive management measures), and the way in which notification/approval should be sought for individual projects.

Lastly, programmatic permits should prescribe the way in which changes to the proposed program should seek authorization or approval, if applicable. The goal of programmatic permits is to analyze and permit as much of the proposed program specifics as possible upfront, thereby enabling expedited approvals for each project's implementation, as suitable opportunistic sand and/or funding become available. However, if only certain participating cities are able to advance their projects through this and future CEQA approvals, it may be necessary for other cities to seek individual and/or site-specific permits, rather than 'programmatic' permits for beach nourishment activities in the broader region. Note: while some opportunistic sources may have their own project-specific permits that authorize the removal of sediment and would enable it to be hauled away for use, separate permits may be required for the acquisition of certain source material, as these new opportunistic sources are identified in the future.

[3] The HTL is the upper limit of USACE Section 404 Clean Water Act jurisdiction in open tidal waters of the Pacific Ocean, and roughly equals 7.2 ft NAVD.

The list below presents those regulatory or resource agency permits or approvals expected to be required by the proposed program, with key issues identified:

- USACE Section 404 Clean Water Act permit – based on placement of sand above and below the High Tide Line (upper limit of USACE Clean Water Act jurisdiction in open tidal waters of the Pacific Ocean, roughly equaling 7.2 ft NAVD)

- USEPA – approval of sediment suitability for beach placement, and project compliance with the EPA/USACE 404(b)(1) Guidelines pursuant to the Clean Water Act

- NMFS, USFWS – Section 7 coordination and/or consultation pursuant to the federal Endangered Species Act, for federally-listed species and/or designated critical habitats

- CDFW –coordination and/or incidental take permitting pursuant to the California Endangered Species Act, for state-listed species, and input on avoidance/minimization measures for indirect effects to aquatic species (Note: no 1600 Streambed Alteration Agreement is currently expected to be required based on the absence of such resources at the current receiver/stockpile sites included in the project, but may be required if any new sites added in the future include or are adjacent to a streambed or lake)

- CCC – Coastal Development Permit, for projects located in the coastal zone

- CSLC – Lease or Lease Amendment for submerged lands (including the nearshore zone of the Pacific Ocean) with CSLC retained jurisdiction

- CA Dept. of Parks & Recreation – Encroachment Permit for any project activities (including placement, stockpiling, or access routes) located on State Parks lands

- RWQCB – Section 401 Water Quality Certification and/or Waste Discharge Requirements, pursuant to the Clean Water act and National Pollutant Discharge Elimination System, respectively

- Local permits – may include grading and/or construction permits, encroachment permits, etc.

- MBNMS – although the proposed program is currently designed to explicitly avoid the need for a Sanctuary permit (by restricting placement to above the MHW line, which serves as the Sanctuary's upper boundary in ocean waters), the cities should notify the Sanctuary with proposed program information, as they are a key stakeholder, and because preventing potential adverse indirect impacts to the Sanctuary is a project objective.

2.3 Surveys, Monitoring & Reporting

Physical and biological surveys of the receiver and stockpile sites will be conducted prior to project implementation, pursuant to future regulatory and/or resource agency permits and approvals, in order to develop a baseline for comparison of potential effects, either adverse or beneficial, at the identified proposed program sites. Receiver and stockpile sites will also be monitored during and after implementation (i.e., after sand stockpiling and/or placement activities), pursuant to future regulatory and/or resource agency permits and approvals, in order to quantify changes and assess project effects, either adverse of beneficial. Finally, certain minimum

information will be included in reports prepared during surveys and monitoring conducted in support of proposed program activities, pursuant to future regulatory and/or resource agency permits and approvals, in order to facilitate a comparison of conditions across proposed program sites and over the duration of the proposed program, as well as for use in other regional analyses which may be desired. In summary, the specific frequency, methods, and success criteria utilized for the surveys, monitoring, and reporting, which are generally described below, will need to be determined during the future permitting or approval process with regulatory and/or resource agencies that have jurisdiction over the project; this would occur following all CEQA analyses and before project implementation.

2.3.1 Physical Conditions

Physical monitoring includes surveying and/or monitoring of beach profiles, the mean high tide line, and turbidity.

Beach Profiles and Shoreline

Profiles

Beach profiles would be monitored to quantify sand accretion and loss at the receiver site. A licensed surveyor with experience in the survey methods and specific site would perform the profile surveys.

First, the appropriate number of profiles would be established, to enable characterization of the receiver site as well as conditions upcoast and downcoast of the site.

Next, beach and seabed elevations would be recorded along the established profiles from the back beach out to the depth of closure. Standard land survey equipment would include a level, global positioning system (GPS), and rod.

Mean High Tide Line Survey

The California State Lands Commission requires that a mean high tide line survey be completed prior to the first sand placement at a beach receiver site. The survey would meet the following requirements:

- The survey must be based on the California Coordinate System 1983 and must include a control scheme showing found monuments and coordinates referencing the epoch date;
- The survey must locate a minimum of two property monuments shown on an official record map;
- The vertical datum must be shown on the map with the benchmark location and elevation;
- The mean high tide elevation and tidal epoch must be noted on the survey and California State Lands Commission staff must approve the elevation prior to the fieldwork;
- Stations used to locate the mean high tide line must be at intervals of 50'±;
- The survey must be performed by or under the supervision of a Licensed Land Surveyor; and

- The California State Lands Commission will be provided with a hardcopy map and AutoCAD drawing file within 30 days of completion of survey fieldwork.

Turbidity

Although turbidity monitoring may be determined necessary by regulatory and/or resource agencies during the permit and approval process, because the proposed program is limited to sand-sized material and the placement of this sand on the upper beach (above the MHW line and both above and below the HTL), current placement methods are not expected to result in the immediate mobilization of sand into the surf zone. Therefore, the project is not anticipated to result in measurable increases in ocean turbidity as compared to the existing condition.

However, if determined necessary during the regulatory and/or resource agency permit and approval process, turbidity monitoring could be required and would be expected to focus on turbidity levels in the nearshore zone as measured just before, during (placement), and following sand placement at a receiver site.

2.3.2 Biological Conditions

Biological monitoring includes surveying and/or monitoring of biological resources prior to, during, and following implementation of beach placement activities. These efforts would address general vegetation and habitat types, as well as sensitive species and/or habitats known in the region. Biological response to physical effects of the Program, including specific placement activities and overall coastal geomorphic process, would also be evaluated, if feasible.

If surveys during- and post-implementation definitively indicate that adverse effects to biological resources have resulted from Project implementation activities (sand placement) and that these adverse effects could be avoided or further minimized, the Program should be modified or adaptively-managed to prevent or minimize further avoidable impacts to such resources (see Section 2.4).

Vegetation and Habitat Mapping

Vegetation mapping and habitat classifications would be conducted for the receiver and stockpile sites identified under the Program, and predicted associated wildlife communities would be identified based on the results. Mapping and classifications would be done per a standard system such as CDFW Natural Communities.

Maps would be prepared, and data retained in a commonly-used format, to facilitate comparison across Program sites and over the duration of the Program, as well as for use in other analyses which may be desired.

Sensitive Species/Habitats

Surveys and monitoring would address known sensitive species populations and/or habitats that may be adversely affected by Program activities (stockpiling and/or placement of sand) including: grunion, certain shorebirds (including western snowy plover), and coastal dune plants, as detailed below.

2.4 Long-term Maintenance and Adaptive Management

This section addresses the anticipated long-term maintenance and adaptive management actions that may be required at receiver and stockpile sites (as identified in Section 2), including their associated access routes. These maintenance and adaptive management actions would be aimed at maximizing proposed program benefits and protection of sensitive resources (biological, recreational, and others), and minimizing potential adverse impacts of the proposed program. Note: Long-term maintenance and adaptive management actions are not addressed for opportunistic source sites, as they are both currently undefined, and are expected to be covered under separate project permits or approvals.

Recommended long-term maintenance and adaptive management actions are expected to be informed by known pre-project site conditions as well as observations of evolving proposed program site conditions over time, as determined during pre-project surveys, monitoring and reporting conducted for the proposed program, and other available data sources. The specific methods, triggers, and definitions of success utilized for long term maintenance and adaptive management actions for the project, which are generally described below, will need to be determined during the future permitting or approval process with regulatory and/or resource agencies that have jurisdiction over the project; this would occur following all CEQA analyses and before project implementation.

2.4.1 Long Term Maintenance

Long-term maintenance measures include erosion control/stormwater management actions to prevent erosion/entrainment of stockpiled material or disturbed/exposed areas (such as graded dirt access roads). Measures to address unwanted sand migration at receiver sites may be appropriate in some cases. Lastly, stockpile or receiver sites can be monitored for unwanted colonization by sensitive species if left undisturbed for long periods.

2.4.2 Adaptive Management

An Adaptive Management Plan would be prepared that would include actions to address recommended adjustments to the proposed program that arise following surveys and/or monitoring such as: modifying testing protocols to improve compatibility of sand, modifying design considerations like placement locations, timing, rates, etc. to better protect sensitive resources, and/or modifying survey and/or monitoring protocol to obtain better data, improve proposed program efficacy, or increase protections of sensitive resources. The Adaptive Management Plan actions could also include adding, removing, or adjusting receiver/stockpile site locations. Further, the Adaptive Management Plan would include monitoring and coordination within and among the Cities on potential impacts to stormwater or other coastal utilities in the program area, that may be affected by the program receiver sites and amending the project to reduce or enhance the function of those stormwater outfalls or other utilities.

Note that adding opportunistic source sites to, or conversely dropping source sites from, the proposed program is not considered an adaptive management action, as this part of the proposed

program is designed to be flexible/opportunistic. Assessment of source sites for compatibility and use under the proposed program is instead addressed through selection of compatible sources and design considerations.

2.5 References

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CHAPTER 3
Initial Study

1. Project Title:	Monterey Bay Opportunistic Beach Nourishment
2. Lead Agency Name and Address:	City of Monterey, Community Development Department, 580 Pacific Street, Monterey, CA 93940
3. Contact Person and Phone Number:	Kimberly Cole, Community Development Director, 831-646-3759
4. Project Location:	Cities of Monterey, Sand City, Seaside, and Marina
5. Project Sponsor's Name and Address:	City of Monterey, Community Development Department, 580 Pacific Street, Monterey, CA 93940
6. General Plan Designation(s):	Marina – Habitat Reserve and Other Open Space Monterey – Parks, Recreation and Open Space Sand City – Public Recreation and Visitor Serving Commercial Seaside – Park and Open Space
7. Zoning:	Marina – Coastal Conservation and Development Monterey – Open Space and Planned Community Waterfront Sand City – Coastal Public Recreation and Visitor Serving Commercial (Dual Designation) Seaside – Open Space - Recreation

8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

See Chapter 2, Project Description in this document.

9. Surrounding Land Uses and Setting. (Briefly describe the project's surroundings.)

Marina – State Parks, open space and public beaches
Monterey – State Parks, open space, public beaches, residential condominiums and hotel
Sand City – open space, public beaches and vacant development sites
Seaside – State Park, open space, public beaches

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

See more detail in Chapter 2, Project description in this document: USACE Section 404 Clean Water Act permit; USEPA; NMFS, USFWS – Section 7; CDFW; CCC; CSLC; CA Dept. of Parks & Recreation – Encroachment Permit; RWQCB – Section 401 Water Quality Certification; Local permits; MBNMS.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun? Yes

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Tribal Cultural Resources	☐ Utilities/Service Systems
		☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

Signature _____ Date _____

3.2 Environmental Checklist

3.2.1 Aesthetics

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
1.	**AESTHETICS — Would the project:**				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d)	Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Environmental Setting

The proposed beach nourishment sites and EcoResort potential sand source site are characterized by views of the Pacific Ocean to the west and urban land uses to the east. The potential Laguna Grande sand source site is characterized by open space and surrounded by an urban area of businesses, hotel, and residential development.

Discussion

a) **No Impact**. The proposed beach nourishment program would place sand on existing beaches, which would have a beneficial aesthetic effect at the receiver sites by replenishing eroded beaches. The proposed replenished beach height, width, and length would be similar to and compatible with underlying and surrounding beach areas. Although loading, hauling, depositing, and spreading of sand would occur, these activities would be temporary and short term and would not obscure the scenic vista of the Pacific Ocean and Monterey Bay. There would be no impacts on scenic vistas.

b) **No Impact**. Highway 1 through Monterey County is an officially designated State scenic highway in Monterey and an eligible state scenic highway through the cities of Sand City, Seaside and Marina. The proposed receiver and stockpile sites will not be visible from Highway 1 due to the proposed nourishment locations and elevation differences between the highway and project sites. located along a designated state scenic highway. The haul routes for the beach fill sites would use a portion Highway 1. Highway 1 is currently traveled by motorists daily and the addition of the haul trucks for implementing the proposed program would be consistent with the current traffic conditions. The use of Highway 1 by the proposed program would not damage or alter the existing viewshed along Highway 1 and surrounding areas. Therefore, no impacts on scenic resources within a state scenic highway would occur.

c, d) **No Impact**. The proposed program would transport sand from source sites in order to mitigate ongoing coastal erosion. Beach replenishment would not include development

that would substantially degrade the existing visual character or quality of the area or result in sources of temporary or permanent sources of light and glare. Furthermore, a beneficial aesthetic effect would occur from replenishment of eroded beaches. Accordingly, no impacts on the existing visual character or quality of the sites and surroundings would occur.

References

California Department of Transportation (Caltrans), 2011. California Scenic Highway Mapping System – Monterey County. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed October 29, 2018.

3.2.2 Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental Setting

While much of Monterey County is known for, and associated with, an abundance of agricultural operations, the proposed project sites have no existing agricultural operations or potential for future agriculture activities. The cities do not have any forest lands zoned for Timberland Production.

Discussion:

a–b) **No Impact.** The proposed project would not affect any existing agriculture resources, land identified for potential agricultural production, lands zoned for agricultural use, or lands under a Williamson Act contract or as protected by the federal Farmland Protection Policy Act. Agriculture operations are not an allowable use in the Cities' Zoning Code. Therefore, there would be **no impact** to farmland, agricultural land, forest land, or timberland.

c-e) **No Impact**. The project adds existing sand to existing beaches. Mitigation measures are included to avoid habitat. The sites do not affect existing forests, and the project does not

cause rezoning of forest land. The project sites have not been identified for potential timberland production or use. Therefore, there is no impact.

References

City of Monterey General Plan, Adopted January 2005 and Updated with Amendments Through 2016.

City of Sand City General Plan, Adopted February 5, 2002.

City of Seaside General Plan, Adopted August 5, 2003.

City of Marina General Plan, Adopted October 31, 2000 and Updated with Amendments Through August 4, 2010.

3.2.3 Air Quality

Issues (and Supporting Information Sources):		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
3.	**AIR QUALITY —** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Environmental Setting

The proposed program receiver and stockpile sites as well as the representative material source sites assumed in the following analysis are all located within the Monterey County.

Monterey Bay Air Resources District (MBARD). The MBARD is the primary local agency with respect to air quality for all of Monterey, Santa Cruz and San Benito Counties. The study area for impacts on air quality is the North Central Coast Air Basin (Air Basin). The MBARD is the regional agency responsible for air quality regulation within Air Basin. The MBUAPCD regulates air quality through its planning and review activities.

USEPA has classified air basins or portions thereof as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the federal standards have been achieved. The California Clean Air Act, which is patterned after the federal Clean Air Act, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. The Air Basin is designated as attainment for all federal standards and is designated non-attainment for ozone and particulate matter (PM10) under the state standards.

The MBUAPCD has adopted two different sets of CEQA guidelines: Guidelines for Implementing the California Environmental Quality Act (2016 guidelines) for the MBUAPCD’s implementation of CEQA as a lead or responsible agency (MBUAPCD, 2016), and CEQA Air Quality Guidelines (2008 guidelines) that provide guidance for lead agencies that prepare project-specific CEQA and NEPA documentation for projects within the air district (MBUAPCD, 2008). The 2016 guidelines establish criteria pollutant significance thresholds for construction emissions, which were not included in the 2008 guidelines. Although the purpose of the 2016 guidelines is to describe the MBUAPCD’s procedures for enforcing CEQA, the MBUAPCD

recommends that lead agencies use the new criteria pollutant mass emissions thresholds identified in the 2016 guidelines for projects that would include a large construction effort (Nunes, 2016).

The 2016 guidelines state that a project would not have a significant air quality effect on the environment if construction or operation of the project would emit less than 137 pounds per day of nitrogen oxides (NO_x - an ozone precursor compound) or reactive organic gases (ROG- an ozone precursor compound), 82 pounds per day of PM_{10}, 55 pounds per day of fine particulate matter ($PM_{2.5}$), or 550 pounds per day of carbon monoxide (CO).

Discussion

The following analysis of air quality impacts considers the potential impacts related to emissions of nonattainment pollutants and their precursors. Although ozone, as a secondary pollutant, would not be directly emitted by trucks and equipment for the proposed project, the ozone precursors ROG and NOx would be emitted and are, therefore, along with particulate matter, the focus of the impact assessment.

Given that ozone formation occurs through a complex photo-chemical reaction between NO_X and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-wide or regional basis instead of a localized basis. The health-based ambient air quality standards for ozone are established as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., NO_X and ROG). It is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of the resulting secondary pollutant ozone or the primary pollutant particulate matter in this case.

Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of environmental science modeling in use at this time, it is infeasible and not scientifically defensible to convert specific emissions levels of NO_X or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex photochemical factors all combine to determine the ultimate concentration and location of ozone hotspots.[4,5] Nonetheless, as discussed below, since the project would not exceed the numeric indicator for ROG, NO_X, or particulate emissions, it is unlikely that these emissions could result in an increase in ground-level ozone or particulate concentrations in proximity to a given nourishment site or elsewhere in the air basin and impacts would be less than significant.

4 SCAQMD, 2014, Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

5 SJVAPCD, 2014. Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch Case*),[6,7] the CEQA criteria pollutants significance thresholds from the air district were set at emission levels tied to the region's attainment status. These emission levels are indexed to stationary pollution sources permitted by the air district to compel the operator to offset their emissions and they are not intended to be correlated to localized or regional human health impacts.

Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_X or ROG emissions from an individual project. Therefore, it is not scientifically defensible to connect the proposed program-level NO_X emissions to ozone-related health impacts at present.

a) **Less than Significant Impact**. Any project that could conflict with the MBARD's goal of attaining the state 8-hour ozone standard would be considered to conflict with the intent of its 2012 Air Quality Management Plan (AQMP). The measures for determining whether a project would conflict with the intent of the 2012 AQMP is consistency with the CEQA mass emissions thresholds of significance for NO_x and ROG, and/or whether a project would contribute to population growth not accounted for in the 2012 AQMP. If the CEQA thresholds of significance are exceeded, or if the project would result in population growth not accounted for the 2012 AQMP, then the project would be considered to conflict with the intent of the 2012 AQMP and the associated impact would be significant.

   As discussed in the responses to questions b) and c), below, the proposed program would not result in criteria pollutant emissions that would exceed the MBARD's significance thresholds of 137 pounds per day of NO_x or ROG, 82 pounds per day of PM_{10}, 55 pounds per day of $PM_{2.5}$, or 550 pounds per day of CO. Given that the proposed program is not growth inducing, the proposed program would have a less-than-significant impact with respect to conflicts with, or obstruction of, implementation of the AQMP.

b) **Less than Significant Impact**. Air emissions resulting from the proposed program were calculated using the latest version of the CalEEMod emissions model (2016.3.2) as shown in Appendix C with input from the equipment and hours estimates compiled in a Technical Memorandum prepared by ESA and contained in this Initial Study as Appendix B.

   Air emission estimates were calculated only for the transport of material to the receiver sites and the equipment used to spread the material as it arrives at the receiver site. Haul trucks were assumed to be heavy duty diesel construction trucks with a CalEEMod

6 SCAQMD, 2014, Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

7 SJVAPCD, 2014. Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

default capacity of 16 CY. Spreading equipment was assumed to be one loader and one bulldozer at each of the receiver sites except the CEMEX site which would generate more material than this equipment could spread within the March through September spreading window. Consequently, for the CEMEX site, 2 loaders and 2 dozers were assumed to operate daily.

Table AQ-1 presents the estimated criteria pollutant emissions associated with the proposed program for each of five potential receiver sites and compares them to the CEQA significance thresholds of the MBARD. Because MBARD's thresholds are in terms of pounds per day, the emissions presented in Table AQ-1 would be the same for either a maximum volume placement or 50 percent volume placement scenarios, as only the overall weeks of duration of activity would be different. As can be seen from Table AQ-1, criteria pollutant emissions for all receiver sites would be less than the CEQA significance thresholds of the MBARD. Consequently, the proposed program would have a less than significant impact with respect to violating any air quality standard or contributing substantially to an existing or projected air quality violation.

TABLE AQ-1
CRITERIA AIR POLLUTANT EMISSIONS ASSOCIATED WITH TRANSPORT AND SPREADING OF MATERIALS

	Pollutant Emissions (pounds per day)			
Receiver Site	**ROG**	**NOx**	**PM10**	**PM2.5**
Del Monte	1.93	27.42	7.42	4.24
Marina	1.80	27.60	7.54	4.21
North Monterey	1.68	24.72	7.28	4.13
Sand City	1.64	24.36	7.18	4.10
CEMEX	3.98	69.17	16.01	8.75
MBARD Threshold	137	137	82	55

c) **Less than Significant Impact**. Please refer to the analysis above with respect to question (b). The MBAD's CEQA thresholds represent cumulatively considerable contributions to regional air quality within the District's jurisdiction. Consequently, these thresholds are used to represent an emission rate that could potentially result in a substantial contribution to an existing air quality violations of ozone and PM2.5 as well as a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

d) **Less than Significant with Mitigation Incorporated**. Diesel powered construction equipment can generate diesel particulate matter (DPM) which has been identified by CARB as a toxic air contaminant. Some beach nourishment receiver sites are located within 1,000 ft of residential townhomes and condominiums.

Del Monte Receiver Site. The Del Monte Beach Townhouses are located in the middle span of the Del Monte receiver site within 100 ft of the beach nourishment area. Additionally, single family residences on Spray Avenue are within 250 ft of potential stockpile locations and within 400 ft of haul truck access routes. This proximity of these sensitive receptors would be a potentially significant impact warranting mitigation measures. Implementation of Mitigation Measure M-AQ-1, below, would reduce impacts to less than significant.

Mitigation Measure M-AQ-1: Tier 4 engine Requirement for Diesel Equipment and Trucks. This measure would apply to the Del Monte Receiver site only. Contractors conducting hauling and spreading for the Del Monte Receiver site shall be required to conduct all hauling and spreading using off-road equipment and haul trucks with either U.S. EPA certified Tier 4 engines or Level 3 diesel particulate filters. This requirement may be waived if it can be demonstrated to the satisfaction of the City of Monterey Planning Department through a health risk assessment that health risks associated with emissions of diesel particulate matter would be 10 in one million or less.

North Monterey Receiver Site. The Ocean Harbor House Condominiums are located at the southwestern end of the beach nourishment area, approximately 100 ft away. These sensitive receptors would be 1,700 ft from potential stockpile locations and haul truck access routes. Consequently, only minimal exposure of DPM would occur from beach nourishment activities at this receiver site because of the low frequency of material spreading at the extreme end of the beach.

The Best Western resort at the northeastern end of the beach nourishment area would not be a sensitive receptor with respect to diesel equipment exposure because guests would not be present for more than a few weeks at most. The state Office of Environmental Health Hazard Assessment (OEHHA) has published Guidelines for performing health risk assessments to evaluate potential health exposure impacts to sensitive populations (OEHHA, 2015). This guidance states that it does not recommend assessing cancer risk for projects lasting less than two months at the receptor.

Therefore, DPM emissions from diesel equipment and truck trips associated with beach nourishment at the North Monterey receiver site would have a less-than-significant impact with respect to exposure of sensitive receptors to substantial pollutant concentrations.

Sand City Receiver Site. There are no sensitive receptors within 1,000 ft of the Sand City receiver site. A 1,000-foot distance is generally accepted as a zone of influence beyond which impacts from toxic air contaminants would be less than significant and do not warrant an assessment of health risk. Consequently, DPM emissions from diesel equipment and truck trips associated with beach nourishment at the Sand City receiver site would have a less-than-significant impact with respect to exposure of sensitive receptors to substantial pollutant concentrations.

Marina Receiver Site. There are no sensitive receptors within 1,000 ft of the Marina receiver site. A 1,000-foot distance is generally accepted as a zone of influence beyond

which impacts from toxic air contaminants would be less-than-significant and do not warrant an assessment of health risk.

While the Sanctuary Beach Resort is located south of the beach nourishment area, it would not be a sensitive receptor with respect to diesel equipment exposure because guests would not be present for more than a few weeks at most. OEHHA has published Guidelines for performing health risk assessments to evaluate potential health exposure impacts to sensitive populations (OEHHA, 2015). This guidance states that it does not recommend assessing cancer risk for projects lasting less than two months at the receptor. Consequently, DPM emissions from diesel equipment and truck trips associated with beach nourishment at the Marina receiver site would have a less-than-significant impact with respect to exposure of sensitive receptors to substantial pollutant concentrations.

CEMEX Receiver Site. There are no sensitive receptors within 1,000 ft of the CEMEX receiver site. A 1,000-foot distance is generally accepted as a zone of influence beyond which impacts from toxic air contaminants would be less than significant and do not warrant an assessment of health risk. Consequently, DPM emissions from diesel equipment and truck trips associated with beach nourishment at the Sand City receiver site would have a less than significant impact with respect to exposure of sensitive receptors to substantial pollutant concentrations. Consequently, DPM emissions from diesel equipment and truck trips associated with beach nourishment at the CEMEX receiver site would have a less-than-significant impact with respect to exposure of sensitive receptors to substantial pollutant concentrations.

e) **Less than Significant Impact**. Diesel powered construction equipment can generate some degree of odors. Nourishment sites are located are generally located distant from sensitive receptors. Given the limited number of equipment involved (one loader and one dozer) and predominant coastal breezes, the project would have a less-than-significant impact with respect to creation of odors affecting a substantial number of people.

References

Monterey Bay Unified Air Pollution Control District (MBUAPCD), 2008. *CEQA Air Quality Guidelines*. Adopted 1995. Revised February 2008.

Monterey Bay Unified Air Pollution Control District (MBUAPCD), 2016. *Guidelines for Implementing the California Environmental Quality Act*. Adopted 1996. Revised February 2016.

Nunes, Bob, Air Quality Planner III, Monterey Bay Unified Air Pollution Control District, personal communication, April 10, 2016.

Office of Environmental Health Hazard Assessment (OEHHA), California Environmental Protection Agency, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment, February 2015, http://oehha.ca.gov/air/hot_spots/2015/.pdf. Accessed November 11, 2018.

3.2.4 Biological Resources

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
4.	**BIOLOGICAL RESOURCES — Would the project:**				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Environmental Setting

An ESA biologist reviewed reports and habitat mapping of the project area and vicinity, reviewed current aerial photos, and conducted a reconnaissance-level survey of the proposed receiver and stockpiles sites on October 16, 2018 to document existing conditions within the project's biological resource study area (study area). The study area includes the limits of the proposed project components, including the proposed receiver sites, stockpiles sites, and access roads, as well as a buffer of those areas where indirect impacts to sensitive biological resources could occur from project activities or operations. Additionally, the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB; CDFW, 2018a), U.S. Fish and Wildlife Service (USFWS) official list of species occurring in the project area (USFWS, 2018a and 2018b), and the California Native Plant Society (CNPS) on-line Electronic Inventory

(CNPS, 2018), were reviewed to identify special-status species[8] that have been observed, or have potential to occur within the study area.

The field survey and database review focused on identifying the potential for special-status species and their habitats; riparian habitats or other sensitive natural communities; federal and state jurisdictional wetlands and waters; and wildlife corridors and nursery sites to occur within the program area. Appendix D includes an evaluation of the potential for special-status species known to occur within the program area. Special-status species with a moderate or higher potential to occur within the program area are included in **Table BIO-1** below.

Natural Communities and Aquatic Habitats

The following natural communities and aquatic habitats occur, or have potential to occur, in the study area: ocean; beaches, bluffs, and blowout zones; northern foredune; central dune scrub; central maritime chaparral; northern coastal scrub; riparian woodland and scrub; freshwater marsh and pond; coast live oak woodland, eucalyptus grove, non-native grassland, ruderal, and developed. These communities are described briefly below.

Ocean

The open ocean waters of Monterey Bay occur within the study area, although they do not occur within the project footprint.

Beaches, Bluffs, and Blowout Zones

Beaches, bluffs, and blowout zones occur inland of the ocean. This community is mostly devoid of vegetation, but inland edges of beaches and blowout zones can support non-native sea rocket (*Cakile maritima*), beach evening primrose (*Camissonia cheiranthifolia*), and yellow sand verbena (*Abronia latifolia*). These communities are located within the project footprint and within the larger study area.

Northern Foredune

Northern foredune lies in sand dunes inland from the beach. Plant species within this community include coast buckwheat (*Eriogonum latifolium*) and seacliff buckwheat (*Eriogonum parvifolium*), sea rocket, evening primrose, seacliff (*Dudleya caespitosa*), beach sagewort (*Artemisia pycnocephala*), seaside paintbrush (*Castilleja latifolia*), pink sand verbena (*Abronia umbellata*), and iceplant (*Carpobrotus edulis*, *C. chilensis*). This community is located within the project footprint and within the larger study area.

[8] Special-status species include species listed under the Federal Endangered Species Act (FESA), Marine Mammal Protection Act, California Endangered Species Act (CESA), California Fish and Game Code, or Native Plant Protection Act as endangered, threatened, or depleted; species that are candidates or proposed for listing; or species that are designated as rare, species of special concern, or Fully Protected; locally rare species defined in the CEQA Guidelines, which may include species that are designated as sensitive, declining, rare, or locally endemic, or as having limited or restricted distribution by various federal, state, and local agencies, organizations, and watch lists. This includes species ranked as California Rare Plant Rank (CRPR) 1A, 1B, 2A, 2B, 3 or 4 by the CNPS.

TABLE BIO-1
SPECIAL-STATUS SPECIES WITH MODERATE OR HIGHER POTENTIAL TO OCCUR IN THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES				
Plants				
coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	FE/SE/CRPR 1B.1	Coastal dunes, sandy areas in coastal bluff scrub, and mesic areas in coastal prairie habitats. Often associated with vernally mesic areas.	Known regional distribution is restricted to a single population on the Monterey Peninsula along 17-Mile Drive near Pebble Beach. Otherwise known from southern California.	**Low to Moderate.** Known population is approximately 3.5 miles west of the proposed Del Monte site. All receiver sites provide suitable habitat.
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	FT/--/CRPR 1B.2	Sandy soils in maritime chaparral, woodland, coastal dunes, coastal scrub, and valley and foothill grassland habitats.	Documented in suitable habitat throughout the Monterey Bay region	**Observed.** CNDDB occurrence records within the study area for all sites. High potential to occur where there is suitable habitat in the vicinity of all project components. Critical habitat occurs within the study area at the Marina site.
robust spineflower (*Chorizanthe robusta* var. *robusta*)	FE/--/CRPR 1B.1	Sandy or gravelly soils in coastal dunes, coastal scrub, and openings in woodland habitats.	The species is primarily limited to Santa Cruz County, but historically observed in Monterey County.	**Low to Moderate.** May occur in suitable habitat throughout the project area. However, no local CNDDB records.
seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*)	--/SE/CRPR 1B.1	In areas with sandy soils and often in disturbed sites within closed-cone coniferous forest, maritime chaparral, woodland, coastal dunes, and coastal scrub habitats.	Endemic to northwestern Monterey and Santa Barbara Counties. CNDDB documented occurrences throughout Monterey Bay region.	**Observed.** CNDDB occurrence records within the Marina, Sand City, North Monterey, and Del Monte sites, although the CNDDB indicates that the occurrence records within the Sand City, North Monterey, and Del Monte sites may be extirpated. May occur in suitable habitat throughout the project area.
Menzies' wallflower (*Erysimum menziesii*) Includes the formerly recognized subspecies *E. menziesii* ssp. *yadonii and* ssp. *menziesii*	FE/SE/ CRPR 1B.1	Coastal dune habitat.	Known from Pacific Grove and Asilomar State Beach area as well as the dunes west of Highway 1 and Marina and Fort Ord National Monument.	**Observed.** CNDDB occurrences records within the Marina site and CEMEX site. May occur in suitable habitat throughout the study area.
sand gilia (*Gilia tenuiflora* ssp. *arenaria*)	FE/ST/ CRPR 1B.2	Sandy soils and openings in maritime chaparral, woodland, coastal dunes, and coastal scrub habitats.	Central dune scrub (stabilized) west of Highway 1, Asilomar State Beach area, and maritime chaparral on eastern former Fort Ord lands.	**Observed.** CNDDB occurrence records within the Marina, Sand City, Del Monte, and CEMEX sites. May occur in suitable habitat throughout the study area.
Yadon's rein orchid (*Piperia yadonii*)	FE/CRPR 1B.1	In sandy coastal bluff scrub, closed-coned coniferous forest and maritime chaparral habitats.	Known from multiple locations on the Monterey peninsula and in the Prunedale area northeast of the project area.	**High.** May occur in suitable habitat within the study area. Closest CNDDB record is east of Highway 1 south of the Marina site, although the population is possibly extirpated.

TABLE BIO-1
SPECIAL-STATUS SPECIES WITH MODERATE OR HIGHER POTENTIAL TO OCCUR IN THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Plants (cont.)				
Pacific Grove clover (*Trifolium polyodon*)	--/SR/CRPR 1B.1	Along small springs and seeps in grassy openings of closed-coned coniferous forest, coastal prairie, meadows and seeps, and valley and foothill grassland	Coast of Monterey Peninsula to hills in area of Segunda Reservoir.	**Low to Moderate.** Several CNDDB records south and east of the study area. May occur in suitable habitat if spring/seep conditions are present.
Invertebrates				
Smith's blue butterfly (*Euphilotes enoptes smithi*)	FE/--	Coastal dunes and inland in coastal scrub, grassland, and chamise chaparral where host plants are present. Requires *Eriogonum parvifolium* and *E. latifolium* to complete its life cycle.	Primarily occurs in dune habitat along coast. Also occurs inland along and south of the Carmel River valley. Could occur elsewhere if host plant is present.	**Observed.** Several CNDDB occurrence records within all sites within the study area. High potential to occur in suitable habitat throughout the study area.
Fish				
steelhead, south-central California coast DPS (*Onchorhynchus mykiss irideus*)	FT/--	Free-flowing coastal rivers and streams. Spawning habitat: clear, cool streams with overhanging vegetation.	Occurs in coastal watersheds from the Pajaro River south to, but not including, the Santa Maria River. Salinas and Carmel Rivers are designated Critical Habitat for the species.	**Low to Moderate.** This ESU occupies rivers from the Pajaro River in Santa Cruz County to (but not including) the Santa Maria River in Santa Barbara County.
Amphibians				
California red-legged frog (*Rana draytonii*)	FT/CSSC	Slow water in streams, freshwater pools and ponds with overhanging or emergent vegetation. Requires pools of >0.5 m depth for breeding.	Known from scattered locations throughout Monterey County. In the vicinity of the project area observations are concentrated to the north in upper Moro Cojo Slough, Elkhorn Slough, and McCluskey Slough and to the south in the Carmel River and its tributaries.	**Low to Moderate.** Nearest CNDDB occurrence records are approximately 2 miles from the study area. Developed areas separate study area from many of the known occurrence records. Lagoons and lakes within the study area are relatively developed and surrounded by development, so provide limited quality habitat.
Birds				
western snowy plover (*Charadrius alexandrinus nivosus*)	FT/CSSC	Resident on coastal beaches and salt panne habitat.	The species is known from the dunes and beaches throughout the Monterey Bay.	**Observed.** CNDDB occurrence records from study area at the Marina, Sand City, and CEMEX sites. High potential to occur along beach and dunes within the entire study area. Critical habitat for this species occurs along the beach through the entire study area.

TABLE BIO-1
SPECIAL-STATUS SPECIES WITH MODERATE OR HIGHER POTENTIAL TO OCCUR IN THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Birds (cont.)				
bank swallow (*Riparia riparia*)	--/ST	Nests in colonies in sandy banks along riparian habitat.	The single recent nesting record in northern Monterey County is located in a coastal sandbank north of Seaside from 2012. Observations within the project area include at Fort Ord Dunes State Park and Laguna Grande Park.	**Moderate.** There is a general CNDDB record for a nesting colony within the Action Area, although the CNDDB does not show the exact location of the colony. Could nest within sandy banks or forage in study area.
Mammals				
southern sea otter (*Enhydra lutris nereis)*	FT, P	A top carnivore in its coastal range and a keystone species of the nearshore coastal zone. Frequent inhabitants of kelp forests.	Commonly found year-round in the nearshore waters of Monterey Bay.	**High.** Otters are commonly found in Monterey Bay and the nearshore waters.
California sea lion (*Zalophus californianus*)	P	Coastal waters of Monterey Bay are used for foraging with haul-out sites near Fishermen's Wharf; most abundant pinniped in MBNMS.	Commonly found year-round in Monterey Bay.	**Moderate.** Main haul-out sites are located south of the study area; however, foraging can be expected to occur over the entire continental shelf.
harbor seal (*Phoca vitulina richardii*)	P	Most commonly observed pinniped along MBNMS coastline. Use the offshore waters of Monterey Bay for foraging and beaches for resting. Occur on offshore rocks, on sand and mudflats in estuaries and bays, and on some isolated beaches.[1]	Commonly found year-round in Monterey Bay.	**High.** Residents of MBNMS throughout the year, occurring mainly close to shore. A large group can be regularly observed in and immediately south the Del Monte study area.
harbor porpoise (*Phocoena phocoena*)	P	Observed in shallow sandy bottom areas of the Monterey Bay Shelf where they forage.	Commonly found year-round in Monterey Bay.	**Low to Moderate.** Although the main population is located offshore Sunset Beach State Park, located north of all of the study areas, individuals have been reported in the nearshore waters adjacent to the former Fort Ord military base.
common dolphin – Long-beaked (*Delphinus capensis*)	P	Found relatively close to shore swimming and foraging.	Commonly found year round in Monterey Bay.	**High.** The common dolphin is the most abundant cetacean found in the coastal waters of California, and the abundance within MBNMS has increased in recent years. Can be frequently observed near the surf zone.
bottlenose dolphin (*Tursiops truncatus*)	FD, P	Includes coastal and offshore populations. Both species use the waters of Monterey Bay for foraging.	Commonly found year round in Monterey Bay.	**Moderate.** This species is considered a resident of Monterey Bay, and is confined to occur within 0.7 miles of shore.

TABLE BIO-1
SPECIAL-STATUS SPECIES WITH MODERATE OR HIGHER POTENTIAL TO OCCUR IN THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES				
Plants				
Hickman's onion (*Allium hickmanii*)	CRPR 1B.2	Closed-cone coniferous forest, maritime chaparral, coastal prairie, coastal scrub, and valley and foothill grassland habitats.	Scattered locations from southern Monterey Peninsula to eastern portion of former Fort Ord.	**Low to Moderate.** Potential to occur in grassland or grassland understory of coast live oak woodland.
Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)	CRPR 1B.2	Sandy areas in closed-cone coniferous forest, chaparral, woodland, and coastal scrub habitats.	Known from eastern portion of former Fort Ord lands and the Monterey peninsula.	**Low to Moderate.** Several CNDDB records within two miles of the study area. May occur in woodland and scrub communities within the study area.
Toro manzanita (*Arctostaphylos montereyensis*)	CRPR 1B.2	Sandy areas in maritime chaparral, woodland, and coastal scrub habitats.	Known from eastern portion of former Fort Ord lands, Toro Regional Park, and the Monterey airport.	**Low to Moderate.** Several CNDDB records within two miles of the study area. May occur in woodland and scrub communities within the study area.
Pajaro manzanita (*Arctostaphylos pajaroensis*)	CRPR 1B.1	Sandy soils in chaparral habitat.	CNDDB records from uplands above Elkhorn Slough, along General Jim Moore Boulevard, near the Monterey airport, on eastern portion of former Fort Ord lands, and near Highway 1 at Lightfighter Drive.	**Low to Moderate.** Potential to occur within chaparral habitat at this site.
sandmat manzanita (*Arctostaphylos pumila*)	CRPR 1B.2	Opening with sandy soils in closed-cone coniferous forest, maritime chaparral, woodland, coastal dunes, and coastal scrub habitats.	Throughout former Fort Ord lands, including along General Jim Moore Boulevard and coastal dunes, and near the Monterey peninsula airport.	**Observed.** CNDDB records within the Sand City site. High potential to occur in suitable habitat throughout the study area.
ocean bluff milkvetch (*Astragalus nuttallii* var. *nuttallii)*	CRPR 4.2	Sandy soils in coastal habitat of central coast California	Endemic to central coast California and documented throughout Monterey County where habitat is present.	**High.** study area is within the known range of this species and provides suitable habitat for this species.
pink Johnny-nip (*Castilleja ambigua* var. *insalutata*)	CRPR 1B.1	Coastal prairie and scrub.	CNNDB records from Monterey peninsula, south of Carmel, and the central portion of Ford Ord National Monument	**High, Possibly Observed.** Species documented historically at Deer Flat Park within the Del Monte site. Potential to occur within central dune scrub in the study area.
Monterey Coast paintbrush (*Castilleja latifolia*)	CRPR 4.3	Sandy soils in closed-cone coniferous forest, coastal dunes, coastal scrub, and openings in cismontane woodland.	Occurs in Monterey and Santa Cruz Counties.	**High.** Potential to occur in central dune scrub within the study area.
Point Reyes ceanothus (*Ceanothus gloriosus* var. *gloriosus*)	CRPR 4.3	Sandy soil is coastal bluff scrub, closed-cone coniferous forest, coastal dunes, and coastal scrub.	Known from southern Monterey Bay.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.

TABLE BIO-1
SPECIAL-STATUS SPECIES WITH MODERATE OR HIGHER POTENTIAL TO OCCUR IN THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
Monterey ceanothus (*Ceanothus rigidus*)	CRPR 4.2	Closed-cone coniferous forest, chaparral, coastal scrub.	Known from throughout the Monterey Bay region.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	CRPR 1B.1	Valley & foothill grassland habitat, particularly in areas with alkaline substrates and in sumps or disturbed areas where water collects; ephemeral drainages.	Known from multiple locations primarily east and north of study area.	**Low to Moderate.** CNDDB occurrence records are over 3 miles north and east of the study area. Potential to occur within suitable habitat within the study area.
Douglas' spineflower (*Chorizanthe douglasii*)	CRPR 4.3	Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland	Known from Monterey Bay region.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Fort Ord spineflower (*Chorizanthe minutiflora*)	CRPR 1B.1	Sandy openings in chaparral and coastal scrub.	Unknown regional occurrence.	**Moderate.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Jolon clarkia (*Clarkia jolonensis*)	CRPR 1B.2	Edges or recently burned areas of chaparral, coastal scrub, oak woodland or riparian woodland.	Historical records in coastal areas from Moss Landing to Monterey peninsula. Extant populations in Monterey County south of peninsula.	**High.** Non-specific historical record around the Del Monte, North Monterey, and Sand City sites. Potential to occur within central dune scrub and other suitable habitat within the study area.
Lewis' clarkia (*Clarkia lewisii*)	CRPR 4.3	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	Known from Monterey Bay region.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
branching beach aster (*Corethrogyne filaginifolia* [formerly *leucophylla*])	CRPR 3.2	Closed –cone coniferous forest, coastal dunes	Known from throughout the Monterey Bay region.	**High.** Known from the region and suitable central dune scrub habitat is present in the study area.
virgate eriastrum (*Eriastrum virgatum*)	CRPR 4.3	Sandy soils in coastal bluff scrub, chaparral, coastal dunes, and coastal scrub	Known from the Monterey Bay region and Monterey peninsula.	**Moderate.** This species is known from the region and suitable central dune scrub habitat is present in the study area.
Eastwood's goldenbush (*Ericameria fasciculata*)	CRPR 1B.1	Openings with sandy soils in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub habitats.	Endemic to Monterey County. CNDDB records from dunes near Marina and Seaside, former Fort Ord lands along General Jim Moore Boulevard, Monterey peninsula and Carmel River valley.	**High.** Historic non-specific CNDDB records from the Sand City, North Monterey, and Del Monte sites. May occur in central dune scrub and other suitable habitat throughout the study area.

TABLE BIO-1
SPECIAL-STATUS SPECIES WITH MODERATE OR HIGHER POTENTIAL TO OCCUR IN THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
sand-loving wallflower (*Erysimum ammophilum*)	CRPR 1B.2	Sandy areas and openings in maritime chaparral, coastal dunes, and coastal scrub habitats.	Although known from several other coastal counties, center of distribution is Monterey County. Known from dunes near Marina and Seaside, former Fort Ord lands along General Jim Moore Boulevard and east.	**Observed.** CNDDB occurrence records within the Marina, North Monterey, Sand City, Del Monte, and CEMEX sites. High potential to occur in central dune scrub and other suitable habitat within the study area.
Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*)	CRPR 1B.1	In openings with sandy or gravelly substrates within closed-cone coniferous forest, maritime chaparral, and coastal scrub habitats.	Occurrences in Monterey County are concentrated in the Monterey Bay area. Known from the dunes near Marina and Seaside, former Fort Ord lands along General Jim Moore Boulevard and east.	**High.** Historic non-specific CNDDB record from the Del Monte and North Monterey sites. Potential to occur in central dune scrub and other suitable habitat within the study area.
small-leaved lomatium (*Lomatium parvifolium*)	CRPR 4.2	Serpentinite in closed-cone coniferous forest, chaparral, coastal scrub, and riparian woodland.	Known from Monterey Bay area.	**High.** Known from the vicinity of the study area. Potential to occur in central dune scrub and other suitable habitat within the study area.
Northern curly-leaved monardella (*Monardella sinuata* ssp. *nigrescens*)	CRPR 1B.2	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest.	Known from coastal Monterey Bay. Documented on inland ranges of former Fort Ord lands.	**High.** Historic non-specific CNDDB records from the Sand City and Del Monte Sites. May occur in central dune scrub and chaparral habitat within the study area.
South coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*)	CRPR 3.2	Sandy, sometimes rocky, soils in chaparral, coastal dunes, coastal scrub, and coastal salt marshes and swamps.	Coastal areas from Monterey to southern California	**High.** Known from the region and suitable central dune scrub habitat within the study area.
Monterey pine (*Pinus radiata*)	CRPR 1B.1	Closed-cone coniferous forest and woodland habitats.	Three natural populations remain on California coast at Ano Nuevo to the north, Monterey area, and Cambria to the south. Widely used in landscaping and other plantings.	**Low to Moderate.** Extant natural populations largely restricted to the Monterey peninsula. Del Monte site is within historic range of this species.
Michael's rein orchid (*Piperia michaelii*)	CRPR 4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest.	Known from southern Monterey Bay.	**High.** Known from the region. Potential to occur in central dune scrub and other suitable habitat within the study area.
Hickman's popcorn flower (*Plagiobothrys chorisianus* var. *hickmanii*)	CRPR 4.2	Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, and vernal pools	Known from Monterey peninsula and inland Monterey Bay area.	**Low to Moderate.** Known from the vicinity of the study area and suitable wetland areas may be present within the study area.

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Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
Lobb's aquatic buttercup (*Ranunculus lobbii*)	CRPR 4.2	Mesic areas in cismontane woodland, north coast coniferous forest, valley and foothill grassland, and vernal pools.	Known from eastern former Fort Ord lands and from coastal Monterey bay.	**Moderate.** Known from the vicinity of the study area and suitable wetland areas may be present within the study area.
Invertebrates				
globose dune beetle *(Coelus globosus)*	--/** sensitive under the City of Marina's Local Coastal Land Use Plan (LCLUP)	Loose sandy areas in foredunes and sand hummocks	Sand dunes from Bodega Bay to Ensenada, Baja California	**Moderate to High.** 1972 CNDDB record from the Sand City and North Monterey sites. Potential to occur along the beach and sand dunes throughout the study area.
monarch butterfly (*Danaus plexippus*) California overwintering population	--/**	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adults can be found in areas abundant with wildflowers. Autumnal and winter roosts in eucalyptus and conifers.	Known from numerous locations along the Santa Cruz and Monterey County coast. Overwintering sites in Pacific Grove.	**Observed.** Wintering site occurs within the Del Monte site.
Fish				
White shark (*Carcharodon carcharias*)	CSC	In California, important white shark habitat occurs around Monterey Bay and Greater Farallones, national marine sanctuaries. White shark populations are impacted by purposeful and incidental capture by fisheries, marine pollution, and coastal habitat degradation	Present in coastal waters throughout the State.	**Low to Moderate.** Juveniles and adults are known to frequent the nearshore coastal waters along Monterey Bay coastline, including the waters in and adjacent to the surf zone.
California grunion (*Leuresthes tenuis*)	--/--/CDFW fishery	Occurs in ocean and spawn on sandy beaches.	Southern California	**Low to Moderate.** Incidence of occurrence in Monterey is very low and highly sporadic, but may occasionally occur along beach in study area.
Amphibians				
coast range newt (*Taricha torosa*)	CSSC	Wet forests, oak forests, chaparral, and rolling grasslands, breed in ponds, reservoirs, and streams	Records from south of the Carmel River.	**Low to Moderate.** Potential to occur in aquatic habitat (ponds) and in adjacent upland areas such as woodland or grassland habitat.

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Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Reptiles				
western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	Known from the Monterey Bay area	**Moderate.** CNDDB records in the vicinity of the study area. Potential to occur in suitable habitat at ponds or freshwater wetlands within the study area.
northern California legless lizard (*Anniella pulchra*) includes ssp. *nigra and pulchra*	CSSC	Sandy or loose, loamy soils, including stream terraces and coastal dunes. Dune scrub, maritime chaparral, oak woodland.	Known from multiple locations along the Monterey Bay.	**Observed.** CNDDB records from Del Monte, Marina, North Monterey, Sand City, and CEMEX sites. High potential to occur in central dune scrub throughout the study area.
coast horned lizard (*Phrynosoma blainvillii*)	CSSC	Exposed, gravely-sandy substrates, usually containing scattered shrubs, clearings in riparian woodlands.	Multiple records east of the study area, north and south of Reservation Road.	**High.** Known from the vicinity of the study area. Likely to occur in sandy soils within the study area.
Birds				
tricolored blackbird (*Agelaius tricolor*)	SCE/CSSC (nesting)	Breeds near freshwater in dense emergent vegetation.	Uncommon breeder in Monterey County. Several CNNDB records in the Monterey area. Known from Laguna Seca Recreation Area and eastern Fort Ord.	**Moderate.** Nesting birds observed just east of the Marina site. Potential to nest in ponds and marshes within the study area.
short-eared owl (*Asio flammeus*)	CSSC (nesting)	Coastal grasslands, marshes, dunes and agricultural areas. Nests are scraped out of the ground in dry areas among grasses and low forbs.	One nesting occurrence documented in CNDDB near the mouth of the Salinas River.	**Low to Moderate.** May forage or nest in scrublands near the coast throughout the study area.
Burrowing owl (*Athene cunicularia*)	CSSC (nesting and wintering)	Grassland habitat with ground squirrel burrows (used for nesting and wintering).	Known from several locations within the Monterey Bay area.	**High.** CNNDB record within the Marina and Sand City sites. Potential to occur in suitable upland areas with ground squirrel burrows within the study area.
Ferruginous hawk (*Buteo regalis*)	WL (wintering)	Grasslands, sagebrush scrub, and conifer forest edges at low to moderate elevations.	One CNDDB occurrence documented four wintering adults from 2004 in grasslands of southern Armstrong Ranch.	**Low to Moderate.** Some potential to winter in upland grassland and scrub habitat within the study area.
Northern harrier (*Circus cyaneus*)	CSSC	Forages in open grasslands, marshes, floodplains, and shrub lands. In western states, nests on the ground in dry uplands.	Know from the Monterey Bay area.	**Low to Moderate.** May nest in or adjacent to open grassland, marshes, or wetlands in the study area.

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Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Birds (cont.)				
White-tailed kite (*Elanus leucurus*)	FP (nesting)	Resident of river valleys, riparian woodlands, and adjacent fields.	The species' range includes the western U.S. and the species can be found throughout California. White-tailed kite observations are numerous throughout Monterey County.	**Moderate to High.** Potential to nest or forage in the study area.
American peregrine falcon (*Falco peregrinus*)	FD/SD/FP	Forages for other birds over a variety of habitats. Nests primarily on rocky cliffs.	Numerous sightings throughout the Monterey Bay area. One nest record from the Moss Landing quadrangle, although the exact location is suppressed by the CNDDB.	**Moderate.** Nesting habitat is likely absent from the study area. High potential for occurrence of foraging individuals throughout the study area.
loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Resident in dry open grasslands and scrub dominated habitats.	Numerous sightings throughout the Monterey Bay area.	**High.** May occur in grassland, scrub, or oak woodland habitat within the study area.
Mammals				
pallid bat (*Antrozous pallidus*)	CSSC/ WBWG-H	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No CNDDB records within 10 miles of the study area. Distribution unknown in the Monterey region.	**Low to Moderate.** No occurrences identified within study area. Some suitable roosting habitat present under overpasses and in trees.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and abandoned buildings. Very sensitive to human disturbance.	Throughout the western U.S.	**Low to Moderate.** The project site is within the range of this species. Potential roosting structures (abandoned or isolated, undisturbed structures or caves) may be present within the study area.
Salinas kangaroo rat (*Dipodomys heermanni goldmani*)	--/**	Brushy and grassy areas.	Lower (northern) end of the Salinas Valley from the coast of Monterey Bay south of the mouth of the Salinas River to the vicinity of Soledad.	**Low to Moderate.** Potential to occur in brushy, chaparral, and grassy areas in the study area. Locally sensitive within the coastal areas of the City of Marina.
western red bat (*Lasiurus blossevillii*)	CSSC/ WBWG-H	Often associated with riparian habitats and edge habitats adjacent to streams and open fields.	Found in coastal areas south of the San Francisco Bay and in the Central Valley.	**Low to Moderate.** Suitable habitat in trees, particularly in riparian areas, within the study area.
Monterey dusky-footed woodrat (*Neotoma fuscipes luciana*)	CSSC	Riparian, dense chaparral, or oak woodlands with moderately dense understory and abundant dead wood for nest construction.	Endemic to western and central Monterey County and northwestern San Luis Obispo County.	**High.** Potential to occur in oak woodland and scrub habitat within the study area.

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Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Mammals (cont.)				
Monterey shrew (*Sorex ornatus salarius*)	CSSC	Coastal salt marshes and adjacent sandhills, Riparian wetland, woodland and upland communities with thick duff or downed logs. May also occur in coast live oak woodland, grasslands, coastal scrub, maritime chaparral, and savannah vegetation.	Distribution poorly known. Historical collections from the Pajaro River to Carmel. More recently collected from the Salinas River delta. No CNDDB records in the region.	**Moderate.** May potentially occur in central dune scrub, chaparral, and oak woodland within the study area.
American badger (*Taxidea taxus*)	CSSC	Grasslands and other open habitats with friable soils.	Distributed throughout the region. Locally known from Fort Ord.	**Low to Moderate.** Non-specific historical CNDDB occurrence record from the Sand City site. Potential to occur in grassland within the study area.

*Special-Status Species Code Designations:

Federal
- FE = Federally listed as Endangered
- FT = Federally listed as Threatened
- P = Protected under the Marine Mammal Protection Act
- FD = Federally delisted

State
- SE = State listed as Endangered
- ST = State listed as Threatened
- SR = State listed as Rare
- SD = State Delisted
- FP = State listed as Fully Protected
- SCE = State Candidate Endangered
- SCT = State Candidate Threatened
- CSSC = California Species of Special Concern
- 3503.5 = Section 3503.5 of the California Fish and Game Code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs.

** Locally sensitive

California Rare Plant Rank (Formerly known as CNPS List):
- 1A = Plants presumed extinct in California.
- 1B = Plants rare, threatened, or endangered in California and elsewhere.
- 2A = Plants presumed extirpated in California.
- 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.
- 3 = Plants about which more information is needed.
- 4 = Plants of limited distribution.
- An extension reflecting the level of threat to each species is appended to each CRPR as follows:
  - .1 – Seriously threatened in California.
  - .2 – Moderately threatened in California.
  - .3 – Not very threatened in California.

Western Bay Working Group (WBWG):
- WBWG-H = High priority; Species that are imperiled or at a high risk of imperilment.
- WBWG-M = Medium priority; Species that warrant a closer evaluation due to potential imperilment.

SOURCES: CalFlora, 2018; CDFW, 2018a; CNPS, 2018; eBird, 2018; USFWS, 2018a; USFWS, 2018b

Central Dune Scrub

Central dune scrub lies in sand dunes and sandy areas inland from the northern foredune community. Plant species include California lilac (*Ceanothus* spp.), California sagebrush (*Artemisia californica*), mock heather (*Ericameria ericoides*), silver dune lupine (*Lupinus chamissonis*), deerweed (*Acmispon glaber*), and sandmat manzanita (*Arctostaphylos pumila*). This community is located within the project footprint and within the larger study area.

Central Maritime Chaparral

Central maritime chaparral is a plant community limited to areas of sandy soils subject to summer fog. It is found in relatively small patches throughout its range along the central coast. This community is dominated by endemic species of manzanita (*Arctostaphylos* spp.), California lilac, and chamise (*Adenostoma fasciculata*). There is potential for this community to occur within the project footprint and within the larger study area.

Northern Coastal Scrub

Northern coastal scrub occurs near the coast on sandy to clay soils, but typically more interior, developed, and stabilized soils than nearby active dunes. Plants in this community include coyote brush (*Baccharis pilularis*), California sagebrush, black sage (*Salvia mellifera*), poison oak (*Toxicodendron diversilobum*), and California coffeeberry (*Rhamnus californica*). There is potential for this community to occur within the project footprint and within the larger study area.

Riparian Woodland and Scrub

Riparian woodland and scrub is often associated with perennial water sources such as lakes and rivers. Willows (*Salix* spp.) are often dominants in these areas. Understory species may include mulefat (*Baccharis salicifolia*) and native and non-native blackberries (*Rubus ursinus, R. armeniacus*). Riparian woodland and scrub is not expected to occur within the project footprint, but may occur in association with El Estero Lake, Del Monte Lake within the Del Monte study area, Roberts Lake within the North Monterey study area, and an unnamed pond within the Marina study area.

Lakes, Ponds, and Freshwater Marsh

Lakes and ponds do not occur within the project footprint, but do occur within the larger study area at El Estero Lake and Del Monte Lake within the Del Monte study area, Roberts Lake within the North Monterey study area, an unnamed pond within the Marina study area, and the CEMEX settling and storage ponds within the CEMEX study area.

Freshwater marshes are wetland plant communities with year-round or nearly year-round inundation or soil saturation that supports perennial emergent plants, typically dominated by bulrushes, rushes and cattails. Within the study area, freshwater marshes occur within lakes and ponds and may occur in association with any seeps, springs, or ponded areas within the study area. Freshwater marsh also appears to occur as standalone separate features within the North Monterey and Marina study areas. Freshwater marsh is not expected to occur within the project footprint.

Coast Live Oak Woodland

Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*) with the occasional eucalyptus (*Eucalyptus* sp.), Monterey pine (*Pinus radiata*), or Monterey cypress (*Hesperocyparis macrocarpa*). Coast live oak woodland likely occurs within the North Monterey study area and may occur within the broader study area at other sites, but does not occur within the project footprint.

Eucalyptus Grove

Eucalyptus groves consist of large, dense stands of mature eucalyptus trees (*Eucalyptus* sp.). Eucalyptus groves do not occur within the project footprint, but occur along Del Monte Avenue and adjacent to the proposed access road within the Del Monte study area. Eucalyptus grove understory includes unvegetated areas as well as a mix of mowed lawn, non-native annual grasses, and non-native invasive species such as iceplant and periwinkle (*Vinca major*).

Non-Native Grassland

Non-native grassland occurs at various locations throughout the project footprint and the larger study area. It occurs as monotypic stands and also interspersed with several other vegetation communities, such as oak woodland, central maritime chaparral, central dune scrub, and ruderal areas. It can support dominant plant species of other communities. Common dominants of non-native grassland include Italian ryegrass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), annual fescue (*Festuca myuros*), hare barley (*Hordeum murinum* ssp. *leporinum*), and wild oat (*Avena fatua*). Associated forbs include filaree (*Erodium botrys*), English plantain (*Plantago lanceolata*), wild radish (*Raphanus sativus*), shortpod mustard (*Hirschfeldia incana*), prickly sow thistle (*Sonchus asper*), deerweed, and iceplant.

Ruderal

Ruderal areas are not currently in active use, but have been subject to intense or recurring disturbance, generally through removal or other alteration of all native vegetation, alteration of topography, soil compaction, and the addition or removal of man-made features such as paving, buildings, and channelization of watercourses. Ruderal areas are dominated by non-native weedy vegetation; typical species include field mustard (*Brassica rapa*), radish (*Raphanus sativus*), fennel (*Foeniculum vulgare*), iceplant, dwarf nettle (*Urtica urens*), and common chickweed (*Stellaria media*). Ruderal areas occur at various locations throughout the project footprint and the larger study area.

Developed

Developed areas include paved and dirt roadways and trails, parking lots, buildings, and other manmade features. These areas are typically unvegetated but may be landscaped or support small patches of non-native grassland and ruderal vegetation. Developed areas within the project footprint include the proposed access roads and portions of some of the proposed stockpile areas.

Federal and State Jurisdictional Wetlands and Waters

There are two types of federal and/or state jurisdictional waters: wetlands and other waters. Wetlands and/or waters are regulated by the USACE, Regional Water Quality Control Board (RWQCB), CDFW, and/or the California Coastal Commission (CCC).

Waters of the United States are areas subject to federal jurisdiction pursuant to Section 404 of the Clean Water Act as regulated by the USACE. Waters of the United States are typically divided into two types: (1) wetlands and (2) other waters of the United States. Wetlands are "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Section 328.3[b], 40 CFR Section 230.3). USACE jurisdiction typically extends to the limit of the wetland, as defined by the presence of hydrophytic vegetation, hydric soils, and wetlands hydrology. Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for the three wetland parameters (33 CFR 328.4). Additionally, navigable waters are subject to federal jurisdiction under Section 10 of the Rivers and Harbors Act.

The RWQCB also regulates waters of the state under the Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act; Section 13260 of the California Water Code). "Waters of the state" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state," and typically includes Waters of the United States as a subset.

The CDFW regulates lakes and streambeds within the state, including the fish and wildlife resources within them, under Section 1600 of the California Fish and Game Code (CFGC Section 1602). Project proponents must notify CDFW about projects which would divert or obstruct the natural flow of; change the bed, channel, or bank of; or use material from or deposit or dispose of material into any river, stream, or lake.

The CCC jurisdiction for wetlands may extend to the limit of any one of the above three parameters used to identify USACE jurisdictional wetlands and therefore typically is much broader than USACE jurisdiction. The CCC only has jurisdiction over wetlands and waters located within the coastal zone, as well as the open ocean to the Mean High Tide line.

A formal delineation of aquatic resources has not been conducted to determine the limits of federal and/or state jurisdictional wetlands and/or waters within the study area. Potentially federal and/or state jurisdictional wetlands and other waters within the project study area include the ocean, lakes, ponds, and wetlands. For the purposes of this analysis, the CEMEX dredge pond may be considered a federal or state jurisdictional water.

Sensitive Natural Communities and Environmentally Sensitive Habitat Areas

Sensitive Natural Communities

Sensitive natural communities (or special-status native plant communities) are designated as such by various resource agencies, such as CDFW, or in local policies and regulations and are generally considered to have important functions or values for wildlife or humans and/or are recognized as declining in extent or distribution and are considered threatened enough to warrant some sort of protection. The following communities occur in the study area and are considered sensitive natural communities for the purpose of this analysis: beaches, bluffs, and blowout

zones; northern foredune; central dune scrub; central maritime chaparral; northern coastal scrub; riparian woodland and scrub; freshwater marsh and pond; and coast live oak woodland.

Environmentally Sensitive Habitat Areas

The California Coastal Act of 1976 defines Environmentally Sensitive Habitat Areas (ESHA) as "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." In areas where a local coastal program has been developed and approved, the local coastal program may include a separate definition of ESHA. The study area occurs within the coastal zone and sensitive natural communities and wetlands and other waters within the coastal zone may be considered ESHA under the Coastal Act or in a local coastal program.

Habitat Areas of Particular Concern and Essential Fish Habitat

Habitat Areas of Particular Concern

Habitat Areas of Particular Concern (HAPC) are considered high priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function. HAPCs in and around the study area include kelp forest, surfgrass, and rocky reef. Kelp forest is likely to occur in waters adjacent to the study area and most likely to occur within the Del Monte study area. Surfgrass may occur in coastal waters within the Del Monte study area. Rocky reef may occur in coastal waters within the study area.

Essential Fish Habitat

Essential Fish Habitat (EFH) was defined by the U.S. Congress in the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, or Magnuson-Stevens Act, as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." Coastal pelagic species and groundfish EFH does not occur within the project area, but occurs within the open ocean waters of the study area at all sites.

Discussion

a) **Less than Significant with Mitigation Incorporated.** The proposed project would include the transport of sand either first to a stockpile site or directly to a receiver site, and, in the case of sand first delivered to a stockpile site, the subsequent transport of sand from the stockpile site to a receiver site. The receiver sites consist of beaches, bluffs, and blowout zones; northern foredune; central dune scrub communities; and the CEMEX dredge pond. The stockpile sites consist of beaches, bluffs, and blowout zones; northern foredune, central dune scrub, developed, and ruderal communities. Central maritime chaparral and northern coastal scrub also have potential to occur within either the stockpile or receiver sties. Proposed access roads are developed.

Special-status species and their habitat have potential to occur in and around the stockpile and receiver sites and adjacent to the proposed access roads. These species are listed in Table BIO-1. Placement of sand at the beach would result in a net positive long-term effect on coastal habitats in the region. However, transportation of sand to the stockpile and/or receiver sites and placement of sand within these areas may have a significant

adverse effect on special-status species in and around these sites, as described under separate headings below.

For the purpose of this analysis, it is assumed that the maximum amount of sand would be placed throughout 50 percent of the receiver sites and throughout the entire stockpile sites annually. This would amount to sand placement within approximately 2.9 acres at the Del Monte receiver site, 1.4 acres at the Del Monte stockpile sites, 1.5 acres at the North Monterey receiver site, 0.7 acre at the North Monterey stockpile sites, 2.8 acres at the Sand City/Seaside receiver site, 3.4 acres at the Sand City/Seaside stockpile sites, 2.8 acres at the Marina receiver site, 0.9 acre at the Marina stockpile sites, 11.6 acres at the CEMEX sand mine receiver site, and 17.1 acres at the CEMEX sand mine stockpile sites. At the receiver sites, a maximum 3-foot depth of sand would be placed on the beach starting at the beach berm (the MHW at 4.8ft NAVD) to the backshore. Additionally, a sand berm will be placed at the back of the beach at a 3:1 slope. The opportunistic sand sources considered in this analysis would be of high quality and match the sediment at beaches and thus do not alter the natural dynamics of the beach, so wind-blown sand potential is not expected to change at sand placement locations.

To minimize impacts to sensitive biological resources, a maximum of 50 percent of the reach will receive sand placement at any time (either a contiguous placement at 50 percent of receiver length or in 100-ft long placements spaced at 100 ft). Additionally, the following measures have been incorporated into the project to avoid and minimize impacts to sensitive biological resources:

- Pre-construction biological surveys of receiver and/or stockpile sites would be conducted to determine appropriate placement locations, rates, timing, etc.
- Avoid sand placement during the western snowy plover (*Charadrius alexandrinus nivosus*) nesting season (generally March 1 to September 30 of any year).
- Avoid placing sand where western snowy plovers are known to forage.
- Avoid sand placement during grunion runs (typically occurring between March and September of any year) or placement during the month following known grunion runs (during incubation).
- Avoid burying dune plants, beach wrack (i.e., seaweed, surfgrass, driftwood, and other organic material produced by coastal ecosystems that wash ashore on the beach; beach wrack is a known source of food for foraging species including western snowy plover), and beach foreshore invertebrates. Locate sand placement areas to minimize impact to existing dune plants and beach wrack. Move (relocate) beach wrack if necessary, with direction by landowner representatives (State Parks) and/or USFWS representatives.
- Employ wind-blown sand mitigation measures at stockpile sites, where needed, to avoid disturbance of inland dune habitats.

Since measures would be incorporated into the project design to ensure wind-blown sand at stockpile sites does not disturb inland dune habitats, and that the dynamics of wind-

blown sand movement at placement sites would not change from existing conditions, there would be no indirect impacts from wind-blown sand to adjacent habitats at either the stockpile or the receiver sites.

Special-Status Plants

Special-status plants, including Monterey spineflower (*Chorizanthe pungens* var. *pungens*), Seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*), Menzies' wallflower (*Erysimum menziesii*), sand gilia (*Gilia tenuiflora* ssp. *arenaria*), Monterey ceanothus (*Ceanothus rigidus*) branching beach aster (*Corethrogyne filaginifolia*), sand-loving wallflower (*Erysimum ammophilum*), south coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*) and others listed in Table BIO-1 have potential to occur within beaches, bluffs, and blowout zones; northern foredune; central dune scrub; central maritime chaparral; and northern coastal scrub; grassland; and ruderal communities within the stockpile and receiver sites.

The proposed project would avoid burying dune plants, which would reduce the potential for impacting a special-status plant species, but special-status plant species may still be present within the sand stockpiling or receiving areas. Placing and spreading the sand with equipment can cause direct mortality of individual special-status plants, if present, through soil disturbance and loss of habitat. Permanent indirect impacts on special-status plant species may arise from population fragmentation and introduction of non-native weeds. These direct and indirect impacts to special-status plants are potentially significant.

Implementing BIO-1a: Construction Worker Environmental Awareness Training and Education Program, Mitigation Measure BIO-1b: General Avoidance and Minimization Measures, and Mitigation Measure BIO-1c, Avoidance and Minimization for Special-Status Plants, would reduce potential impacts on special-status plants to a less-than-significant level by implementing a construction worker environmental awareness training and education program; implementing general measures to protect special-status plants such as delineating the work area and avoiding the introduction of weeds; and requiring pre-construction protocol-level surveys, implementing avoidance measures, and providing compensation if special-status plants cannot be avoided.

> **Mitigation Measure BIO-1a: Construction Worker Environmental Awareness Training and Education Program.**
>
> Prior to starting work, all construction workers at the project areas shall attend a Construction Worker Environmental Awareness Training and Education Program developed and presented by the Lead Biologist,[9] appointed qualified biologist, and/or qualified biological monitor. The program shall include information on

[9] The term "qualified biologist" or "qualified Lead Biologist" for surveys is defined as an individual who shall possess, at a minimum, a bachelor's degree in biology, ecology, wildlife biology or closely related field and has demonstrated prior field experience using accepted resource agency techniques for the survey prescribed, and who possesses all appropriate USFWS and CDFW permits. The term "biological monitor" or "qualified biological monitor" is defined as holding similar educational credentials to those of a qualified biologist and who has functioned as an environmental inspector or monitor on at least two construction projects within the preceding two years.

special-status wildlife and plant species and sensitive natural communities that may be encountered during project activities. The training shall include: information on special-status species' life history and legal protections; applicable state and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance; the measures the City and/or its contractors have committed to implementing to protect special-status species and sensitive natural communities; reporting requirements and communication protocols; and specific measures that each worker shall employ to avoid or minimize impacts to special-status species. Training shall be documented with an acknowledgement form that shall be signed by each worker indicating that environmental training has been completed.

Mitigation Measure BIO-1b: General Avoidance and Minimization Measures.

The City's construction contractor(s) shall implement the following general avoidance and minimization measures to protect special-status species and sensitive natural communities during construction:

1. The stockpile sites, receiver sites, and access roads shall be delineated with stakes and flagging prior to construction to avoid sensitive natural resources outside of the project area. Any construction-related disturbance outside of these boundaries, including driving, parking, temporary access, sampling or testing, or storage of materials, shall be prohibited without explicit approval of the Lead Biologist.

2. Vehicle speeds within the project area shall not exceed 15 miles per hour on roads within the sites.

3. All detected project construction-related erosion shall be remedied immediately upon discovery.

4. Fueling of construction equipment shall take place within existing paved areas, and at least 50 ft from waters, wetlands, and riparian areas. Contractor equipment shall be checked for leaks prior to operation and repaired when leaks are detected. Fuel containers shall be stored within appropriately-sized secondary containment barriers.

5. The introduction of exotic plant species shall be avoided through physical or chemical removal and prevention. Measures to prevent the introduction of exotic plants into the project site via vehicular sources shall include vehicle cleaning for vehicles coming to the site and leaving the site. Earthmoving equipment shall be cleaned prior to transport to the project area. Weed-free rice straw or other certified weed-free straw shall be used for erosion control.

6. Any imported sand that will be placed on or within the upper 12 inches of the ground surface shall be free of vegetation and plant material.

7. Weed populations introduced into the site during construction shall be eliminated by chemical and/or mechanical means approved by California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS).

8. Sand placement shall be conducted during daylight hours. Immediately prior to implementing sand placement within potential suitable habitat for special-status species, a qualified biologist shall survey the project area to ensure that no special-status species are present. If special-status wildlife species are found on the site immediately prior to or during sand placement, construction activities shall cease in the vicinity of the animal until the animal moves on its own (if possible, as determined by the Lead Biologist or biological monitor) outside of the project area. The Lead Biologist shall consult with wildlife resource agency(ies) with jurisdiction over the species regarding any additional avoidance, minimization, or mitigation measures that may be necessary if the animal does not move on its own.
9. Construction equipment shall not be stored in sensitive natural communities.
10. No vehicle or equipment parked in the project area shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of wildlife. If present, the animal shall be left to move on its own.
11. All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Lead Biologist shall be informed of any hazardous spills within 24 hours of the incident. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly disposed of at a licensed facility.
12. A trash abatement program shall be implemented during construction. Trash and food items shall be contained in closed containers and removed from the construction site daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.
13. Workers shall be prohibited from feeding wildlife and bringing pets and firearms to the construction work areas.
14. Intentional killing or collecting of wildlife species, including special-status species in the project area and surrounding areas, shall be strictly prohibited.
15. All temporarily disturbed areas shall be returned to pre-project conditions or better.
16. Only natural-fiber, biodegradable meshes and coir rolls shall be used for erosion control. Photodegradable and other plastic mesh erosion control products shall not be used.
17. Invasive plant species shall not be installed at any restoration or mitigation site.

Mitigation Measure BIO-1c: Avoidance and Minimization Measures for Special-status Plants.

Prior to placement of sand within a stockpile or receiver site, the City or its contractor shall conduct focused botanical survey(s) for special-status plants in all potentially suitable habitat during the appropriate blooming period for each species and in accordance with the guidelines established by the California Department of Fish and Wildlife in *Protocols for Surveying and Evaluating*

Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW, 2018b). Maps depicting survey results shall be used to define sand placement locations. If more than two years elapse between the focused botanical surveys and commencement of sand placement or ground disturbance activities, a final set of appropriately-timed focused botanical surveys shall be conducted and populations mapped. The results of these final surveys shall be combined with previous survey results to produce habitat maps showing where the special-status plants have been observed during either of the focused botanical surveys conducted for each site.

1. To the extent feasible, sand placement and construction activities shall be sited to avoid permanent and temporary impacts on special-status plants. Special-status plants to be avoided shall be fenced or flagged prior to construction.

2. If avoidance is not feasible, seasonal avoidance measures (i.e., limited operating periods based on timing of annual plant dormancy), or limiting the amount of sand placed over the affected habitat shall be applied as appropriate. Topsoil salvage and site restoration may also be implemented, to be determined by the Lead Biologist and USFWS and CDFW, as appropriate, to ensure the site is returned to pre-construction conditions.

3. For potential impacts to federal and/or state listed plant species, the City shall comply with the FESA and/or CESA by implementing any requirements from USFWS and CDFW consultation. For state listed rare plants, a state Incidental Take Permit (ITP) may be required, which would provide conditions for allowable take and measures to compensate impacts on rare plants.

4. If avoidance is not feasible, compensation for temporary or permanent loss of special-status plant occurrences, in the form of land purchase or restoration, shall be provided at a minimum 1:1 ratio for temporary impacts and 2:1 ratio for permanent impacts. Compensation for loss of special-status plant populations may include the restoration or enhancement of temporarily impacted areas, purchase and permanent stewardship of known occupied habitat or the restoration and reintroduction of populations in degraded, unoccupied habitat. Restoration or reintroduction may be located on- or off-site. At a minimum, the compensation areas shall meet the following performance standards by the fifth year following initiation of compensation efforts:

    a. The compensation area shall be at least the same size as the impact area.

    b. Native vegetation cover shall be at least 70 percent of the baseline/impact area native vegetation cover

    c. Population of the impacted special-status species shall have either:

        i. at least 60 percent cover of the impact area, or

        ii. at least 70 percent survival of installed plants

    d. Invasive species cover shall be less than or equal to the invasive species cover in the impact area

Alternatively, compensatory credits may be purchased through a USFWS- and/or CDFW-approved mitigation bank, or USFWS-approved Habitat Conservation Plan.

Plant populations that cannot be avoided shall be monitored to document whether the populations re-established after sand placement. Results from this monitoring shall be used to determine future compensation requirements for future project impacts.

Invertebrates

Three sensitive invertebrates occur, or have potential to occur within the study area: Smith's blue butterfly (*Euphilotes enoptes smithi*), globose dune beetle (*Coelus globosus*), and monarch butterfly (*Danaus plexippus*).

Smith's blue butterfly, a federal endangered species, is a small butterfly endemic to the central coast of California. This species relies on two host plants, coast buckwheat and seacliff buckwheat, during all of its life stages. These two host plant species are found in beaches, bluffs, and blowout zones; northern foredune; central dune scrub; and chaparral and this species has potential to occur at all receiver and stockpile sites where these habitats are present. The proposed project would avoid burying dune plants, which would reduce the potential for impacts to the host plants and Smith's blue butterfly, but the host plants may still be present within the sand stockpiling or receiving areas. If these host plants are present within the stockpile or receive sites, removal, burying, or other impacts on these plants and associated soil during construction could adversely impact individual adult butterflies, their eggs, or larvae, if present, and their habitat. Impacts to any life form of the Smith's blue butterfly and their habitat would result in a significant impact.

Implementing BIO-1a: Construction Worker Environmental Awareness Training and Education Program, Mitigation Measure BIO-1b: General Avoidance and Minimization Measures, and Mitigation Measure BIO-1d: Avoidance and Minimization Measures for Smith's Blue Butterfly, would reduce potential impacts on Smith's blue butterfly to a less-than-significant level by implementing a construction worker environmental awareness training and education program; implementing general measures to protect Smith's blue butterfly such as delineating the work area and avoiding the introduction of weeds; and requiring pre-construction protocol-level surveys, implementing avoidance measures, and providing compensation if host plants cannot be avoided. Additional measures could be required if the project undergoes FESA Section 7 consultation between USACE and USFWS.

Mitigation Measure BIO-1d: Avoidance and Minimization Measures for Smith's Blue Butterfly.

The City or its construction contractor(s) shall implement the following measures to reduce impacts on Smith's blue butterfly prior to and during construction:

1. Botanical surveys of all suitable habitat for coast buckwheat and seacliff buckwheat, both of which are host plants to Smith's blue butterfly, shall be conducted by a qualified biologist during receiver and stockpile placement design and prior to sand placement. Maps depicting the results of these surveys shall be prepared to document the location of the host plants within

or adjacent to the project area. If surveys do not identify Smith's blue butterfly host plants in the project area, then no further action would be required to protect this species.

2. Construction of project elements shall be planned to avoid mapped host plants for Smith's blue butterfly whenever feasible.

3. If it is not feasible to avoid disturbance to host plants during project construction, the following shall be implemented:

    a. Prior to the start of construction activities and before conducting preconstruction surveys for Smith's blue butterfly, the Lead Biologist or an appointed qualified biologist shall prepare a relocation plan for Smith's blue butterfly and its host plants. If either is found in areas subject to sand placement, then plants would be salvaged and relocated in accordance with the plan. The relocation plan shall be submitted to USFWS for approval. The relocation plan shall define the study area, describe appropriate handling and relocation methods (such as relocating individual plants, duff, and/or soil and moving them to a new location), and identify appropriate relocation sites. Surveys shall be conducted at relocation sites to determine the existing Smith's blue butterfly population size and ensure that the relocation sites will not become overpopulated. Only relocation sites that are not overpopulated and have suitable habitat conditions (e.g. soils, vegetation, etc.) shall be used.

    b. A qualified biologist shall survey the work area no more than 30 days before the onset of sand placement. If any life stage of the Smith's blue butterfly or its host plants is found within the project area boundary, the Lead Biologist or qualified biologist shall relocate plants, duff, and/or soil from the site before construction begins, per the relocation plan described above.

4. Compensatory mitigation for permanent impacts shall be provided either on- or off-site at a minimum ratio of 2:1; or as otherwise defined in consultation with the USFWS. Compensation for loss of host plant populations may be in the form of permanent on- or off-site creation, restoration, enhancement, or preservation of habitat. At a minimum the restoration or compensation sites shall meet the following performance standards by the fifth year following restoration:

    a. Native vegetation cover shall be at least 70 percent of baseline/impact area native vegetation cover

    b. The population of coast buckwheat and/or seacliff buckwheat shall have either:

        i. at least 60 percent cover of the baseline/impact area, or

        ii. at least 70 percent survival of installed plants

    c. No more cover by invasives than the baseline/impact area

Alternatively, compensatory credits may be purchased through an approved mitigation bank, or approved Habitat Conservation Plan.

The globose dune beetle is considered sensitive under the City of Marina's LCLUP. This species inhabits foredunes and sand hummocks where it forages leaves, twigs, seeds, and plant detritus above and below the surface. This species has potential to occur within beaches, bluffs, and blowout zones; northern foredune; and central dune scrub within the receiver and stockpile sites. The project would avoid burying plants and dune wrack and would minimize the disturbance of microhabitat for this species, and therefore would not be expected to result in a significant loss of globose dune beetle population or habitat. Therefore, impacts to this species would be less than significant.

Overwintering monarch butterflies occur in eucalyptus groves near the Del Monte access road. Construction vehicles will be limited to driving along the existing paved access road that is currently open to public use and will not create disturbance beyond existing conditions. Therefore, the project would have no impact on monarch butterflies or their overwintering habitat.

Marine Species

Several special-status fish species and marine mammals, as listed in Table BIO-1, occur within Monterey Bay adjacent to the receiver sites. Additionally, as described in the discussion above, HAPCs and EFH also occur in Monterey Bay. Sand would be placed at the receiver sites at low tide, at elevations above mean high water, and both just below and well above the high tide line. Placed sand would be compatible with existing sand characteristics at the receiver sites, and therefore would exhibit the same dynamics as existing conditions. And finally, no work would occur within open water areas for these species. Therefore, based on the above, no direct impacts would occur to aquatic species. The project would place compatible sand-sized material on the upper beach during low tide, so placement methods are not expected to result in the immediate mobilization of sand into the surf zone. Therefore, the project is not anticipated to result in measurable increases in ocean turbidity as compared to the existing condition and there would be no indirect impact to water quality or aquatic habitat from sand placement that would impact marine species or habitat. If determined necessary during the regulatory and/or resource agency permit and approval process, turbidity monitoring could be required and would be expected to focus on turbidity levels in the nearshore zone as measured just before, during (placement), and following sand placement at a receiver site.

California grunion (*Leuresthes tenuis*) spawn on sandy beaches and have a low potential to spawn within the receiver sites. Sand would be placed at the receiver sites outside of the grunion run season and therefore would have no impact on this species.

Marine mammals listed in Table BIO-1 have potential to occur within the open waters of Monterey Bay adjacent to the receiver sites. On-shore sand placement activities will occur on back beach areas that are not used by marine mammals and within a relatively short time period each year and based on available materials, as stated in the program description in Chapter 2, and would not significantly impact marine mammal populations in Monterey Bay.

Amphibians and Reptiles

California red-legged frog (*Rana draytonii*), coast range newt (*Taricha torosa*), and western pond turtle (*Actinemys marmorata*) have a low to moderate potential to occur in lagoons and lakes within the larger study area. These features are located at least 300 ft from stockpile and receiver sites and are separated from sand placement areas by roads and other development. The project would implement measures to ensure that wind-blown sand would not mobilize inland and therefore wind-blown sand would not extend into potential habitat for these species. The project would have no impact on these species.

Northern California legless lizard (*Anniella pulchra*) typically inhabit sand dune areas and sandy soils beneath shrubs, vegetation, or leaf litter. Coast horned lizards (*Phrynosoma blainvillii*) occupy loose sandy loam and alkaline soils in a variety of vegetation communities including chaparral, grasslands, saltbush scrub, coastal scrub, and clearings in riparian woodlands. The project would avoid placing sand on vegetation or wrack and would avoid burying microhabitat for these species and therefore would not be expected to result in a significant loss of northern California legless lizard or coast horned lizard population or habitat. Therefore, impacts to these species would be less than significant.

Western Snowy Plover

The western snowy plover (*Charadrius alexandrinus nivosus*) breeds primarily on coastal beaches from southern Washington to southern Baja California. The species breeds above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Less common nesting habitat includes bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. Snowy plover use areas with wide, sandy, dune-backed beaches for roosting and foraging during the nonbreeding season. This species forages above and below the mean high waterline, typically gathering food from the surface of the sand, wrack line, or low foredune vegetation. Western snowy plovers are known to breed along the Monterey Bay coast and critical habitat for this species has been designated in the project area.

In 2017, the Monterey Bay breeding population consisted of an estimated 215 males and 188 females for a total of 403 snowy plovers (Neuman et al., 2018). During 2017 western snowy plover surveys conducted along the Monterey Bay coast, breeding plovers were observed from north of Sunset State Beach south to Monterey State Beach. Nests were observed in or around the proposed receiver sites, except for the Del Monte receiver site. One nest was also observed near the proposed CEMEX stockpile site. A greater number of nests were observed within the proposed CEMEX, Marina, and Sand City receiver sites, compared to the North Monterey receiver site, however western snowy plovers have potential to nest at all receiver sites, including Del Monte, and in suitable habitat at the stockpile sites. Western snowy plovers are also known to winter along the Monterey Bay and can use suitable beach and dune areas throughout the receiver and stockpile areas during the wintering, foraging, and roosting.

Sand placement would avoid direct impacts to actively used western snowy plover habitat, and would avoid burying beach wrack and beach foreshore to avoid direct impacts to western snowy plover foraging habitat. Sand placement activities would not occur during the western snowy plover breeding season to avoid impacts to breeding birds. Additionally, work during the wintering seasons would occur over a short period of time, so that work would not permanently deter plovers from the sand placement areas. Sand placement activities during the snowy plover wintering season (October 1 through February 28) could directly or indirectly adversely impact individual birds if present within or adjacent to the construction area. Human presence and construction noise and activities can cause roosting plovers to flush and disturb resting or foraging activities. The displacement of roosting or foraging birds would be a significant impact.

Implementing BIO-1a: Construction Worker Environmental Awareness Training and Education Program, Mitigation Measure BIO-1b: General Avoidance and Minimization Measures, and Mitigation Measure BIO-1e: Protective Measures for Western Snowy Plover, would reduce potential impacts on western snowy plover to a less-than-significant level by implementing a construction worker environmental awareness training and education program; implementing general measures to protect western snowy plover such as delineating the work area and limiting vehicle speeds; and requiring pre-construction protocol-level surveys and implementing avoidance measures if western snowy plover is present. Additional measures could be required if the project undergoes FESA Section 7 consultation with the USFWS.

Mitigation Measure BIO-1e: Protective Measures for Western Snowy Plover.

Construction contractors shall be required to implement the following measures to protect western snowy plover:

1. Sand placement activities shall occur during the western snowy plover non-breeding season (defined as October 1 through February 28).

2. For work conducted during the non-nesting season, a qualified biologist will evaluate the nature and extent of wintering plover activity in the project area no more than 3 days prior to construction and inform the City so they can implement avoidance and minimization measures, such installation of visual or noise barriers, limiting the type of construction, installation of noise controls on equipment, and other measures that achieve visual separation and/or noise reduction, that avoid or minimize disturbance to plovers. The biologist shall conduct periodic monitoring during sand placement to ensure that minimization measures are implemented to avoid or minimize disturbance to plovers. The measures shall ensure that wintering plovers are not directly impacted by construction activities.

Nesting Birds

Special-status birds, such as white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), and others protected by the federal Migratory Bird Treaty Act and Section 3503 of the California Fish and Game

Code, such as killdeer (*Charadrius vociferus*), may nest within or adjacent to the sand stockpile and placement areas. If nesting birds are present, construction activities could directly or indirectly impact these species through loss of nests, eggs, or nestlings, or by causing nest abandonment, which would be a significant impact.

Implementation of **Mitigation Measures BIO-1f: Avoidance and Minimization Measures for Nesting Birds** would reduce impacts to less than significant by conducting work during the non-nesting season as feasible. If work is implemented during the nesting season, then a pre-construction survey would be implemented and a no-work buffer would be placed around an active nest.

Mitigation Measure BIO-1f: Avoidance and Minimization Measures for Nesting Birds.

This measure applies to all nesting birds protected by the federal Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code, except for western snowy plover, which is addressed in Mitigation Measure BIO-1e.

1. No preconstruction surveys or avoidance measures are required for construction activities that would be completed entirely during the non-nesting season (September 16 to January 31).
2. For all construction activities scheduled to occur during the nesting season (February 1 to September 15), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 10 days prior to the start of staging, site clearing, and/or ground disturbance.
3. If there is a break of 10 days or more in construction activities during the breeding season, a new nesting bird survey shall be conducted before reinitiating construction.
4. The surveying biologist shall be capable of determining the species and nesting stage without causing intrusive disturbance. The surveys shall cover all potential nesting sites within 500 ft of the project area for raptors and within 300 ft for other birds.

If active nests are found in the project area or vicinity (500 ft for raptors and 300 ft for other birds), the nests shall be continuously surveyed for the first 24 hours prior to any construction related activities to establish a behavioral baseline and, once work commences, all nests shall be continuously monitored to detect any behavioral changes as a result of the project, if feasible. If behavioral changes are observed, work causing the change shall cease and CDFW shall be consulted for additional avoidance and minimization measures. The avoidance and minimization measures shall ensure that the construction activities do not cause the adult to abandon an active nest or young or change an adult's behavior so it could not care for an active nest or young.

If continuous monitoring is not feasible, a no-disturbance buffer (at least 500 ft for raptors and 250 ft for other birds [or as otherwise determined in consultation with CDFW and USFWS] shall be created around the active nests). The buffer distance can be reduced in coordination with CDFW if construction activities

would not cause an adult to abandon an active nest or young or change an adult's behavior so it could not care for an active nest or young. If the nest(s) are found in an area where ground disturbance is scheduled to occur, the project operator shall require that ground disturbance be delayed until after the birds have fledged.

Mammals

Several special-status mammal species have potential to occur within the larger study area including: pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus blossevillii*), Monterey shrew (*Sorex ornatus salarius*), Salinas kangaroo rat (*Dipodomys heermanni goldmani*), Monterey dusky-footed woodrat (*Neotoma fuscipes luciana*), and American badger (*Taxidea taxus*).

The project does not include the removal of any trees or structures where bats have potential to roost, so would have no impact on these species.

Monterey shrews occur in woodland, scrub, and chaparral communities; Salinas kangaroo rat occurs in brushy and grassy slopes and flats and in chaparral-covered hillsides; Monterey dusky-footed woodrat occurs in hardwood forests, riparian communities, and brushlands; and American badgers are most commonly associated with grasslands, savannas, mountain meadows, and open areas of desert scrub. Although these species have some potential to occur in these communities within the larger study area, project activities would largely occur outside of habitat for these species and the project would avoid placing sand on vegetated areas. The project would also implement measures to ensure wind-blown sand in sand placement areas does not extend to inland communities. Therefore, the project would have no impact on these species.

b) **Less than Significant with Mitigation Incorporated.** Sand placement may occur in the following sensitive natural communities: beaches, bluffs, and blowout zones; northern foredune; central dune scrub; central maritime chaparral; and northern coastal scrub. These habitats would also be considered ESHA under the Coastal Act or in a local coastal program. No sand placement would occur within riparian woodland and scrub, as these habitats do not occur within the project footprint. The maximum acreage of sand placement at each site is described under (a) above. The project is intended to benefit these sensitive natural communities by addressing coastal erosion and loss of these communities and to restore these habitats. The project would employ wind-blown sand mitigation measures at stockpile sites to avoid the spread of sand to adjacent sensitive natural communities. The type of sand that would be placed at the receiver sites would be consistent with the existing sand type and therefore is not expected to change indirect impacts from windblown sand as compared to current conditions. The project would minimize disturbance to these communities during construction by avoiding sand placement on vegetation, beach wrack, and beach foreshore invertebrates. However, work would be conducted within and adjacent to sensitive natural communities, and therefore there is some potential for indirect impacts to these areas from the introduction of invasive species or if construction extends beyond the work area into adjacent sensitive communities.

Implementing **BIO-1a: Construction Worker Environmental Awareness Training and Education Program** and **Mitigation Measure BIO-1b: General Avoidance and Minimization Measures** would reduce potential impacts on sensitive natural communities to a less-than-significant level by implementing a construction worker environmental awareness training and education program and implementing general measures to protect sensitive natural communities such as delineating the work area and reducing the potential for the spread of invasive species.

c) **Less than Significant with Mitigation Incorporated.** A delineation of aquatic resources has not been conducted within the study area to determine the limits of federal and/or state jurisdictional wetlands and/or waters. However, it is assumed that the ocean, up to the high tide line, would be considered a federal and state jurisdictional water.

Restoration activities will include the placement of sand both above and below the high tide line, to support beach nourishment. It is estimated that up to approximately 0.6 acre of sand could be placed below the high tide line annually. Although this would be considered permanent fill within a federal and/or state jurisdictional waters, it would not result in the loss of this acreage of waters because the fill placement would be a thin layer of moveable sand (not completely replacing the open water areas with solid fill) and the waves and high tides would continue to extend onto the newly placed sand. The sand placement in jurisdictional waters would result in long-term benefits to Monterey Bay by restoring and maintaining the beach, foredune, and central dune scrub communities in light of both recent erosion and long term sea level rise, and therefore would not have a significant adverse effect on federal and/or state waters. The quality of sand placed at the receiver sites would match the existing sediment at the beaches and would not result in increased turbidity at the sites as compared to existing conditions.

There may be additional federal and/or state jurisdictional waters within the project footprint, outside of the ocean waters up to the high tide line, such as the CEMEX dredge pond located just inland of the high tide line. If construction activities occur within or adjacent to any such federal and/or state jurisdictional wetlands or waters not including the sand placement restoration activities in the ocean, construction could adversely affect these resources by resulting in the temporary or permanent loss of these features or adverse impacts to water quality. These impacts would be potentially significant.

Implementing BIO-1a: Construction Worker Environmental Awareness Training and Education Program, Mitigation Measure BIO-1b: General Avoidance and Minimization Measures, and Mitigation Measure BIO-2: Avoid Impacts to Wetlands and Waters would reduce potential impacts on federal and/or state waters to a less-than-significant level by implementing a construction worker environmental awareness training and education program; implementing general measures to protect wetlands and waters such as delineating the work area and restricting construction fueling locations; and avoiding work within wetlands and waters, except for the sand placement areas within the ocean as part of beach nourishment.

Mitigation Measure BIO-2: Avoid Impacts to Wetlands and Waters.

1. A jurisdictional delineation of aquatic resources shall be conducted to determine the extent of waters of the U.S. and/or waters of the state within the project component footprints and anticipated construction disturbance areas.

2. The proposed project shall be designed to avoid work within wetlands and/or waters under the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and/or the California Coastal Commission, except for sand placement within the ocean as part of beach nourishment. If applicable, permits or approvals would be sought from the above agencies, as appropriate.

3. Where disturbance to jurisdictional wetlands or waters cannot be avoided, except for sand placement within the ocean as part of beach nourishment, any temporarily impacted jurisdictional wetlands or waters shall be restored to pre-construction conditions or better at the end of construction, in accordance with the above agencies' permit requirements. Compensation for permanent impacts shall be provided to ensure no net loss of jurisdictional features. Compensation for loss of jurisdictional waters may be in the form of permanent on- or off-site creation, restoration, enhancement, or preservation of habitat. At a minimum the restoration or compensation sites shall meet the following performance standards by the fifth year following restoration:

    a. Temporarily impacted areas are returned to pre-project conditions or greater

    b. Wetlands restored or constructed as federal wetlands meet the federal criteria for jurisdictional wetlands, and wetlands restored or constructed as state wetlands meet the state criteria for jurisdictional wetlands

    c. Areas have no increases in invasive species cover than the baseline/impact area exhibited pre-project

    Compensation shall be detailed on a project-specific basis and shall include development of a Habitat Mitigation and Monitoring Plan (HMMP), which shall be developed prior to the start of construction and in coordination with permit applications and/or conditions. At a minimum, the HMMP shall include:

    a. Name and contact information for the property owner of the land on which the mitigation will take place;

    b. Identification of the source for supplemental irrigation, if applicable;

    c. Identification of depth to groundwater;

    d. Baseline information, including a summary of the findings in any other recent aquatic resource delineations applicable to the project disturbance area;

    e. Anticipated habitat enhancements to be achieved through compensatory actions;

f. Monitoring methods and schedule;

g. Performance and success criteria for habitat creation and/or enhancement, with success criteria in tabular form.

h. Roles and responsibilities for mitigation funding, implementation, maintenance, monitoring, and reporting.

i. Identification of the mechanism that will preserve the mitigation site in perpetuity, if necessary.

Alternatively, off-site mitigation credits may be purchased at an approved mitigation bank; if no banks are available, then alternative mitigation may be achieved through payment of in-lieu fees.

d) **Less-than-Significant Impact.** The project sites are located along the beach and dunes of Monterey Bay which provide a wildlife movement corridor and breeding areas for a variety of birds and other wildlife species. The project would provide a benefit to the birds and wildlife species that utilize these areas by addressing coastal erosion and loss of beach and sand dune communities and restoring beach and sand dune communities. Construction activities would be short-term and limited by aforementioned periods to avoid nesting plovers, and would occur during the non-nesting season for many bird species. Therefore, the project would not result in significant impacts to wildlife movement corridors or breeding areas.

e) **No impact**. The project would not conflict with local policies or ordinances protecting biological resources. The project would not involve the removal of any trees, so would not conflict with a local tree preservation policy or ordinance. Local governments with jurisdiction over the project area have local plans, policies, and ordinances protective of special-status species, sensitive natural communities, and federal and state waters. Responses a) through d) above address potential impacts on these sensitive biological resources.

The CEMEX and Marina sites are located within the City of Marina. The Marina LCLUP prohibits development in primary habitat that is not protective of and dependent upon that habitat. The LCLUP states, “Primary habitat areas shall be protected and preserved against any significant disruption of habitat values and only uses dependent on those resources shall be allowed within those areas” (City of Marina, 2013).

Primary habitat, according to the City of Marina LCLUP is defined as follows:

1. Habitat for all identified plant and animal species which are rare, endangered, threatened, or are necessary for the survival of an endangered species. These species will be collectively referred to as “rare and endangered.”

2. Vernal ponds and their associated wetland vegetation. The Statewide Interpretive Guideline for Wetlands and Other Wet Environmentally Sensitive Habitat Areas (CCC, 1981) contains technical criteria for establishing the inland boundary of wetland vegetation.

3. All native dune vegetation, where such vegetation is extensive enough to perform the special role of stabilizing Marina's natural sand dune formations.

4. Areas otherwise defined as secondary habitat that have an especially valuable role in an ecosystem for sensitive plant or animal life, as determined by a qualified biologist approved by the City.

Beaches, bluffs, and blowout zones; northern foredune; central dune scrub; and any other natural communities at the CEMEX and Marina sites would likely be considered primary habitat under the City of Marina's LCLUP. The project would not conflict with the Marina LCLUP since the project would protect and preserve these habitats and the work is dependent upon the habitats because it includes restoration of these habitats.

f) **No impact.** The project would not occur within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan area, so would not conflict with any provisions of these plans.

References

California Coastal Commission (CCC), 1981. Statewide Interpretive Guideline for Wetlands and Other Wet Environmentally Sensitive Habitat Areas. February 14, 1981.

California Department of Fish and Wildlife (CDFW), 2018a. California Natural Diversity Database search of the Marina, Moss Landing, Seaside, Monterey, and Salinas USGS 7.5-minute quadrangles. January 29, 2018.

California Department of Fish and Wildlife (CDFW), 2018b. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. State of California, California Natural Resources Agency, Department of Fish and Wildlife. March 20, 2018.

California Native Plant Society (CNPS), 2018. Online Inventory search of the Marina, Moss Landing, Seaside, Monterey, and Salinas USGS 7.5-minute quadrangles. http://www.rareplants.cnps.org/. January 29, 2018.

City of Marina, 2013. The City of Marina Local Coastal Land Use Plan. Prepared by Ironside and Associates. Certified by California Coastal Commission on April 30, 1982, as amended through 2008. Available: https://www.ci.marina.ca.us/DocumentCenter/View/4490.

Kriss K. Neuman, Jane C. Warriner, Carleton Eyster, Dave Dixon, R. Will Stein, Esther Haile, Amy Palkovic, and Lynne E. Stenzel, 2018. Reproductive Success and Breeding Population Size of Snowy Plovers in the Monterey Bay Region, California, in 2017. Point Blue Conservation Science. January 2018.

United States Fish and Wildlife Service (USFWS), 2018a. List of Threatened and Endangered Species that may occur in the Monterey Bay Opportunistic Beach Nourishment Project Location, and/or may be affected by the Proposed Project. (Consultation Code: 08EVEN00-2018-SLI-0272, Event Code: 08EVEN00-2018-E-00550). February 7, 2018.

United States Fish and Wildlife Service (USFWS), 2018b. List of Threatened and Endangered Species that may occur in the Monterey Bay Opportunistic Beach Nourishment Project

Location – CEMEX only, and/or may be affected by the Proposed Project. (Consultation Code: 08EVEN00-2019-SLI-0081, Event Code: 08EVEN00-2019-E-00178). October 30, 2018.

3.2.5 Cultural Resources

Issues (and Supporting Information Sources):		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
5.	**CULTURAL RESOURCES — Would the project:**				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Discussion

a) **No Impact.** A significant impact would occur if the Program would cause a substantial adverse change to a historical resource, herein referring to historic-era architectural resources or the built environment, including buildings, structures, and objects. A substantial adverse change includes the physical demolition, destruction, relocation, or alteration of the resource.

ESA cultural resources staff completed a search of the Office of Historic Preservation Historic Property Data File (HPD) listing for Monterey County (May 2012) and no previously recorded buildings or structures listed in or eligible for listing in the National Register of Historic Places (National Register) and/or the California Register of Historical Resources (California Register) are within or adjacent to the Program receiver sites, stockpile sites, or access routes. ESA cultural resources staff also completed a pedestrian survey in October 2018 and no historic-era architectural resources were identified in the vicinity of the proposed Program sites.

As there are no historical resources within the Program area, the Program would not cause a substantial adverse change in the significance of a historical resource and no mitigation is necessary.

b) **Less than Significant with Mitigation Incorporated.** This section discusses archaeological resources, both as historical resources according to CEQA Guidelines Section 15064.5, as well as unique archaeological resources as defined in Public Resources Code Section 21083.2(g). A significant impact would occur if the Program would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

ESA completed a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System (September 24, 2018 - File No. 18-0619). Previous surveys, studies, and records were reviewed. Records were examined in the Historic Property Data File for Monterey County, which contains information on

locations of recognized historical significance including those evaluated for listing in the National Register, the California Register, the California Inventory of Historic Resources, California Historic Landmarks, and California Points of Historical Interest. ESA also reviewed historic maps and aerial imagery. The purpose of the records search was to (1) determine whether known cultural resources have been recorded within the Program area or within a 0.5-mile radius; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and evaluation of cultural resources.

There are no prehistoric archaeological sites located in the proposed Program receiver sites, stockpile sites, or access routes. There are no previously recorded historic-era cultural resources within or immediately adjacent to the Program area. The nearest historic-era resources to the Program area are a series of historic-era artifact deposits likely associated with the nearby former Hotel Del Monte (ASM Affiliates, 2012). In addition, a historic-era artifact deposit was recorded in the vicinity of the Marina receiver site (DPR, 1984). Finally, near the CEMEX receiver site is the potentially eligible Lapis Sand Mining Plant Historic District and associated features (SWCA, 2014). None of these previously recorded historic-era cultural resources would be impacted by the proposed Program

ESA cultural resources staff completed a surface survey of the Program area on October 27, 2018. The survey consisted of walking the Program area, including receiver sites, stockpile sites and access routes, to observe evidence of cultural materials as well as to inspect bluff faces as feasible to examine the subsurface stratigraphy of the beach dunes. Due to the uniformity and low archaeological sensitivity of the receiver sites these locations were subject to a cursory survey that included some intensive (thorough) survey and some spot-check survey. Undisturbed and accessible stockpile sites and access routes were subject to intensive survey. Inaccessible stockpile sites (such as the large existing stockpile area at the Marina receiver site) were viewed from a vantage point.

The existing physical landscape consists of open beaches and coastal dunes. Coastal erosion is evident throughout the Program area providing views of the subsurface stratigraphy adjacent to the bluffs. Sandy soil was generally light to medium brown with small gravel inclusions. No prehistoric cultural materials were observed in the Program area including midden soil or artifacts such as lithic fragments or tools or faunal remains. The historical-modern beach sand along the shore (and the location of receiver sites as part of the proposed Program) has very low archaeological sensitivity (Far Western, 2016). The beach environment is dynamic and is not conducive to archaeological site preservation. In addition, no historic-era artifacts or features were identified in the Program area, including deposits of historic-era artifacts such as glass or ceramic, or historic-era foundations or remains of early buildings or structures.

Based on the records search, environmental context, survey results, and geoarchaeological assessment, the currently proposed receiver sites, stockpile sites, and access routes at Del Monte, North Monterey, Sand City/Seaside, Marina, and CEMEX have a low potential to uncover previously identified or as-yet-undiscovered cultural

resources. While unlikely, the inadvertent discovery of cultural resources cannot be entirely discounted. Impacts to previously undiscovered cultural resources would be a potentially significant impact. Implementation of **Mitigation Measure CUL-1 (Worker Environmental Training)** and **Mitigation Measure CUL-2 (Inadvertent Discovery of Cultural Resources)** would reduce this impact to a less than significant level.

If supplemental receiver sites, stockpile sites, or access routes are included as part of the Program at a later date and environmental assessment or permitting is required, additional cultural resources study would also be necessary to comply with the requirements of identifying historical resources or archaeological resources. For supplemental project locations, there is the potential to impact known and as-yet-undiscovered cultural resources. Impacts to cultural resources would be a potentially significant impact. Implementation of **Mitigation Measure CUL-3 (Cultural Resources Study of Supplemental Project Sites)** would reduce this impact to a less than significant level.

> **Mitigation Measure CUL-1. Worker Environmental Awareness Training.** Prior to construction, a Secretary of the Interior-qualified archaeologist with expertise in California archaeology will develop an archaeological resources training program for all construction and field workers involved in Program activities that details the recognition and importance of archaeological resources, and establishes accidental discovery procedures should archaeological resources or human remains be encountered during project implementation.
>
> **Mitigation Measure CUL-2. Inadvertent Discovery of Cultural Resources.** If cultural materials are encountered during Program implementation, all construction activities within 100 ft shall halt and the City of Monterey shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery. If the find is determined to be potentially significant, the archaeologist, in consultation with the City of Monterey and the culturally-affiliated Native American group(s) shall determine whether preservation in place is feasible. Consistent with PRC Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, the archaeologist, in consultation with the City of Monterey and the culturally-affiliated Native American group(s), shall prepare and implement a detailed treatment plan. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Mitigation Measure CUL-3. Cultural Resources Study of Supplemental Project Sites. If additional project sites are included as part of the Program, the City shall conduct a cultural resources investigation that includes, at a minimum:

- An updated records search at the NWIC;
- A cultural resources pedestrian survey of the project location;
- A memorandum disseminating the results of this research; and,
- If a potential cultural resource is identified, and avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted.

c) **No Impact.** The proposed program would not result in excavation of soil or rock formations that could have potential sources of paleontological resources. The program would use sand from existing sources and would be hauled and used for spreading at receiver sites. Therefore, there would be no impact to paleontological resources.

d) **Less than Significant with Mitigation Incorporated.** Based on the records search and survey results, no human remains are known to exist within the Program area receiver sites, stockpile sites, or access routes. The Program would involve ground-disturbing activities; therefore, it is possible that such actions could inadvertently unearth, expose, or disturb buried human remains, which would be a potentially significant impact. Implementation of **Mitigation Measure CUL-4** would reduce this impact to a less than significant level.

Mitigation Measure CUL-4. Inadvertent Discovery of Human Remains. In the event of discovery or recognition of any human remains during construction activities, such activities within 100 ft of the find shall cease until the Monterey County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the City of Monterey for the appropriate means of treating the human remains and any grave goods.

References

ASM Affiliates (ASM), 2012. Department of Parks and Recreation form for CA-MNT-2297H, -2298H, -2299H, -2300H, and -2301H. On file, July 2012.

California Department of Parks and Recreation (DPR), 1984. Department of Parks and Recreation form for CA-MNT-12887. On file, August 1984.

Far Western Anthropological Research Group Inc. (Far Western), 2016. *Phase I Exploratory Geoarchaeological Assessment of the Naval Support Activity Monterey, California.* Prepared for NAVFAC SW. February 2016.

SWCA, 2014. Department of Parks and Recreation form for the Lapis Sand Mining Plant (P-27-003386). On file NWIC, March 2014.

3.2.6 Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, and SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Environmental Setting

Monterey County is located within the Coast Ranges geomorphic province. The Coast Ranges province lies between the Pacific Ocean and the Great Valley Geomorphic Province and stretches from the Oregon border to the Santa Ynez Mountains near Santa Barbara. This province is distinguished by northwest-trending elongated ranges, narrow valleys that roughly parallel the coast, and the San Andreas Fault Zone. Much of the Coast Ranges province is composed of marine sedimentary deposits, metamorphic rocks, and volcanic rocks. The tectonics of the San Andreas Fault and other major faults in the western part of California played a major role in the geologic history of the area. The nearest known active fault to the proposed program sites is the San Andreas Fault, located approximately 30 miles east of the program area.

Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated, cohesionless soils as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface geotechnical investigation and the groundwater conditions beneath a site.

Landslide susceptibility is a function of various combinations of factors including rainfall, rock and soil types, slope, aspect, vegetation, seismic conditions, and human activities, such as construction. Landslides are not likely to occur because the topography of the proposed program areas are relatively flat.

The soil in the proposed stockpile sites vary, but are comprised of sands, loams, and ridge muck with varying degrees of permeability, runoff, and hazard of erosion (US Department of Agriculture, Natural Resources Conservation Service 2018).

Discussion

a.i-iv) **No Impact**. The proposed beach nourishment program would transport sand from inland sources to mitigate ongoing coastal erosion. There are no known active or potentially active faults within the program area. The proposed program would not result in or expose people to seismic ground shaking beyond the conditions that currently exist within the region. Exposure of people to seismic ground failure, including liquefaction, may occur at the proposed receiver or stockpile sites, but will not increase beyond existing conditions. The proposed program would not result in the exposure of people or property to fault ruptures because no faults exist at the proposed receiver or stockpile sites and no development is proposed. Further, the program will not be located in potential landslide areas and does not propose any development, so it will not result in or expose people to these hazards; no impact would occur.

b) **No Impact**. The proposed beach replenishment program would transport sand from inland sources to mitigate ongoing coastal erosion. Accordingly, the proposed program would not result in erosion as the objective is to reduce existing erosion conditions at the proposed beach receiver sites. The proposed program would result in minor changes to topography at receiver or stockpile sites but in a potentially beneficial manner and there would be no impact.

c) **No Impact**. The proposed receiver or stockpile sites are not located on unstable geologic units or soils. Additionally, the proposed program would not change the existing conditions of beach sand stability. No additional type of unstable soil condition exists or would be created by the program and there would be no impact.

d) **No Impact**. The proposed beach fill sites are sandy beaches with no soil cover. Expansive soils are not documented at the proposed receiver or stockpile sites, nor would they be created by the proposed program. Therefore, the proposed program would not create risk to human life or property due to expansive soils and there would be no impact.

e) **No Impact**. The proposed program includes the placement of sand on receiver or stockpile sites and would not include any septic tanks or alternative waste disposal systems. Therefore, the proposed program would not have any impacts relating to the use of septic systems or alternative wastewater disposal systems at the proposed receiver or stockpile sites. No impact would occur.

References

U.S. Department of Agriculture, Natural Resources Conservation Service, 2018. Available: https://websoilsurvey.sc.egov.usda.gov/WssProduct/hotrmp1cotgichdldlkbvzi4/GN_00000/20181105_18045806185_64_Soil_Report.pdf. Accessed November 6, 2018.

3.2.7 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Environmental Setting

Greenhouse gases (GHGs) trap heat by preventing some of the solar radiation that hits the earth from being reflected back into space. Some GHGs occur naturally and are needed to keep the earth's surface habitable. Over the past 100 years, human activities have substantially increased the concentration of GHGs in our atmosphere. This has intensified the natural greenhouse effect, increasing average global temperatures.

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are the principal GHGs associated with land use projects. CO_2, CH_4, and N_2O occur naturally, and through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion and CH_4 results from off gassing[10] associated with agricultural practices and landfills.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas contributes to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHGs than CO_2, with 100-year GWPs of 28 and 265 times that of CO_2, respectively.

In emissions inventories, GHG emissions are typically reported as metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e.

Approach to Analysis

The California Air Pollution Control Officers Association (CAPCOA) considers GHG impacts to be exclusively cumulative impacts (CAPCOA, 2008). Therefore, assessment of significance is based on whether a project's GHG emissions represent a cumulatively considerable contribution to the global atmosphere.

[10] Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

Each Air District have the discretion to establish significance criteria with respect to GHGs. The following summarizes the current status of each applicable air District to GHG impact assessment under CEQA.

The GHG analysis in this analysis relies on significance criteria identified by staff of the local air pollution control district, MBARD (formerly the Monterey Bay Unified Air Pollution Control District or MBUAPCD). In February 2014, the MBUAPCD staff recommended that its Board of Directors approve an operational significance threshold of 10,000 metric tons CO_2e per year for stationary source projects that rely on operational processes and equipment that are subject to MBUAPCD permitting requirements. For land use projects, the MBUAPCD staff recommended to its board in February 2014 that it adopt the following options (i.e., if adopted, land use projects would be required to apply one of these options to demonstrate a less-than-significant impact): (a) a "bright line" significance threshold of 2,000 metric tons CO_2e per year; (b) incorporate mitigation measures to reduce all project GHG emissions by 16 percent compared to unmitigated emissions; or (c) or demonstrate compliance with an applicable adopted GHG reduction plan/ climate action plan (MBUAPCD, 2014). In February 2016, the MBUAPCD adopted the staff-recommended significance threshold of 10,000 metric tons for stationary source projects (MBUAPCD, 2016). However, as a conservative analysis, this Initial Study uses the significance threshold of 2,000 metric tons CO_2e per year to evaluate whether the proposed program's emissions could have a significant impact on the environment.

It is acknowledged that the 2,000 metric ton significance threshold focuses on new commercial and residential development rather than industrial uses; however, similar to the emissions that would be associated with the proposed program, GHG emissions associated with commercial and residential development projects tend to be indirect in nature, primarily as a result of automobile and electricity use. This significance threshold falls short of meeting the Executive Order S-3-05 emissions reduction goal of lowering emissions to 80 percent below 1990 levels by 2050, which is equivalent to lowering emissions to 84 percent below current levels. The MBUAPCD staff and CARB have not yet provided guidance or recommendations for significance thresholds to evaluate consistency with the 2050 emissions reduction goal.

Discussion

a) **Less than Significant Impact.** Operations of the proposed beach nourishment program would generate GHG emissions from a variety of sources, including off-road construction equipment on-road worker commute trips and haul trucks vehicles. Emissions from land-based these emission sources were estimated using the CalEEMod emission estimator model version 2016.3.2. Emissions were calculated for each prospective receiving site and are presented in Table GHG-1. As can be seen from Table GHG-1, operational emissions would be below the 2,000 metric ton per year threshold applied in this analysis. Consequently, GHG emissions would represent a less than significant cumulative GHG impact.

TABLE GHG-1
GHG EMISSIONS FOR EACH RECEIVING SITE PROGRAM SCENARIO

Receiving Site	GHG Emissions in Metric Tons/Year
Del Monte	90.7
North Monterey	50.4
Sand City	150.4
Marina	213.9
CEMEX	858.3
MBARD Threshold	2,000

b) **Less than Significant Impact.** As discussed under the response to question a) above, GHG emissions associated with the proposed project would not exceed the MBARD's GHG emissions significance threshold that was developed with respect to year 2020 GHG reduction goal of the State of California's first Climate Change Scoping Plan to 1990 levels by 2020. Depending on the receiving site, emissions would be 3 percent to 43 percent of the threshold. The latest Climate Change Scooping Plan Update adopted a more aggressive GHG reduction target of 40 percent below 1990 levels by 2030. Adjusting the 2,000 MT/year of CO2e threshold by a further 40 percent results in a revised 2030 threshold of 1,200 MT/year of CO2e. Operational emissions of all receiving site scenarios would also be below this adjusted threshold.

Additionally, the City of Monterey adopted a Climate Action Plan in March of 2016 that represents its local effort to address the City's contribution to a global environmental problem with community-level impacts (City of Monterey, 2016). While this Climate Action Plan identifies a number of reduction measures, there are no measures that specifically target the two primary sources of GHG's associated with this proposed program: Off-road equipment and on-road haul trucks. Consequently, project operations would not conflict with any measures within the City of Monterey's Climate Action Plan. Therefore, the proposed program would have a less than significant impact with respect to conflicts with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions.

References

City of Monterey, 2016. *Climate Action Plan*, March 2016.

Monterey Bay Unified Air Pollution Control District (MBUAPCD), 2014. District Board of Directors Agenda Item No. 10, Subject: Receive a Presentation on District GHG Threshold Development. February 6, 2014.

Monterey Bay Unified Air Pollution Control District (MBUAPCD), 2016. *Guidelines for Implementing the California Environmental Quality Act*. Adopted 1996. Revised February 2016.

3.2.8 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Environmental Setting

State agencies regulating hazardous materials are the California Environmental Protection Agency (CalEPA) and the Office of Emergency Services (OES). The California Highway Patrol and Caltrans enforce regulations for hazardous materials transport. Within the CalEPA, the California Department of Toxic Substances Control (DTSC) has primary regulatory authority for hazardous materials regulation enforcement. State hazardous waste regulations are contained primarily in the California Code of Regulations Title 22. The California Occupational Health and Safety Administration has developed rules and regulations regarding worker safety around hazardous and toxic substances.

The DTSC defines the Hazardous Waste and Substance Sites List (also known as the "Cortese Sites" List) as a planning document used by State, local agencies and developers to comply with the CEQA by providing information about the location of hazardous material sites. No Cortese Sites were located within or immediately adjacent to the proposed beach fill sites or potential stockpiles (CalEPA, 2016).

Discussion

a) **No Impact**. No hazardous materials would be transported to the proposed sites, from the sites, used at the sites, or disposed of on the sites. Accordingly, the proposed program would not create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.

b) **Less than Significant with Mitigation Incorporated**. No hazardous materials would be used for the proposed program with the exception of fuels and lubricants for equipment and trucks. Accidental release of these materials could enter waterways, the ocean, or contaminate soil. Implementation of Mitigation Measure HAZ-1, which includes development and implementation of a plan to safely store potentially hazardous materials away from waterways and sensitive receptors, and handle them according to local, State, and federal regulations, would reduce this potential impact to less than significant.

> **Mitigation Measure HAZ-1:** Prior to program activities, a Hazardous Materials Management Plan will be prepared, approved of by the Cities, and implemented to ensure that all staff transport, store, handle and dispose of construction-related hazardous materials in a manner consistent with the relevant local, State, and federal regulations and guidelines. At minimum, these include those recommended and enforced by the Department of Transportation, the Regional Water Quality Control Board, and the applicable local fire departments and environmental health departments. Staff would immediately control the source of any leak and immediately contain any spill using appropriate spill containment and countermeasures identified within the plan. If required by a city or county fire department, department of environmental health, or any other regulatory agency, containment media shall be collected and disposed of at an off-site facility approved to accept such materials.

c) **No Impact**. There are no schools within one-quarter mile of the proposed receiver or stockpile sites. Furthermore, the proposed program would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste, with the exception of fuels to power equipment and trucks. Accordingly, the program would have no impact on any nearby school.

d) **No Impact**. The proposed receiver or stockpile sites are not located on a hazardous materials site and would not create a significant hazard to the public or the environment. No Impact would occur.

e) **No Impact.** The proposed receiver or stockpile sites are located within 2 miles of the Monterey Regional Airport. The Monterey Regional Airport is located 1.1 miles southeast from North Monterey Beach. However, the proposed program is not anticipated to change the current airport operations, and the proposed receiver and stockpile sites are not within the Monterey Regional Airport's extended safety areas or clear zones as designated in the Comprehensive Land Use Plan (County of Monterey, 1987). Implementation of the program would not result in a safety hazard from airport operation for people residing or working in the program area and no impact would occur.

f) **No Impact**. The proposed receiver or stockpile sites are not located within 2 miles of a private airstrip and no impact would occur.

g) **Less-Than-Significant Impact.** Transport of material as part of the proposed program would follow designated haul routes, as described in Chapter 2, Project Description, capable of conveying traffic while maintaining access for emergency response and evacuation. Program activity would occur on the proposed receiver or stockpile sites or nearshore where adequate circulation and access is available to address emergency response. Accordingly, program implementation would not interfere with an emergency response or evacuation plan and impacts would be less than significant.

h) **No Impact**. Both the proposed receiver and stockpile locations are not within wildland fire areas (CalFire, 2007). Therefore, implementation of the proposed program would not expose people or structures to increased potential of wildland fires and no impact would occur.

References

California Environmental Protection Agency (CalEPA), 2018. Cortese List Data Resources. Available: https://calepa.ca.gov/sitecleanup/corteselist/. Accessed November 2, 2018.

California Department of Forestry and Fire Protection (CalFire), 2007. Fire Hazard Severity Zones. Available: http://frap.fire.ca.gov/webdata/maps/statewide/fhszs_map.pdf. Accessed November 6, 2018.

County of Monterey, 1987. Comprehensive Land Use Plan for Monterey Peninsula Airport. Available: http://www.co.monterey.ca.us/home/showdocument?id=37935. Accessed November 6, 2018.

3.2.9 Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Environmental Setting

The Federal Emergency Management Agency (FEMA) is responsible for delineating flood zones within the region. FEMA's Flood Insurance Rate Maps (FIRMs) show that the proposed receiver and stockpile sites are located within Zone VE, which are subject to inundation by the 1-percent-annual-chance flood even with additional hazards due to storm-included velocity wave action (FEMA, 2017; FEMA, 2018). The nearest bodies of water are the El Estero, Del Monte Lake, and Laguna Del Rey, south of the proposed receiver and stockpile sites.

Discussion

a) **Less-Than-Significant Impact.** All proposed potential sand material would be tested to verify that the material meets the criteria described in Chapter 2, Project Description. Testing would consider chemical composition, size, color, and percent sand. Sand that passes the criteria for placement at receiver sites would be of the same quality as that of the receiver sites. Natural physical processes along the beach would move the placed sand as it would normally with existing beach sand, resulting in a natural level of turbidity along the beachfront by wave action. If determined necessary during the regulatory and/or resource agency permit and approval process, turbidity monitoring could be required and would be expected to focus on turbidity levels in the nearshore zone as measured just before, during (placement), and following sand placement at a receiver site and impacts would be less than significant.

b) **No Impact.** The proposed program would not require any use of groundwater or interfere with groundwater recharge. No impact would occur.

c) **No Impact**. The purpose of the program is to place sand on the proposed receiver sites, which would help reduce existing erosion problems and is intended to minimize future erosion. Therefore, no impact would occur.

d) **No Impact**. The proposed program would not modify a stream or increase the amount of impervious surface in the vicinity of the program. Two unnamed streams flow into the Pacific Ocean at the proposed receiver sites; however, the program would not alter any stream activity. Additionally, drainage at the sites may improve as the beach is widened, which would reduce coastal flooding caused by high tide events. No impact would occur.

e) **No Impact**. The proposed program would place sand on the proposed receiver and stockpile sites and would not alter the direction, quantity, or quality of stormwater runoff. No impact would occur.

f) **Less-Than-Significant Impact**. There is potential for the proposed program to result in turbidity at the proposed receiver sites. However, as discussed in Section 2.3.1, turbidity would be monitored if required by regulatory agencies. Monitoring would focus on turbidity levels in the nearshore zone as measured just before, during (placement), and following sand placement at a receiver site. If turbidity is extensive or fails to dissipate, the program would be modified to return turbidity to acceptable levels. Modifications to the turbidity could result in delays between delivery of the sand loads. This potential impact would be avoided through the monitoring program and impacts would be less than significant.

g,h) **No Impact**. The proposed program does not include housing or structures. No impact would occur.

i) **No Impact**. The proposed program would not expose people or structures to a significant risk of loss, injury, or death from flooding. In addition, the program may offer added

protection from 100-year flood hazards as the program proposes to raise and widen existing beaches. No impact would occur.

j) **No Impact**. All coastal locations, such as the proposed beach fill sites, are potentially exposed to tsunamis; however, the proposed program would not cause inundation by tsunami beyond the conditions that currently exist. Additionally, widening the beaches may offer greater protection for oceanfront residences. The program area is adjacent to several small lakes including Del Monte Lake and Laguna Del Rey. However, the proposed program would not result in inundation by seiche beyond the conditions that currently exist within the region. No impact would occur.

References

Federal Emergency Management Agency (FEMA), 2017. Flood Insurance Rate Map – Monterey County Panel 307 of 2050. Available: https://msc.fema.gov/portal/search?AddressQuery=monterey#searchresultsanchor. Accessed November 2, 2018.

Federal Emergency Management Agency (FEMA), 2018. Zone VE. Available: https://www.fema.gov/zone-ve-and-v1-30. Accessed November 2, 2018.

3.2.10 Land Use and Land Use Planning

Issues (and Supporting Information Sources):		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
10.	**LAND USE AND LAND USE PLANNING — Would the project:**				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Environmental Setting

The project supplements sand on existing beaches. The cities' general plan, zoning and coastal plan documents reflect this open space, recreation and beach use as detailed below.

Discussion

a) **No Impact**. The proposed project will supplement sand on existing beaches. The project will not divide an established community.

b) **No Impact**. The proposed project will supplement sand on existing beaches. The project will help maintain the region's beaches and is consistent with the General Plan, Zoning and Coastal Plans for the various cities.

The City of Monterey General Plan identifies the project site as Parks, Recreation and Open Space and the Zoning Map as Open Space and Planned Community – Waterfront. The project is consistent with these land use designations.

The City of Sand City General Plan identifies the site as Public Recreation and Visitor Serving Commercial and the Zoning Map as CZ-PR Coastal Public Recreation and CZ-M Coastal Zone Visitor Serving Commercial (Dual Designation)

The City of Seaside General Plan identifies the site as Park and Open Space and the Zoning Map as Open Space –Recreation.

The City of Marina General Plan identifies the site as Habitat Reserve and Other Open Space and the Zoning Map as Coastal Conservation and Development.

c) **No Impact**. The project will not conflict with any applicable habitat conservation plan or natural community conservation plan.

References

City of Marina, Zoning Map, GIS, 2018.

City of Marina General Plan, Adopted October 31, 2000 and Updated with Amendments Through August 4, 2010.

City of Monterey, Zoning Map, GIS, 2018.

City of Monterey General Plan, Adopted January 2005 and Updated with Amendments Through March 2016.

City of Sand City General Plan Land Use Map Adopted February 5, 2002.

City of Sand City Zoning Map, Website, 2018.

City of Seaside General Plan, Adopted August 5, 2003.

City of Seaside Zoning Map, GIS, last revised 5/11/10.

3.2.11 Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Environmental Setting

The project sites are largely reserved for open spaces and public beaches. The one exception is the existing CEMEX Plant that is scheduled for closure and sand mining operations are required to cease.

Discussion

a-b) **Less Than Significant Impact**. No mineral resources exist within the proposed project sites with the exception of the CEMEX Plant that is scheduled for closure by 2020. Sand mining operations are required to cease at that time. As a result, the project will have a less than significant no impact on mineral resources.

References

City of Marina, Telephone Call, Christine Hopper, January 2018.

3.2.12 Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
12. NOISE — Would the project result in:				
a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Environmental Setting

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. Given that the typical human ear is not equally sensitive to all frequencies of the audible sound spectrum, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes low and extremely high frequencies, referred to as A-weighting, and is expressed in units of A-weighted decibels (dBA).[11]

Noise Exposure and Community Noise

Noise levels rarely persist consistently over a long period of time. Rather, noise levels at any one location vary with time. Specifically, community noise is the result of many distant noise sources that constitute a relatively stable background noise exposure where the individual contributors are unidentifiable. Throughout the day, short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) that are readily identifiable to the individual add to the existing

[11] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

background noise level. The combination of the slowly changing background noise and the single-event noise events give rise to a constantly changing community noise environment.

To legitimately characterize a community noise environment and evaluate cumulative noise impacts, community noise levels must be measured over an extended period of time. This time-varying characteristic of environmental noise is described using statistical noise descriptors, including the ones described below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

Ldn: The day-night average sound level (Ldn) is the energy average of the A-weighted sound levels occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by weighting ("penalizing") nighttime noise levels by adding 10 dBA to noise between 10:00 p.m. and 7:00 a.m.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of the decibel system. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Applicable Noise Regulations

Receiving sites of the proposed program are located in three different jurisdictions, each with its own General Plan and municipal Code which establish local noise standard.

City of Monterey. Section 38-111 of the City of Monterey municipal code establishes noise performance standards by zoning district. For open space districts and residential districts, the performance standard is 60 dBA. Additionally, the City of Monterey General Plan Noise Element establishes land use compatibility for land uses within the City. For single family residential uses

a noise environment of 60 Ldn or less is considered normally acceptable (city of Monterey, 2005) while for multi-family land uses 65 Ldn or less is considered normally acceptable.

City of Sand City. Chapter 8.04 of the City of Sand City municipal code prohibits loud noises, but does not establish quantitative noise standards. Neither the City of Sand City Local Coastal Program Land Use Plan or the General Plan 2002-2017 Goals and Policies Relevant to the Vibrancy Plan contain quantitative noise standards.

City of Marina. Section 9.24 of the City of Marina municipal code contains noise regulations in general that prohibit excessive, unnecessary or unusually loud noise but does not contain quantitative noise standards. Section 15.04.055 of Municipal Code addresses construction hours and noise**.** Applies to any construction activities that require a building, grading, demolition, use, or other city permit. This section limits outside construction, repair work, or related activities that produce noise adjacent to residential uses, including transient lodging, to the hours of 7:00 a.m. to 7:00 p.m. (standard time) Monday through Saturday, and 10:00 a.m. to 7:00 p.m. (standard time) on Sundays and holidays. During daylight savings time, construction hours may be extended to 8:00 p.m. However, no construction activities, tools, or equipment may produce a noise level of more than 60 dBA for twenty-five percent of an hour at any receiving property line.

The City of Marina General Plan establishes maximum allowable noise levels within the City as indicated in **Table NOI-1**.

TABLE NOI-1
MAXIMUM ALLOWABLE NOISE LEVELS FOR THE CITY OF MARINA

Duration	Maximum Allowable Noise	
	Day (7:00 a.m. to 10:00 p.m.)	Night (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq} in dB[a,b]	50	45
Maximum Level in dB[a,b]	70	65
Maximum Impulsive Noise in dB[a,c]	65	60

NOTES:
a As determined at the property line of the closest receptor. Noise barriers or other noise attenuation features may be used to achieve the noise standards at the closest sensitive receptor.
b Sound level measurements should be made with slow meter response.
c Sound level measurements should be made with fast meter response.

SOURCE: City of Marina, 2006.

Discussion

a) **Less Than Significant with Mitigation Incorporated.** The following analysis is organized by receiver site.

Del Monte Receiver Site. The proposed program would involve operation of a front end loader and a bulldozer for spreading sand. Additionally, import of sand to the stockpile area would involve approximately 12 round truck trips per day.

The Del Monte Beach Townhouses are located in the middle span of the Del Monte receiver site within 100 ft of the beach nourishment area. Additionally, single family residences on Spray Avenue are within 250 ft of potential stockpile locations and within 400 ft of haul truck access routes.

Noise from off-road equipment was calculated using the Roadway Construction Noise Model of the Federal Highway Administration. One front end loader and one bulldozer generate a noise level of 73.6 dBA, Leq at 100 ft which is when spreading would be closest to the Del Monte Beach Townhouses and 65.6 dBA at 250 ft which is when spreading would be closest to the residences on Spray Avenue. This would exceed the 60 dBA performance standard of the City's noise ordinance and the 65 dBA noise compatibility standard of the General Plan for multi-family housing and is therefore identified as a potential significant impact warranting mitigation.

Noise from haul truck trips were estimated using the Traffic Noise Model (version 2.5) of the Federal Highway Administration assuming 3 truck trips per hour. Truck trips are predicted to contribute a noise level of 41 dBA at the residences on Spray Avenue, 400 ft to the north. This would be a negligible contribution to the existing noise environment.

North Monterey Receiver Site. The Ocean Harbor House Condominiums are located at the southwestern end of the beach nourishment area, approximately 100 ft away. These sensitive receptors would be 1,700 ft from potential stockpile locations and haul truck access routes. One front end loader and one bulldozer generate a noise level of 73.6 dBA, Leq at 100 ft which is when spreading would be closest to the Ocean Harbor House Condominiums. This would exceed the 60 dBA performance standard of the City's noise ordinance and the 65 dBA noise compatibility standard of the General Plan for multi-family housing and is therefore identified as a potential significant impact warranting mitigation.

The 1,700 foot distance of receptors from the truck access route for this receiver site is sufficient to ensure that truck noise would be a less than significant noise impact.

Sand City Receiver Site. There are no sensitive receptors within 1,000 ft of the Sand City receiver site. One front end loader and one bulldozer generate a noise level of 53.6 dBA, Leq at 1,000 ft. As the City of Sand City does not establish noise performance standards in its municipal code or General Plan, the proposed beach nourishment program or the Sand City site would have a less than significant impact with respect to generation of noise levels in excess of standards established in the local general plan or noise ordinance.

Marina Receiver Site. The nearest sensitive receptor to the Marina receiver site is the Sanctuary Beach Resort located approximately 100 ft away. This sensitive receptor would be 650 ft from potential stockpile locations and haul truck access routes.

One front end loader and one bulldozer generate a noise level of 73.6 dBA, Leq at 100 ft which is when spreading would be closest to the Sanctuary Beach Resort. This noise

level would exceed the City of Marina's Maximum allowable daytime noise levels established in its General Plan and is therefore identified as a potential significant impact warranting mitigation.

Noise from haul truck trips were estimated using the Traffic Noise Model (version 2.5) of the Federal Highway Administration assuming 3 truck trips per hour. Truck trips are predicted to contribute an hourly noise level of 37 dBA at the Sanctuary Beach Resort, 650 ft to the north. This would be a negligible contribution to the existing noise environment.

CEMEX Receiver Site. There are no sensitive receptors within 3,000 ft of the CEMEX receiver site. One front end loader and one bulldozer generate a noise level of 44 dBA, Leq at 3,000 ft. This noise level would be below the City of Marina's Maximum allowable daytime noise levels established in its General Plan and the proposed beach nourishment program or the CVEMEX site would have a less than significant impact with respect to generation of noise levels in excess of standards established in the local general plan or noise ordinance.

> **Mitigation Measure NOI-1: Limit duration of spreading activities near receptors:** This measure applies to the Del Monte, North Monterey, and Marina receiving sites. Sand spreading activities within 200 ft of residential of resort/hotel receptors shall be limited to no more than two weeks duration per year. By limiting the operation of heavy-duty off-road equipment to a two-week window, noise from spreading activity is effectively curtailed to that of a short-term construction project and would no longer be considered a long-term operational impact. Section 38-112.2 of the City of Monterey municipal code sets limitations on construction hours: Monday through Friday, 7:00 a.m. to 7:00 p.m.; Saturday, 8:00 a.m. to 6:00 p.m.; and Sunday, 10:00 a.m. to 5:00 p.m.

b) **Less than Significant Impact.** Ground-borne vibration from sand spreading activities at the receiving sites would produce negligible vibration. The types of construction equipment associated with spreading include bulldozers, loaders and trucks. Of these equipment types only bulldozers are identified by Caltrans (Caltrans, 2013) or the Federal Transit Administration (FTA, 2018) as associated with generation of notable vibration. FTA identifies a reference vibration level of 0.089 inches per second at 25 ft from operations of a large bulldozer. Using vibration attenuation equations, the resultant vibration at 100 ft would be 0.019 inches per second vibration decibels. This is a vibration level is well below the 0.5 inches per second threshold used by FTA for assessing the potential for building damage to modern structures. Therefore, vibration associated with proposed remediation activities would be a less than significant impact.

c) **Less than Significant Impact with Mitigation Incorporated.** As stated in the response to question a), above, noise generated by off-road heavy-duty equipment at the Del Monte and Marina receiving sites could be as high as 73.6 dBA when activity is nearest to receptors. This would be a substantial increase over typical coast-side noise levels, which ESA monitored at the CEMEX location to be 58 dBA (CPUC, 2018). Mitigation Measure NOI-1 is identified to restrict the window of annual sand spreading near

sensitive receptors to a two-week window annually at these receiving sites. Therefore, with implementation of mitigation measures, the proposed program would have a less than significant impact with respect to substantial permanent increases in ambient noise levels.

d) **No Impact.** There would be no construction activities or other temporary noise sources associated with the proposed beach nourishment program. Therefore, there would be no impact with respect to substantial temporary or periodic noise increases in ambient noise levels in the project vicinity.

e, f) **No Impact.** The closest public airport to the project area is the Monterey Peninsula Airport, which is approximately one mile west of the Del Monte and North Monterey receiver sites and further from the other receiver sites. None of the receiver sites would be located within the 65 dBA CNEL noise contour on the "Noise Exposure Map for Forecast Conditions" in the *Comprehensive Land Use Plan for Monterey Peninsula Airport* (Monterey County Airport Land Use Commission, 1987). Additionally, none of the receiver sites would they constitute noise-sensitive land uses (i.e., the proposed program does not include the construction of new housing or other noise-sensitive receptors that would be subject to aviation noise). Therefore, there would be no impact in relation to airports and the project exposing people residing or working in the project area to excessive noise levels.

References

California Public Utilities Commission (CPUC) and Monterey Bay National Marine Sanctuary (MBNMS), 2018. CalAm Monterey Peninsula Water Supply Project Final Environmental Impact Report/Environmental Impact Statement. Section 4.12, Noise. March 2018.

California Department of Transportation (Caltrans), 2013. Transportation and Vibration Guidance Manual, September 2013; page 37.

City of Marina, 2000. *City of Marina General Plan*. Amended December 31, 2006.

City of Monterey, 2005. *City of Monterey General Plan*. Amended March 2016.

City of Sand City, 2016. General Plan 2002-2017 Goals and Policies Relevant to the Vibrancy Plan.

Monterey County Airport Land Use Commission, 1987. *Comprehensive Land Use Plan for Monterey Peninsula Airport*, March 23, 1987.

U.S. Department of Transportation, Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment, April 2006; page 12-12.

3.2.13 Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental Setting

The project supplements sand on existing beaches. No development exists at the proposed sites for beach nourishment.

Discussion

a-c) **No Impact**. The project supplements sand on existing beaches. The project would not induce population growth, replace existing housing or displace people.

References

City of Marina General Plan, Adopted October 31, 2000 and Updated with Amendments through August 4, 2010.

City of Monterey General Plan, Adopted January 2005 and Updated with Amendments through 2016.

City of Sand City General Plan, Adopted February 5, 2002.

City of Seaside General Plan, Adopted August 5, 2003.

3.2.14 Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Environmental Setting

The project supplements sand on existing beaches.

Discussion

a.i-v) **No Impact**. The project supplements sand on existing beaches. The project would not impact on the level of services required of fire protection, police protection, schools or other public facilities and services. The impact to parks would be beneficial as the additional sand to beaches would offset coastal erosion and maintain beaches for a greater period of time.

References

Cole, Kim, Community Development Director, City of Monterey. Telephone communication, January 2018.

Hopper, Christine. City of Marina, Telephone communication, January 2018.

Ottmar, Scott, City of Seaside, Telephone communication, January 2018.

Pooler, Charles, City of Sand City, Telephone communication, January 2018.

3.2.15 Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
15. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Environmental Setting

The project supplements sand on existing beaches.

Discussion

a-b) **No Impact**. The impact to parks would be beneficial as the additional sand would offset some coastal erosion and maintain beaches for a greater period of time.

References

Cole, Kim, Community Development Director, City of Monterey. Telephone communication, January 2018.

Hopper, Christine. City of Marina, Telephone communication, January 2018.

Ottmar, Scott, City of Seaside, Telephone communication, January 2018.

Pooler, Charles, City of Sand City, Telephone communication, January 2018.

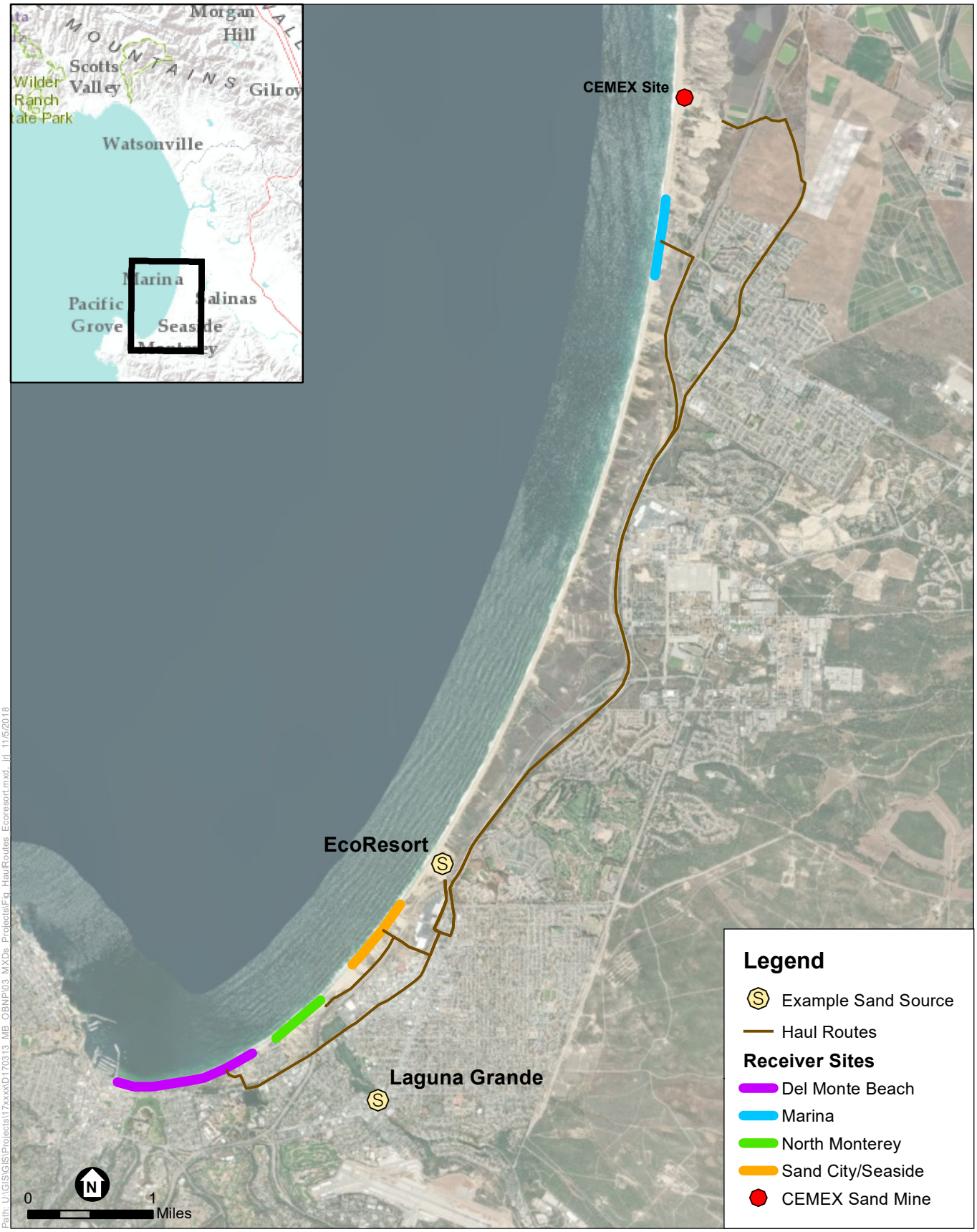
3.2.16 Transportation and Traffic

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
16. TRANSPORTATION/TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Environmental Setting

A detailed discussion of the traffic and circulation in the areas encompassing the proposed program was presented in the 2007 Monterey County General Plan Draft EIR in Section 4.6, Transportation and is summarized and incorporated in this section by reference. The main roadway and access route to the proposed receiver and stockpile sites is State Highway 1. This four-lane highway runs north and south along most of the Pacific coastline. Highway 1 is used primarily as a scenic route, but also serves as a major thoroughfare for commuters and residents. Traffic consists mostly of private automobiles, light commercial vehicles, emergency vehicles, public buses, and bicycles.

The roadway network in the program area is well developed with multiple access patterns. For the program there are two basic categories of traffic accessing the sites: 1) construction workers and staff; and, 2) material deliveries and hauling operations. The workers access the sites via the adjacent roadway network depending on their origin and destinations. Material deliveries access the sites using the haul routes shown in **Figures 21 through 24**. Traffic effects associated with the proposed program were evaluated based on level of service (LOS) and specific time periods during the day (i.e., hourly basis, as needed).

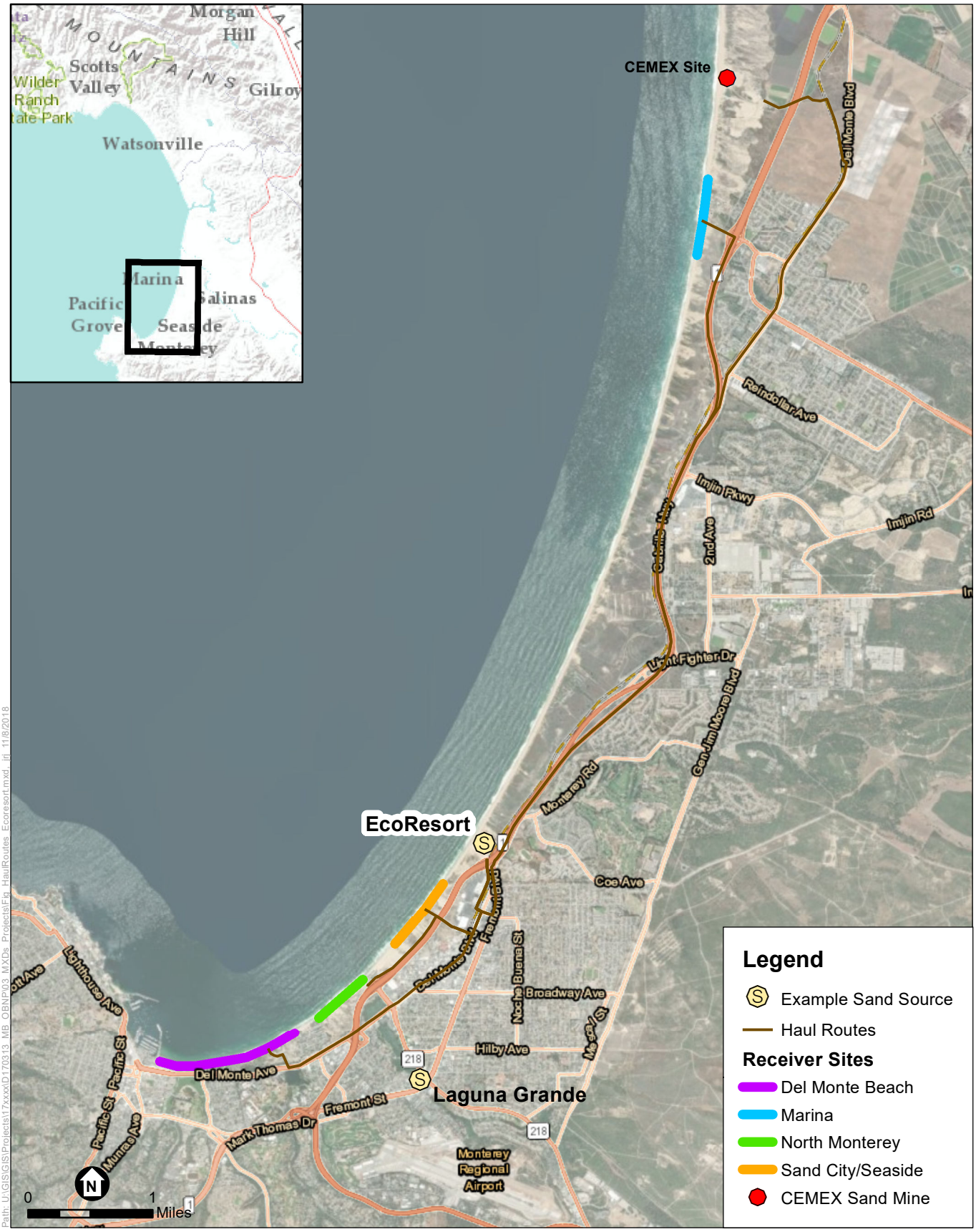


SOURCE: ESRI, ESA

Monterey Bay Opportunistic Beach Nourishment Project . 170313

Figure 21
Haul Routes from EcoResort
To Receiver Sites

ESA

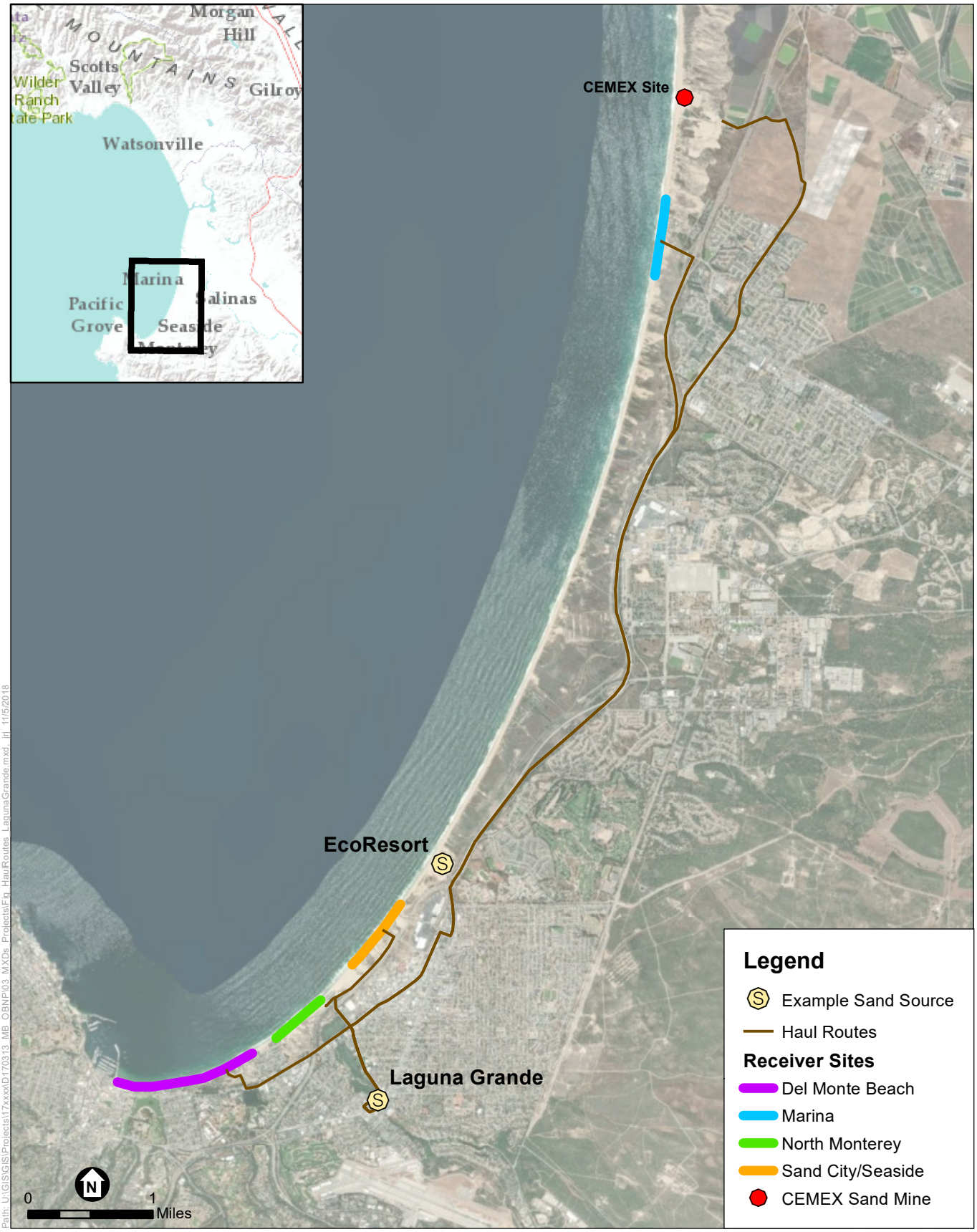


SOURCE: ESRI, ESA

Monterey Bay Opportunistic Beach Nourishment Project . 170313

Figure 22
Haul Routes from EcoResort
To Receiver Sites

ESA

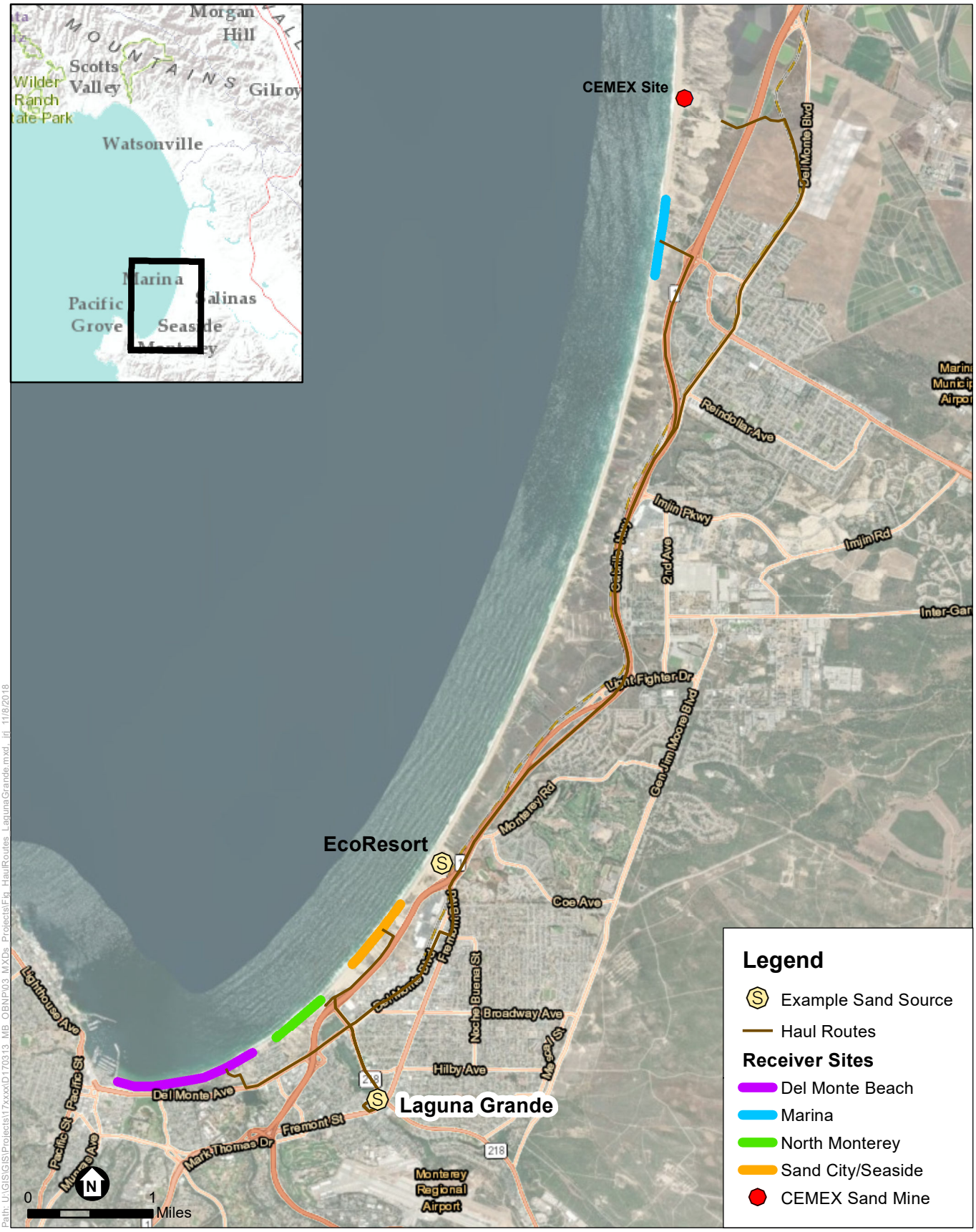


SOURCE: ESRI, ESA

Monterey Bay Opportunistic Beach Nourishment Project . 170313

Figure 23
Haul Routes from Laguna Grande Source
To Receiver Sites

ESA



SOURCE: ESRI, ESA

Monterey Bay Opportunistic Beach Nourishment Project . 170313

Figure 24

Haul Routes from Laguna Grande Source To Receiver Sites

ESA

Roadway Network

Highway 1

Highway 1 is functionally classified as a regional highway and provides north-south access along the Pacific coastline in California. This roadway varies from a two-lane surface state highway (with at-grade intersections) to a multi-lane freeway (with ramp interchanges). Land use along much of the roadway in the vicinity is predominantly beach, commercial, hotel, and residential.

Del Monte Avenue

Del Monte Avenue is functionally classified as an arterial roadway and provides east-west access between the cities of Monterey and Sand City. Del Monte Avenue begins at Van Buren Street as a six-lane roadway, heading east where it continues as two lanes in each direction before connecting with Fremont Boulevard. Land use along Del Monte Avenue is primarily commercial and residential.

Canyon Del Rey Boulevard

Canyon Del Rey Boulevard is a north-south roadway functionally classified as an arterial roadway. Canyon Del Rey Boulevard provides access from Highway 1 to Salinas Highway and consists of one lane in each direction. Land uses along much of the roadway includes residential, vacant, and open space.

Traffic Types and Volumes

All roadways within the proposed program vicinity are traveled by automobiles, trucks, motorcycles, emergency vehicles, and trucks with trailers. Traffic counts for roadways within the vicinity of proposed program's receiver and stockpile sites were not available for all local roads within the proposed program haul routes. The LOS that is available for each roadway along the haul route is shown in **Table TRA-1**.

TABLE TRA-1
EXISTING LOS ON PROGRAM HAUL ROUTES

Roadway	LOS
Highway 1	F
Del Monte Avenue	F
Canyon Del Rey Boulevard	D

Source: County of Monterey, 2007

Airports/Airstrips

The Monterey Regional Airport is the only airport within the vicinity of the program area, located approximately 1.1 miles southeast from North Monterey Beach. There are no other airports located in the vicinity of the other proposed program sites.

Transit

The Monterey-Salinas Transit (MST) line provides bus service within northern Monterey County and southern Santa Cruz County. In Monterey County, bus service is provided between the cities of Monterey and Salinas, Marina and Watsonville, Salinas and Watsonville, and south from Salinas to Gonzales (MST, 2018).

Pedestrian and Bicycle System

A network of bicycle facilities, including Class I (bicycle paths), Class II (bicycle lanes, striped in roads), and Class III (bicycle routes without striping), extend throughout the county (as well as the program area) and are frequently located along the right-of-way of roadways or railroads. The level of pedestrian facilities (e.g., sidewalks versus edge-of-road paths) and volumes of pedestrians vary depending on location. There are numerous pedestrian and designated bicycle lanes along various sections of the haul routes.

Discussion

a) **Less-Than-Significant Impact.** The proposed program would not conflict with an applicable traffic plan, ordinance, or policy, nor would it impact the performance circulation system. The proposed program consists of hauling and unloading sand at each of the proposed beach fill sites. Transporting of the sand from the potential sand source sites would be limited to the haul routes between the potential sand source sites and the proposed beach fill sites, as shown in Figures 21 through 24. Haul routes would be established along major roads without the need for alterations to existing circulation systems. Therefore, the proposed program would be consistent with existing traffic and circulation plans, ordinances, and policies, and impacts would be less than significant.

b) **Less-Than-Significant Impact.** The proposed program would result in hauling sand from the potential sand source sites to the proposed stockpile and receiver sites along established local roadways and highways. For this analysis, it was assumed that the maximum number of haul trips expected would occur during a one-year hauling period. As stated in Chapter 2, Program Description, haul trucks would have an average 16 cy capacity and would require up to 68 truckloads per workday to deliver the maximum volume of sand (396,000 cy) from the potential sand source sties to each of the five proposed stockpile and/or receiver sites. Assuming roundtrips for each truckload and maximum available volume, total daily trips distributed between the five different stockpile and receiver sites as follows: (1) 12 trips for the Marina site; (2) 12 trips for the Sand City site; (3) 4 trips for the North Monterey site; (4) 6 trips for Del Monte site; and (5) 34 trips for the CEMEX site.

Haul routes to all of the stockpile and receiver sites would utilize Highway 1 and Canyon Del Rey Boulevard, resulting in a maximum of 68 truck trips per day along these roadways. Del Monte Avenue would be utilized by haul routes to the Del Monte site and CEMEX site, resulting in a total of 40 truck trips per day along this route. Trucks trips along the haul routes would be temporary and negligible when compared to existing traffic on these roadways, which are currently operating at LOS D and F, as shown in

Table TRA-1. Additionally, hauling would be limited to occur during non-peak hours. Therefore, the proposed program would not result in a substantial decrease in LOS during peak traffic hours along any of the proposed haul routes. Accordingly, the proposed program would not conflict with an applicable congestion management program, including level of service, travel demand measures, or other established standards and impacts would be less than significant.

c) **No Impact**. The proposed program would move sand from source sites to proposed stockpile and/or receiver sites, which would help reduce existing erosion problems and minimize future erosion. Hauling and unloading sand at the proposed stockpile and/or receiver sites would not require air transportation or result in changes to air traffic at the Monterey Regional Airport. Therefore, the program would not result in a change in air traffic patterns or substantial safety risks and there would be no impact.

d) **No Impact**. Sand for the proposed receiver sites would be transported using highway approved trucks and trailers. Haul routes would use major roadways with little to no sharp curves or uncontrolled intersections. Additionally, implementation of the proposed program is not anticipated to result in exacerbating existing traffic along the roadways. Therefore, there would be no substantial increase in hazards due to a design feature or incompatible uses and no impact would occur.

e) **No Impact.** The program source, stockpile, and receiver sites and surrounding roadway network do not have any conditions that would restrict emergency vehicle access. Additionally, the proposed stockpile and receiver sites have established ingress and egress locations and would not result in blocking or interfering with emergency response vehicles along surface streets. The proposed program would not result in inadequate emergency access to the proposed stockpile and receiver sites and there would be no impact.

f) **No Impact**. The proposed haul routes would be located along major roadways or surface streets and would not significantly increase traffic levels along those routes. Additionally, existing pedestrian trails, bicycle lanes, bus access, and similar features would not be affected as a result of the program because haul trucks would not block or otherwise impede alternative means of transportation. Implementation of the proposed program would not conflict with adopted policies, plans or programs regarding transportation and no impact would occur.

References

County of Monterey, 2007. Monterey County 2007 General Plan Draft Environmental Impact Report – Transportation. Available: http://www.co.monterey.ca.us/home/showdocument?id=43996. Accessed November 7, 2018.

Monterey-Salinas Transit (MST), 2018. MST Regional Map. Available: https://mst.org/maps-schedules/system-maps/regional/. Accessed November 5, 2018.

3.2.17 Tribal Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
17. Tribal Cultural Resources — Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

a, b) **Less than Significant with Mitigation.** CEQA requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in Public Resources Code Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

On September 24, 2018, ESA contacted the Native American Heritage Commission (NAHC) to request a search of their Sacred Lands File (SLF) and a list of local Native Americans who may have knowledge of cultural resources in the vicinity of the Program area. In a letter response on October 10, 2018, the NAHC did not identify any sacred sites in the Program area and recommended contacting the tribes on the list provided for more information on potential sites and tribal cultural resources within the vicinity.

In November 2018, the City of Monterey contacted Louise Ramirez, Tribal Chairwoman from the Ohlone/Costanoan-Esselen Nation, to provide information on the proposed Program. Ms. Ramirez requested that receiver sites be investigated for cultural and archaeological resources sensitivity prior to sand placement and to be noticed if any cultural resources are identified (Roveri, 2018).

For the proposed Program and any supplemental receiver sites, stockpile sites, or access routes Native American consultation, as defined by Public Resources Code Section 21080.3.1, is required to determine if there are tribal cultural resources in the Program area. Impacts to tribal cultural resources could be potentially significant. This impact would be reduced to a less-than-significant level by implementation of **Mitigation Measure TCR-1**.

Mitigation Measure TCR-1. Native American Consultation. Prior to implementing individual projects, the City will provide notification to Native American tribes who have requested consultation according to the provisions of Public Resources Code Section 21080.3.1. The notification will include a description of the proposed activities, a map showing the location of the proposed activities, and notification that the tribe has 30 days to request consultation for the proposed project. Consultation will include suggested alternatives to the project, recommended mitigation measures, and proposed resolutions to significant effects on tribal cultural resources.

References

Roveri, Fernanda, Associate Planner City of Monterey, Personal communication with Louise Ramirez, Tribal Chairwoman from the Ohlone/Costanoan-Esselen Nation. November 18, 2018.

3.2.18 Utilities and Service Systems

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
18. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Environmental Setting

The project would supplement sand on existing beaches that are predominately void of utilities. However, some of the proposed program receiver sites are near stormwater outfalls at the Del Monte Beach and Seaside sites. Currently, sand deposition occurs at these outfalls naturally, blocking stormwater discharges at times. Because of this situation, Sand City frequently has to remove the sand to allow the outfalls to be unobstructed. It is anticipated with coastal modeling, including sea level rise, that this occurrence will only become worse for these outfalls.

Discussion

a-b, d-g) **No Impact**. The project supplements sand on existing beaches. The project would not result in population increases, result in the construction of new water or wastewater treatment facilities, require additional water supply, require new wastewater treatment capacity or generate solid waste. The project would, therefore utilities or compliance with federal, state or local statutes and regulations related to solid waste.

c) **Less Than Significant Impact.** There are existing storm drains on the various beaches where stormwater currently discharges to Southern Monterey Bay. As climate changes and erosion increases in Southern Monterey Bay, additional maintenance of stormwater outfalls is anticipated to increase. As described in Chapter 2, Project Description, an Adaptive Management Plan would be prepared and implemented to monitor the effects of

the proposed program's activities, and any future sand placement would be coordinated with the Engineering Division within each city to ensure drainage infrastructure would not be negatively impacted when sand is placed or alternative maintenance strategies would be implemented to prevent impacts on drainage facility capacities. This impact is considered less than significant.

References

City of Monterey, Steve Wittry, Public Works Director, Personal Communication with Kim Cole, City of Monterey, April 9, 2018.

City of Seaside, Scott Ottmar, Personal Communication with Kim Cole, City of Monterey, May 15, 2018.

3.2.19 Mandatory Findings of Significance

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
19. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a) **Less Than Significant with Mitigation Incorporated**. The project would supplement sand on existing beaches and help preserve this resource for a longer period of time. Mitigation measures have been proposed in this MND to reduce impacts to less-than significant levels on the environment, including biological and cultural resources.

b) **Less Than Significant with Mitigation Incorporated**. The project would supplement sand on existing beaches and help preserve this resource for a longer period of time. As noted throughout this document, the potential impacts of the proposed project are largely restricted to temporary and short-term impacts and are site-specific. As noted above, all of the potential direct and indirect impacts of the proposed project were determined to be fully avoided or reduced to a less-than-significant level with incorporation of mitigation measures. As a result, the potential impacts of the proposed project are not considered cumulatively considerable, and impacts would be less than significant with mitigation incorporated.

c) **Less Than Significant**. The project would supplement sand on existing beaches. As stated previously in Section 3.2.2 Air Quality, the project would not exceed the numeric indicator for ROG, NO_X, or particulate emissions, it is unlikely that these emissions could result in an increase in ground-level ozone or particulate concentrations in proximity to a given nourishment site or elsewhere in the air basin and impacts would be less than significant and the project would not cause substantial adverse effects on human beings either directly or indirectly.

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Appendix A
Sediment Grain Size Report

Exhibit A

SOUTHERN MONTEREY BAY OPPORTUNISTIC NOURISHMENT AND ENVIRONMENTAL STUDY SEDIMENT COLLECTION AND BIOLOGICAL OBSERVATIONS

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SECTION 1.0 – INTRODUCTION

The southern Monterey Bay beaches and coastal dunes south of the Salinas River are eroding at a rapid rate. This erosion of protective beaches and dunes causes coastal structures to be vulnerable to damage from waves and flooding. In addition, the loss of beach and dune sand represents a loss of habitat for sand and dune organisms and a decline in beach area available for recreation. To address the problem of beach erosion, the Association of Monterey Bay Area Governments (AMBAG) developed a Coastal Regional Sediment Management Plan for Southern Monterey Bay (PWA 2008). The City of Monterey, in cooperation with the Coastal Sediment Management Workgroup (CSMW) and others, is investigating implementation of opportunistic sand placement in accordance with the Regional Sediment Management Plan. To provide information necessary for plan implementation, the U.S. Army Corps of Engineers (USACE) contracted Noble Consultants and its subconsultant, Chambers Group, Inc. (Chambers Group), to collect sediment samples from the southern Monterey Bay area and analyze them for grain size. In addition, biological observations were made at the locations where sediment samples were collected.

SECTION 2.0 – METHODS

Sediment samples and biological observations were taken at nine stations each along seven transects in southern Monterey Bay. **Figure 1** shows the project area. The transects were oriented perpendicular to shore. **Figure 2** shows the location of the transects. The nine stations included backshore, berm, swash zone, surf zone, -10 feet, -20 feet, -30 feet, -40 feet, and -50 feet. The field team was provided with a list of transects with coordinates for the offshore and inshore ends of each. Stations along each transect were selected by water depth (relative to mean lower low water) for the offshore samples and position on beach for the shore samples. Sampling locations were recorded by Global Positioning System (GPS).

Table 1 shows the location of the transects. All samples were taken with a 1-liter cylindrical coring device. The core was pressed into the sediment, flipped over with the sediment intact, and secured with a rubber lid. Samples were then transferred to labeled double plastic ziplock bags and stored in a container. At each sampling location, the nature of the substrate and dominant organisms, if applicable, were recorded by marine biologists. **Figure 3** shows a diver about to enter the water with the coring device.

The shore samples were taken on July 8, 2014, by Rick Ware of Coastal Resources Management, Mark Mertz of TEG, and Jim Hayward. **Figure 4** shows the collection of a backshore sample. **Figure 5** shows the collection of a berm sample. **Figure 6** shows the collection of a swash zone sample. **Figure 7** shows the collection of a surf zone sample.

The offshore samples were taken on July 9 and 10, 2014. The divers were Noel Davis, Ph.D. of Chambers Group, Rick Ware of Coastal Resources Management, Mike Anghera, and Jim Hayward. The diving vessel was the 24-foot-long survey boat *Relentless,* owned by TEG and captained by Mark Mertz. Larry Smith oversaw diving operations for the USACE. For each transect, the coordinates of the offshore end of the transect were located by GPS. The boat headed inshore toward the inshore coordinate until the desired depth was located by the fathometer. When the depth was located, a marker buoy was set. The boat was anchored near the buoy. The divers exited the boat and swam to the buoy. They descended the buoy line, and one diver of each team took the sediment sample while the other made notes on the habitat and organisms at the site. The divers then ascended on the buoy line and swam back to the boat. The anchor and buoy were retrieved, and the procedure repeated at the next station. Each team of divers took the five offshore samples on a transect. Teams were switched for the next transect. The -10-foot sample on Thornton 2 could not be taken because the wind and wave conditions made it unsafe to operate near the surfline.

Sediment samples were delivered to Gorian and Associates in Thousand Oaks for grain size analysis. Dried material was washed through the No. 200 sieve in general accordance with ASTM C117 *Standard Test Method for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing* to evaluate the amount of dry soil which can be washed through the No. 200 sieve. Grain Size Distribution analyses were then performed on the soil remaining on the No. 200 sieve in general accordance with ASTM C136 *Sieve Analysis of Fine and Coarse Aggregate*. The sediment samples were visually assessed in the laboratory prior to testing. With few exceptions, all of the samples were generally classified as being fine sand. Sieve analyses were then performed by drying out the samples and passing them through a series of sieves, consisting of #4, #20, #30, #40, #60, and #100. After review of the data, supplemental sieve analysis was performed on 11 samples to further clarify the coarsest fraction by passing the material again through a #10 sieve.

SECTION 3.0 – RESULTS

3.1 CONDITIONS

Conditions during the survey were good. On July 8, when the shore samples were collected, surf was 2 to 5 feet. During the offshore collection, on July 9 and 10, the surf ranged from 1 to 4 feet. On both days the surf decreased from northwest to southeast. On each day winds were calm in the morning but increased to around 15 to 20 knots around noon. Water temperature was 55 to 57 degrees Fahrenheit. Bottom conditions were fairly calm with a slight surge. Underwater visibility ranged from 12 to 17 feet.

3.2 GRAIN SIZE

The results of the laboratory analysis were summarized in grain size distribution curves attached in Appendix A of this report. All sediment was classified as being poorly graded fine to medium sand. Median grain sizes of the collected sediment samples are summarized in **Table 2**. The percentage of silt and clay content is summarized in **Table 3**. Content of the small percentages of coarse material retained on the largest sieves consisted mainly of gravel, shell, organics, and wood. **Figure 8** shows the median grain size at each station on a map.

3.3 BIOLOGICAL OBSERVATIONS

Table 4 describes the biological observations for each station. **Figure 9** shows a map of the habitat type at each station. All of the shore stations were located in sandy beach or dune (backshore) habitat. Sand crabs were observed in the surf zone samples on Erosion 1,Thornton 1, and Erosion 3 and in the swash zone samples on Erosion 1. Varying amounts of wrack were observed at the berm samples. The backshore stations at Erosion 1 and Thornton 1, the transects closest to the harbor, were characterized by non-native backshore vegetation. From the Erosion 3 transect to the north, the backshore consisted of dune habitat, although on Erosion 6 the backshore was disturbed with limited dune vegetation and mostly non-native species.

Offshore, on the two southernmost transects, Erosion 1 and Thornton1, shale reef habitat was observed at the deeper stations. On Erosion 1, shale reef with a 3- to 4-inch sediment cover was observed at the -30-foot, -40-foot, and -50-foot stations. On Thornton 1, shale reef was observed at the -40- and -50-foot stations. Organisms observed in the shale reef habitat included the large anemone *Urticina* spp., brittle stars, the tube-dwelling anemone *Pachycerianthus fimbriatus*, the ornate tube worm *Diopatra ornata*, various sea stars (*Asterina miniata*, *Dermasterias imbricata, Leptasterias hexactis*), and sand dabs (*Citharichthys stigmaeus*). Small sand dollars were observed in the shallow sand covering at the -30-foot station on Erosion 1 and the -40- and -50-foot stations on Thornton 1. Subadult and juvenile kelp (*Macrocystis pyrifera*) was observed at the -40-foot station on Erosion1, and juvenile *Macrocystis* was observed at the -40-foot station on Thornton 1. In addition, a sea hare (*Aplysia californica*) was seen at the -40-foot station on Thornton 1; and a gumboot chiton (*Cryptochiton stelleri*) was recorded at the -30-foot station on Erosion 1. The -50-foot station on Erosion 3 was located in sand substrate, but boulder outcrops and cobble also were observed at this station.

The rest of the stations on the transects were in sand substrate. Eelgrass was observed at the -20-foot station on Erosion 1. The observed eelgrass was the wide-bladed offshore form, usually called *Zostera pacifica,* although there has been some debate about the taxonomy (Coyer et al. 2008). A different species of eelgrass (*Zostera marina*) is common in California bays and harbors. The wide-bladed offshore

species is uncommon on the California mainland coast. It has been found at one or two locations in Malibu in Los Angeles County and along the south coast of Santa Barbara County. Both *Z. pacifica* and *Z. marina* are found at the California Channel Islands (Coyer et al. 2008). The Monterey bed is the only offshore bed recorded on the Central Coast. This Monterey bed once occupied a continuous 0.1 square mile in water depths of -20 to -30 feet and extended south of Erosion 1 past the harbor breakwater, but it was decimated by limpet grazing that began in 1993 (PWA 2008). The present distribution of this bed is unknown.

Offshore eelgrass typically is limited by light at deeper depths and by wave action inshore. Because eelgrass is sensitive to being dislodged by wave action, the open coast locations where it occurs usually are sheltered from the full force of wave action. The Erosion 1 transect is protected by the bend of Monterey Bay on the north and by the harbor breakwater on the south. Eelgrass probably does not occur at the 10-foot station because, even at this sheltered location, considerable wave surge occurs at -10 feet.

Common organisms recorded on most of the dives in the sand habitat on these transects included the ornate tube worm *Diopatra ornata,* sand dollars, and sand dabs. Dense sand dollar beds occurred at the -20- and -30-foot stations on Thornton 2, the -30-foot station on Erosion 6, the -30- and -40-foot stations on Other 2, and the -30-foot station on Erosion 8. Hermit crabs (*Pagurus* sp.) were abundant at most of the -10-foot stations. Other organisms noted in the sand bottom habitat on these transects included pipefish (*Syngnathus* sp.), the slender cancer crab (*Cancer gracilis*), and the snail *Nassarius perpinguis*.

SECTION 4.0 – DISCUSSION

4.1 GRAIN SIZE

The variation of sediment characteristics sampled over the study area is shown in **Figure 10** and **Figure** 11. In general, median grain size becomes coarser with alongshore distance upcoast and somewhat finer with distance offshore. Onshore sediment has percentages of silt and clay content that are generally less than 1.5 percent. Offshore sediment samples are similarly coarse-grained. Only two samples collected between the -40 and -50-foot depths had fine grain content between 10 and 20 percent. The data suggests that material between the Thornton 2 and Other 2 transects is the coarsest available sand within the study area. The majority of offshore samples have less than 2 percent fines content. Areas with the greatest percentage of fine sediment include the deeper portions between the Erosion 1 and Erosion 3 profiles and the -50-foot region of the Erosion 8 transect.

4.2 SENSITIVE HABITATS

Several sensitive habitats on the transects were identified by a literature review and the biological observations made during this survey. Although no snowy plovers (*Charadrius nivosus nivosus*) were seen during the collection of beach samples, the beaches in the project area have been designated as Critical Habitat for the federally listed Threatened western snowy plover because they are an important breeding and wintering area for this small shorebird (USFWS 2012). Within the sampling area, a 2012 nesting survey found 13 nests at Reservation Road near the Erosion 8 transect, 13 nests at Fort Ord between Erosion 8 and Other 2, 2 nests at Sand City near Other 2, and 1 failed nest at Del Monte near Thornton 2 (Page et al. 2012). Snowy plovers were searched for specifically during collection of the shore samples to avoid disturbing them, and none were seen.

Coastal dunes are considered a sensitive shoreline habitat. Well developed coastal dune systems are relatively rare in California and may support sensitive plant and animal species. Coastal dunes with native vegetation were observed at the backshore of the Erosion 8 and Other 2 transects and, to a lesser extent, at the backshore stations on the Erosion 3 and Thornton 2 transects.

Hard bottom habitat is far less common than soft bottom. Hard bottom provides attachment surfaces for algae, including kelp, and encrusting invertebrates. Kelp, usually attached to hard substrate, adds vertical structure to the marine environment. Hard bottom habitat in the form of shale reef was observed at the deeper stations on the Erosion 1 and Thornton 1 transects. Juvenile and subadult *Macrocystis* was seen at the -40-foot stations on these transects. Boulder outcrops and cobble were noted at the -50-foot station on the Erosion 3 transect.

Eelgrass (*Zostera* spp.) is considered a particularly valuable marine habitat because it adds structure to the otherwise monotonous soft bottom and provides shelter and attachment sites for marine life, including juvenile fishes. It also represents a food source, both when living and as detritus. Eelgrass is most common in bays and harbors, but a wide-bladed species (probably *Zostera pacifica*) occurs in a few locations off the California open coast. Eelgrass was observed at the -20-foot station on Erosion 1.

SECTION 5.0 – LITERATURE CITED

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Table 1: Location of Samples

Date	Station	Sample designation	Latitude	Longitude
8-Jul-14	Erosion 1 Surf	ER-01 Wave	36.60145	-121.88225
8-Jul-14	Erosion 1 Swash	ER-01 Swash	36.60133	-121.88223
8-Jul-14	Erosion 1 Berm	ER-01 Berm	36.60133	-121.88222
8-Jul-14	Erosion 1 Backshore	ER-01 Backshore	36.60102	-121.88222
	Erosion 1 -50	ER-01 50	36.60800	-121.88377
	Erosion 1 -40	ER-01 40	36.60605	-121.88300
	Erosion 1 -30	ER-01 30	36.60403	-121.88258
	Erosion 1 -20	ER-01 20	36.60275	-121.88252
	Erosion 1 -10	ER-01 10	36.60235	-121.882717
8-Jul-14	Thorton 1 Surf	TH-01 Wave	36.60402	-121.87275
8-Jul-14	Thornton 1 Swash	TH-01 Swash	36.60384	-121.87268
8-Jul-14	Thornton 1 Berm	TH-01 Berm	36.60359	-121.87251
8-Jul-14	Thornton 1 Backshore	TH-01 Backshore	36.60348	-121.87245
	Thornton 1 -50	TH-01 50	36.60832	-121.87552
	Thornton 1 -40	TH-01 40	36.60673	-121.87490
	Thornton 1 -30	TH-01 30	36.60553	-121.87405
	Thornton 1 -20	TH-01 20	36.60492	-121.87362
	Thornton 1 -10	TH-01 10	36.60458	-121.87328
8-Jul-14	Erosion 3 Surf	ER-03 Wave	36.61095	-121.86080
8-Jul-14	Erosion 3 Swash	ER-03 Swash	36.61080	-121.86055
8-Jul-14	Erosion 3 Berm	ER-03 Berm	36.61062	-121.86022
8-Jul-14	Erosion 3 Backshore	ER-03 Backshore	36.61044	-121.86013
	Erosion 3 -50	ER-03 50	36.61398	-121.86500
	Erosion 3 -40	ER-03 40	36.61315	-121.86367
	Erosion 3 -30	ER-03 30	36.61212	-121.86242
	Erosion 3 -20	ER-03 20	36.61170	-121.86168
	Erosion 3 -10	ER-03 10	36.61135	-121.86130
8-Jul-14	Thornton 2 Surf	TH-02 Wave	36.61585	-121.85506
8-Jul-14	Thornton 2 Swash	TH-02 Swash	36.61576	-121.85488
8-Jul-14	Thornton 2 Berm	TH-02 Berm	36.61550	-121.85453
8-Jul-14	Thornton 2 Backshore	TH-02 Backshore	36.61538	-121.85433
	Thornton 2 -50	TH-02 50	36.61838	-121.86003
	Thornton 2 -40	TH-02 40	36.61738	-121.85873
	Thornton 2 -30	TH-02 30	36.61668	-121.85752
	Thornton 2 -20	TH-02 20	36.61628	-121.85657
	Thornton 2 -10	No sample		
8-Jul-14	Erosion 6 Surf	ER-06 Wave	36.61931	-121.85150
8-Jul-14	Erosion 6 Swash	ER-06 Swash	36.61917	-121.85121
8-Jul-14	Erosion 6 Berm	ER-06 Berm	36.61900	-121.85090
8-Jul-14	Erosion 6 Backshore	ER-06 Backshore	36.61893	-121.85084
	Erosion 6 -50	ER-06 50	36.62200	-121.85640
	Erosion 6 -40	ER-06 40	36.62098	-121.85480
	Erosion 6 -30	ER-06 30	36.62037	-121.85373
	Erosion 6 -20	ER-06 20	36.61988	-121.85290

Table 1: Location of Samples

Date	Station	Sample designation	Latitude	Longitude
	Erosion 6 -10	ER-06 10	36.61950	-121.85245
8-Jul-14	Other 2 Surf	OTH-02 Wave	36.62647	-121.84488
8-Jul-14	Other 2 Swash	OTH-02 Swash	36.62636	-121.84471
8-Jul-14	Other 2 Berm	OTH-02 Berm	36.62612	-121.84438
8-Jul-14	Other 2 Backshore	OTH-02 Backshore	36.62602	-121.84422
	Other 2 -50	OTH-02 50	36.62845	-121.84863
	Other 2 -40	OTH-02 40	36.62758	-121.84828
	Other 2 -30	OTH-02 30	36.62727	-121.84733
	Other 2 -20	OTH-02 20	36.62693	-121.84657
	Other 2 -10	OTH-02 10	36.62637	-121.84630
8-Jul-14	Erosion 8 Surf	ER-08 Wave	36.70110	-121.81016
8-Jul-14	Erosion 8 Swash	ER-08 Swash	36.70106	-121.80999
8-Jul-14	Erosion 8 Berm	ER-08 Berm	36.70096	-121.80946
8-Jul-14	Erosion 8 Backshore	ER-08 Backshore	36.70087	-121.80920
	Erosion 8 -50	ER-08 50	36.70387	-121.81667
	Erosion 8 -40	ER-08 40	36.70263	-121.81400
	Erosion 8 -30	ER-08 30	36.70213	-121.81348
	Erosion 8 -20	ER-08 20	36.70175	-121.81237
	Erosion 8 -10	ER-08 10	36.70160	-121.81170

Table 2: Median Grain Size of Collected Sediment Samples in mm

Sample Location	Erosion 1	Thornton 1	Erosion 3	Thornton 2	Erosion 6	Other 2	Erosion 8
Backshore	0.28	0.29	0.38	0.51	0.5	0.95	0.43
Berm	0.27	0.28	0.3	0.42	0.37	0.68	0.38
Swash zone	0.25	0.27	0.3	0.42	0.3	0.31	0.43
Surf zone	0.22	0.28	0.31	0.41	0.29	0.32	0.35
-10 ft depth	0.28	0.22	0.30	N/A	0.28	0.22	0.3
-20 ft depth	0.19	0.28	0.21	0.31	0.29	0.29	0.26
-30 ft depth	0.18	0.18	0.21	0.23	0.28	0.28	0.21
-40 ft depth	0.13	0.20	0.20	0.4	0.34	0.2	0.20
-50 ft depth	0.18	0.11	0.32	0.3	0.35	0.3	0.16

Table 3: Percentage of Fine Grained Sediment Content

Sample Location	Erosion 1	Thornton 1	Erosion 3	Thornton 2	Erosion 6	Other 2	Erosion 8
Backshore	0.70	0.20	0.20	0.10	0.40	0.30	0.40
Berm	0.60	0.30	0.20	0.90	0.20	0.20	0.10
Swash zone	1.20	1.20	1.20	0.90	1.10	1.00	0.90
Surf zone	1.10	1.30	1.30	0.90	1.40	1.00	1.00
-10 ft depth	1.10	1.20	1.30	N/A	1.40	1.40	1.30
-20 ft depth	2.70	1.30	1.90	1.10	1.50	1.30	1.20
-30 ft depth	6.30	2.60	1.90	1.60	1.00	1.70	1.50
-40 ft depth	10.80	2.30	2.50	1.10	1.20	1.80	2.10
-50 ft depth	3.60	7.00	19.70	1.20	1.10	1.10	7.80

Table 4: Biological Observations

Station	Biological Observations
Erosion 1 Surf	sand beach with sand crabs
Erosion 1 Swash	sand beach with sand crabs
Erosion 1 Berm	sand, limited beach wrack, visible berm
Erosion 1 Backshore	non-native backshore vegetation
Erosion 1 -50	shale reef with shallow sediment layer, large anemones (*Urticina*), bat stars, brittle stars, dense *Diopatra ornata*, *Pachycerianthus*, sand dabs
Erosion 1 -40	shale reef with 4 inches of sediment cover, big boulder with large anemones (*Urticina*), brittle stars, *Pachycerianthus*, subadult and juvenile *Macrocystis pyrifera*, sand dabs
Erosion 1 -30	shale reef with 3 inches of sand cover, bed of quarter-sized sand dollars in sand, *Pachycerianthus*, gumboot chiton, sand dabs
Erosion 1 -20	sand, eelgrass, juvenile sand dollars, sand dabs
Erosion 1 -10	sand, sand dollars, sand dabs
Thornton 1 Surf	sand beach with sand crabs
Thornton 1 Swash	sand
Thornton 1 Berm	sand, kelp-dominant beach wrack, moderate on foreshore
Thornton 1 Backshore	sand, limited beach wrack, limited non-native vegetation
Thornton 1 -50	shale reef covered by shallow sand, dime-sized sand dollars, sand dabs, *Diopatra ornata*
Thornton 1 -40	shale reef, large anemones (*Urticina*), juvenile *Macrocystis*, small sand dollars, *Diopatra ornata*, *Dermasterias imbricata*, *Leptasterias hexactis*, *Aplysia californica*
Thornton 1 -30	sand, sand dollars, sand dabs, *Diopatra ornata*
Thornton 1 -20	sand, sand dollars, sand dabs, *Diopatra ornata*
Thornton 1 -10	sand, hermit crabs
Erosion 3 Surf	sand beach with sand crabs
Erosion 3 Swash	sand
Erosion 3 Berm	sand, low to moderate kelp debris at tideline and behind berm sample
Erosion 3 Backshore	high dunes at backshore
Erosion 3 -50	sand with boulder outcrops, cobble, sand dabs
Erosion 3 -40	sand, tube worms
Erosion 3 -30	sand, *Diopatra ornata*
Erosion 3 -20	sand, sand dollars
Erosion 3 -10	sand, *Cancer* crab, hermit crabs, sand dabs
Thornton 2 Surf	sand
Thornton 2 Swash	sand
Thornton 2 Berm	sand, low to moderate kelp debris at tideline and behind berm sample
Thornton 2 Backshore	high dunes at backshore
Thornton 2 -50	sand with diatom layer, sand dabs
Thornton 2 -40	coarse sand, sand dabs
Thornton 2 -30	sand, sand dollars, sand dabs
Thornton 2 -20	sand with big ripples, dense sand dollar bed, sand dabs, pipefish
Thornton 2 -10	wind and waves, no dive
Erosion 6 Surf	sand
Erosion 6 Swash	sand
Erosion 6 Berm	moderate amount of kelp in bed wrack

Table 4: Biological Observations

Station	Biological Observations
Erosion 6 Backshore	disturbed backshore, limited dune vegetation, mostly non-native, cliff
Erosion 6 -50	scattered sand dollars, sand dabs
Erosion 6 -40	sand with 2-inch ripples, scattered sand dollars, sand dabs, *Diopatra ornata*
Erosion 6 -30	dense sand dollar bed, sand dabs
Erosion 6 -20	scattered sand dollars, hermit crabs, sand dabs, *Nassarius perpinguis*
Erosion 6 -10	sand, scattered sand dollars, hermit crabs, *Cancer gracilis*
Other 2 Surf	sand
Other 2 Swash	sand
Other 2 Berm	low amount of kelp debris in beach wrack
Other 2 Backshore	high dunes, native vegetation along backshore, steep dunes
Other 2 -50	sand, scattered quarter-sized sand dollars, *Cancer* crab, sand dabs
Other 2 -40	sand, sand dollar bed, *Diopatra ornata*, sand dabs
Other 2 -30	sand, sand dollar bed, *Diopatra ornata*, sand dabs. Hermit crabs
Other 2 -20	sand, sand dollars, *Cancer gracilis*, hermit crabs, sand dabs
Other 2 -10	sand, sand dabs
Erosion 8 Surf	sand
Erosion 8 Swash	sand
Erosion 8 Berm	moderate berm
Erosion 8 Backshore	high dunes, native vegetation along backshore, steep dunes
Erosion 8 -50	sand, sand dabs
Erosion 8 -40	sand, sand dollars, brittle stars, *Diopatra ornata*
Erosion 8 -30	sand, sand dollar bed, sand dabs, *Cancer gracilis, Nassarius perpinguis*
Erosion 8 -20	sand, sand dabs, *Cancer gracilis*
Erosion 8 -10	sand

Figure 1: Project Area

Figure 2: Transect Locations

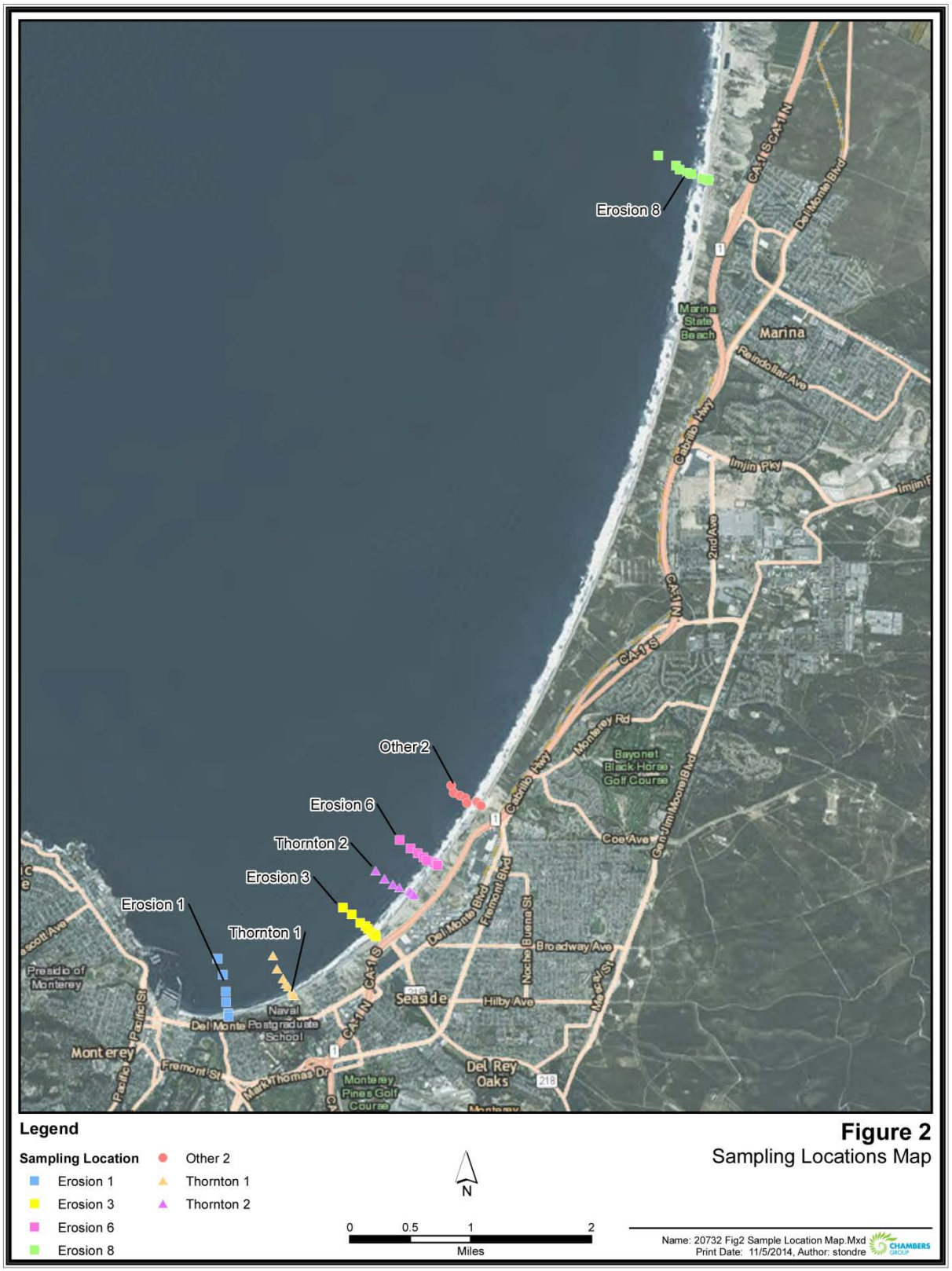


Figure 3: Diver with Coring Device

Figure 4: Collection of Backshore Samples on Other 2

Figure 5: Collection of Berm Samples at Thornton 2

Figure 6: Collection of Swash Zone Sample at Thornton 2

Figure 7: Collection of Surf Zone Sample at Other 2

Figure 8: Habitat Types Map

Figure 9: Median Grain Size

Figure 10: Variation of Sediment Median Grain Size over the Sample Area

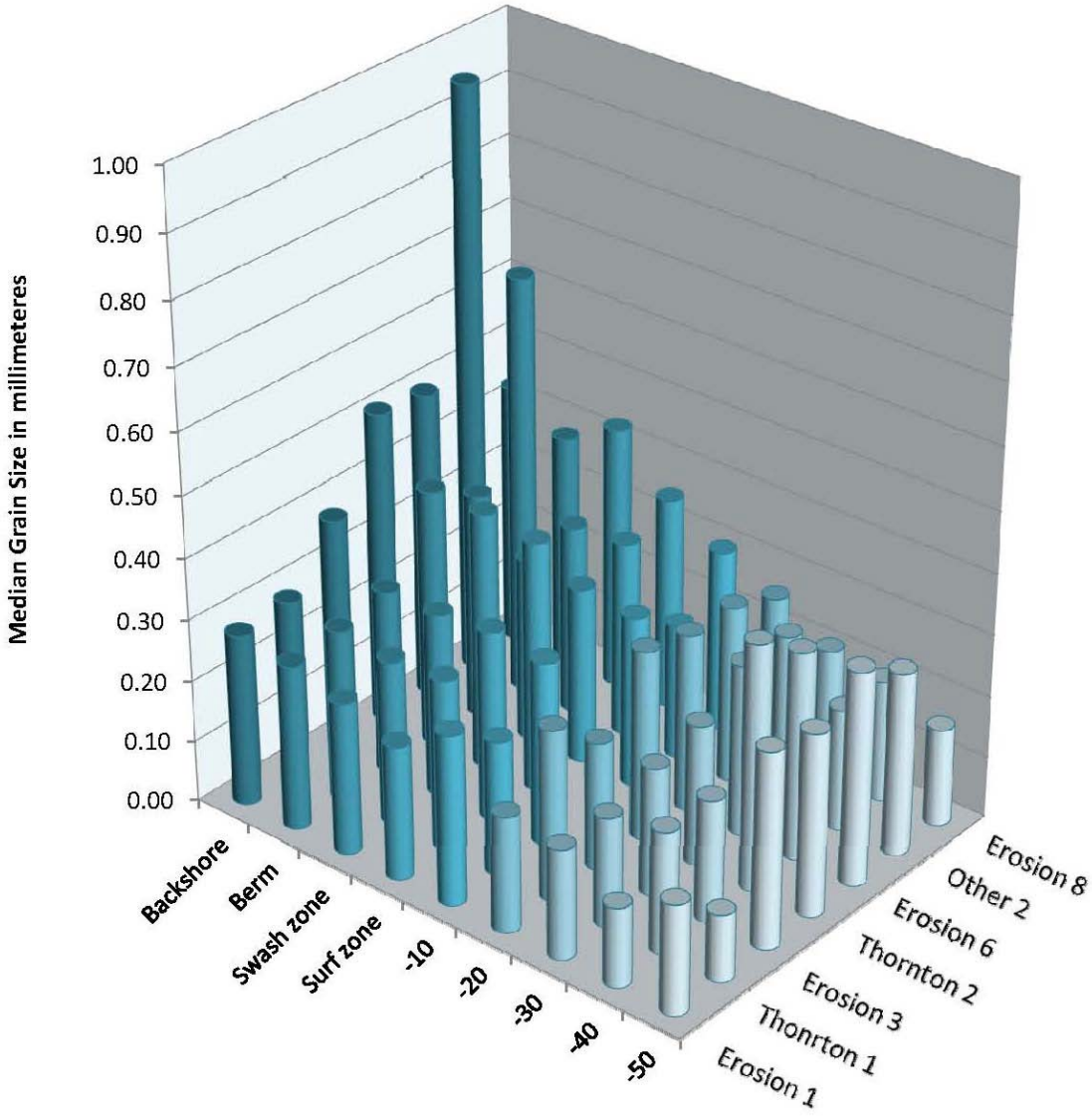
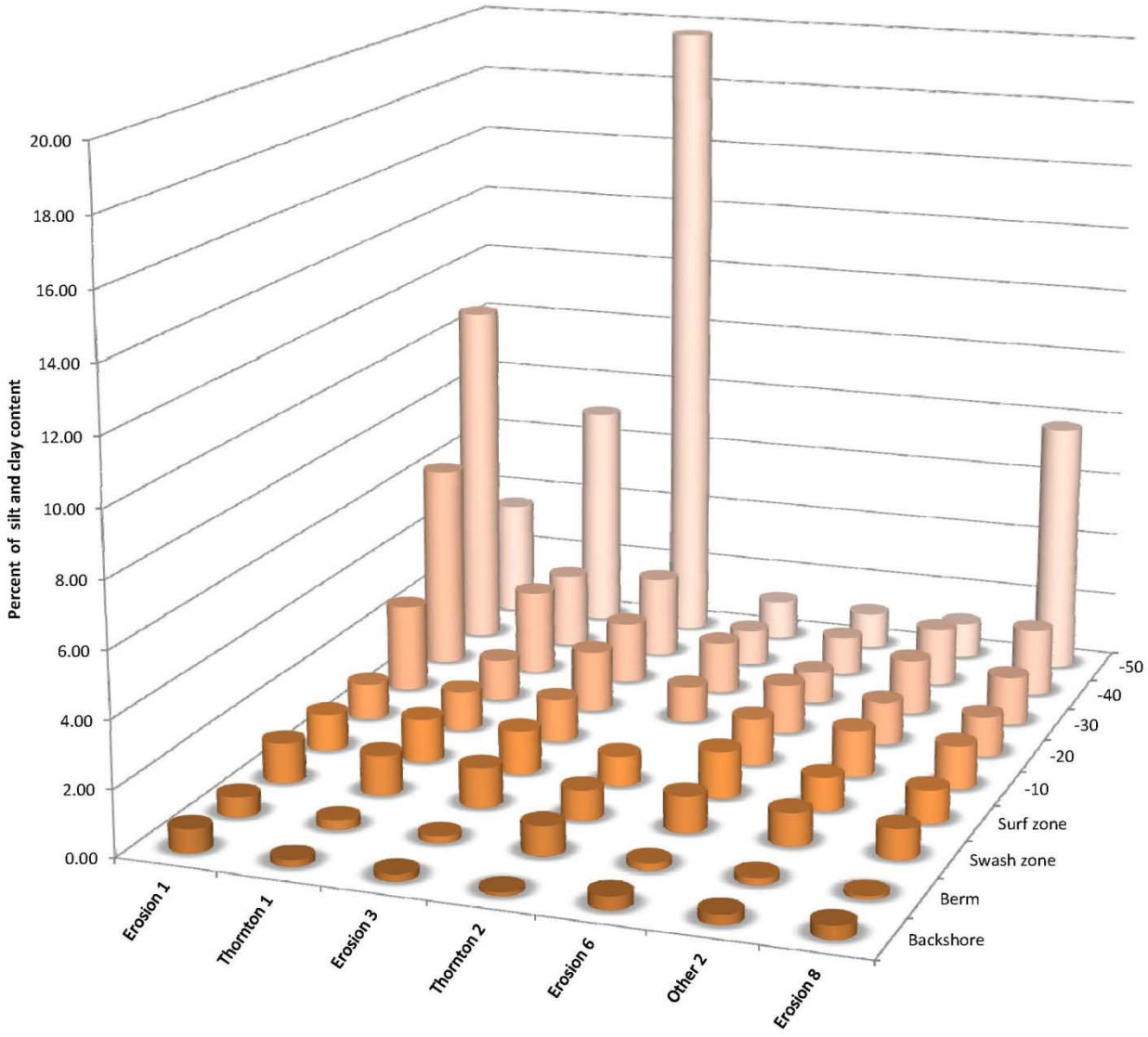


Figure 11: Variation of Silt and Clay Content over the Sample Area



APPENDIX A – PARTICLE SIZE DISTRIBUTION

Exhibit A

Exhibit A

SOUTHERN MONTEREY BAY
SEDIMENT SAMPLING

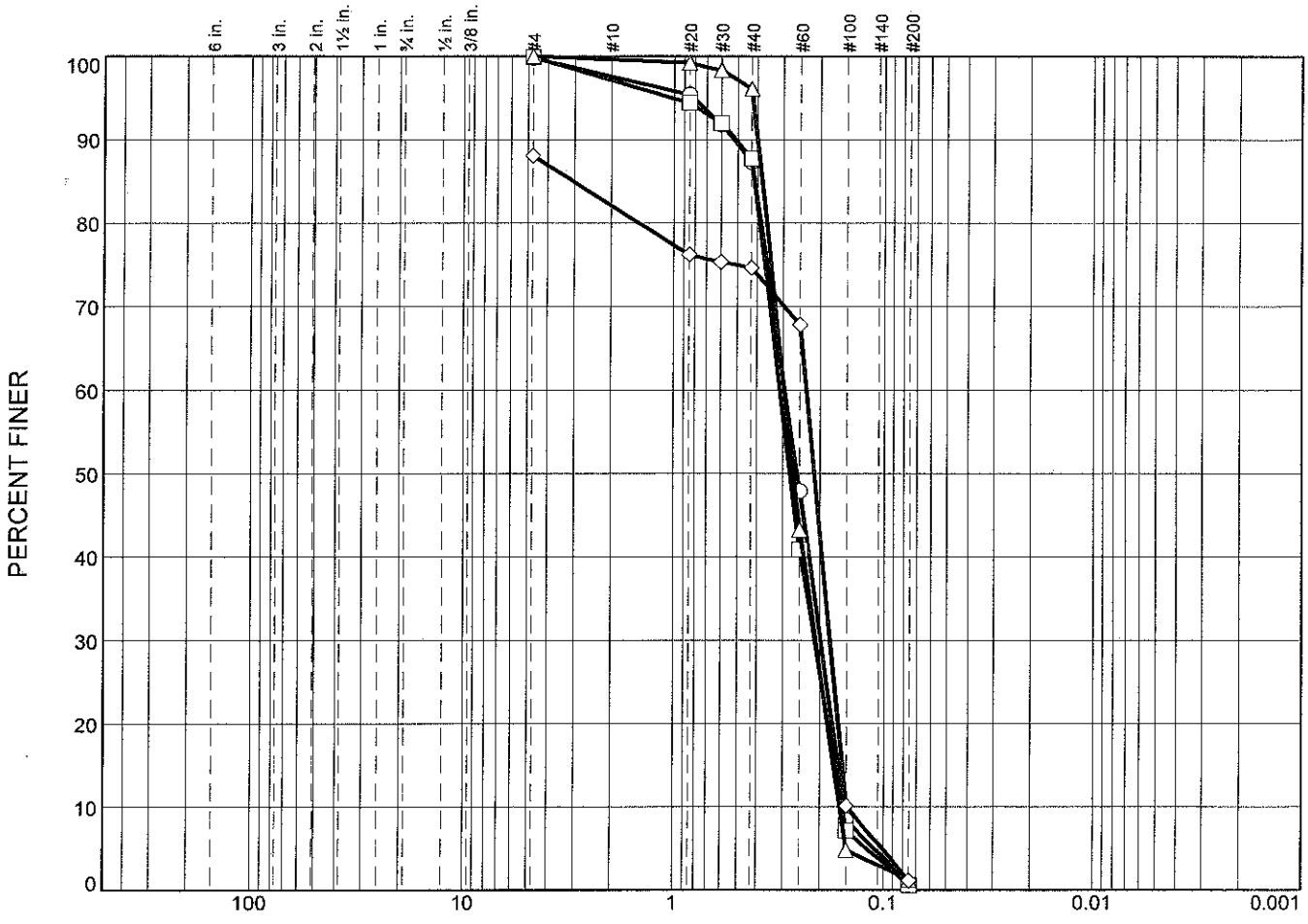
SAMPLE INFO	DESIGNATION	SIEVE SIZE % PASSING							
		#4	#10	#20	#30	#40	#60	#100	#200
ER-01	Backshore	99.8		95.4	91.8	87.3	47.9	8.4	0.7
ER-01	Berm	99.9		94.4	92.0	87.7	40.8	7.1	0.6
ER-01	Swash	100.0		99.2	98.3	96.1	43.2	4.8	1.2
ER-01	Wave	88.1		76.2	75.3	74.6	67.8	10.1	1.1
ER-01	-10'	100.0		99.7	99.4	98.1	41.2	4.6	1.1
ER-01	-20'	99.8		98.7	97.8	95.5	76.8	27.6	2.7
ER-01	-30'	99.6		98.8	98.2	97.5	94.6	28.7	6.3
ER-01	-40'	94.7		88.2	85.2	81.2	77.0	62.2	10.8
ER-01	-50'	99.9		99.0	98.4	96.7	79.2	24.3	3.6
ER-03	Backshore	100		99.1	94.2	65.6	7.7	0.5	0.2
ER-03	Berm	100		99.9	99.9	98.5	17.1	1.6	0.2
ER-03	Swash	100		99.9	99.6	95.0	28.0	3.4	1.2
ER-03	Wave	99.9		98.1	93.9	74.3	28.6	4.8	1.3
ER-03	-10'	99.9		94.9	90.1	80.3	34.5	5.5	1.3
ER-03	-20'	100		99.7	99.2	97.8	65.0	10.0	1.9
ER-03	-30'	99.9		99.1	98.1	95.5	67.4	12.3	1.9
ER-03	-40'	99.9		99.4	95.9	86.6	73.5	17.4	2.5
ER-03	-50'	88.4		77.2	71.4	61.1	38.9	25.2	19.7
ER-06	Backshore	99.9	99.5	81.6	64.7	31.6	2.8	0.5	0.4
ER-06	Berm	100		98.4	93.2	70.5	9.0	0.5	0.2
ER-06	Swash	100		95.9	90.1	80.9	26.2	2.9	1.1
ER-06	Wave	100		92.7	88.7	81.2	63.1	4.6	1.4
ER-06	-10'	100		99.3	98.1	87.3	39.0	5.1	1.4
ER-06	-20'	100		99.7	99.3	97.4	36.4	4.7	1.5
ER-06	-30'	100		96.3	91.5	79.6	38.2	6.7	1.0
ER-06	-40'	99.9		99.0	91.8	68.3	27.5	5.4	1.2
ER-06	-50'	100		98.1	91.8	72.8	27.5	5.8	1.1
ER-08	Backshore	98.8		91.3	79.8	49.3	7.5	0.9	0.4
ER-08	Berm	100		97.9	90.7	60.8	10.8	1.4	0.1
ER-08	Swash	99.9		94.0	78.7	49.4	13.3	1.6	0.9
ER-08	Wave	99.8		94.6	86.8	67.8	20.7	2.5	1.0
ER-08	-10'	100		99.4	97.6	88.2	31.4	4.1	1.3
ER-08	-20'	99.9		98.7	97.2	92.7	50.4	9.2	1.2
ER-08	-30'	99.9		99.3	98.1	94.7	74.9	11.9	1.5
ER-08	-40'	99.9		99.6	99.0	96.3	77.9	22.0	2.1
ER-08	-50'	100		99.96	99.9	99.5	94.2	54.8	7.8

Exhibit A

SOUTHERN MONTEREY BAY
SEDIMENT SAMPLING

SAMPLE INFO	DESIGNATION	SIEVE SIZE % PASSING							
		#4	#10	#20	#30	#40	#60	#100	#200
TH-01	Backshore	100		99.9	99.9	99.3	23	2.2	0.2
TH-01	Berm	100		99.9	99.9	98.6	33.2	2.5	0.3
TH-01	Swash	100		99.9	99.0	94.2	44.9	7.2	1.2
TH-01	Wave	99.7	98.3	90.2	84.0	71.4	38.2	3.5	1.3
TH-01	-10'	100		99.5	98.2	96.8	61.1	8.5	1.2
TH-01	-20'	100		99.8	99.4	96.7	41.4	4.6	1.3
TH-01	-30'	99.9		99.3	99.0	98.3	90.9	30.2	2.6
TH-01	-40'	99.9		96.7	93.5	90.1	78.3	20.9	2.3
TH-01	-50'	99.9		98.3	96.0	92.8	85.0	76.7	7.0
TH-02	Backshore	99.5	99.2	83.1	64.8	31	2.8	0.3	0.1
TH-02	Berm	100	99.9	97.5	88.5	49.3	4.6	1.0	0.9
TH-02	Swash	99.9	98.5	72.0	61.4	50.4	21.1	2.8	0.9
TH-02	Wave	100	98.9	85.6	74.2	61.2	29.8	21.8	1.1
TH-02	-10'								
TH-02	-20'	99	97.0	78.1	71.6	66.5	39.8	6.3	1.1
TH-02	-30'	100		97.7	92.0	81.7	55.2	10.5	1.6
TH-02	-40'	99.9		95.2	84.4	58.1	12.6	3.7	1.1
TH-02	-50'	100		98.7	95.5	84.4	23.2	5.2	1.2
OTH-02	Backshore	99.9	93.3	44.0	23.9	10.5	1.5	0.4	0.3
OTH-02	Berm	99.9	99.1	63.7	42.1	21.3	1.5	0.3	0.2
OTH-02	Swash	99.9	99.7	97.0	89.2	72.9	29.5	3.2	1.0
OTH-02	Wave	99.9	96.7	78.1	72.1	64.0	31.3	3.8	1.0
OTH-02	-10'	99.8		98.4	97.2	94.2	61.8	6.7	1.4
OTH-02	-20'	100		98.6	96.4	91.7	40.6	6.3	1.3
OTH-02	-30'	99.7		97.7	97.2	96.4	80.8	13.5	1.7
OTH-02	-40'	99.9		99.0	98.4	97.8	80.1	15.5	1.8
OTH-02	-50'	100		99.0	93.9	84.4	36.5	6.3	1.1

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				2.2	10.3	86.6	0.7	
□				2.8	9.4	87.1	0.6	
△	0.0	0.0	0.0	0.4	3.5	94.9	1.2	
◇				6.0	7.5	73.5	1.1	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-01	Backshore		SP
□		ER-01	Berm		SP
△		ER-01	Swash		SP
◇		ER-01	Wave		SP

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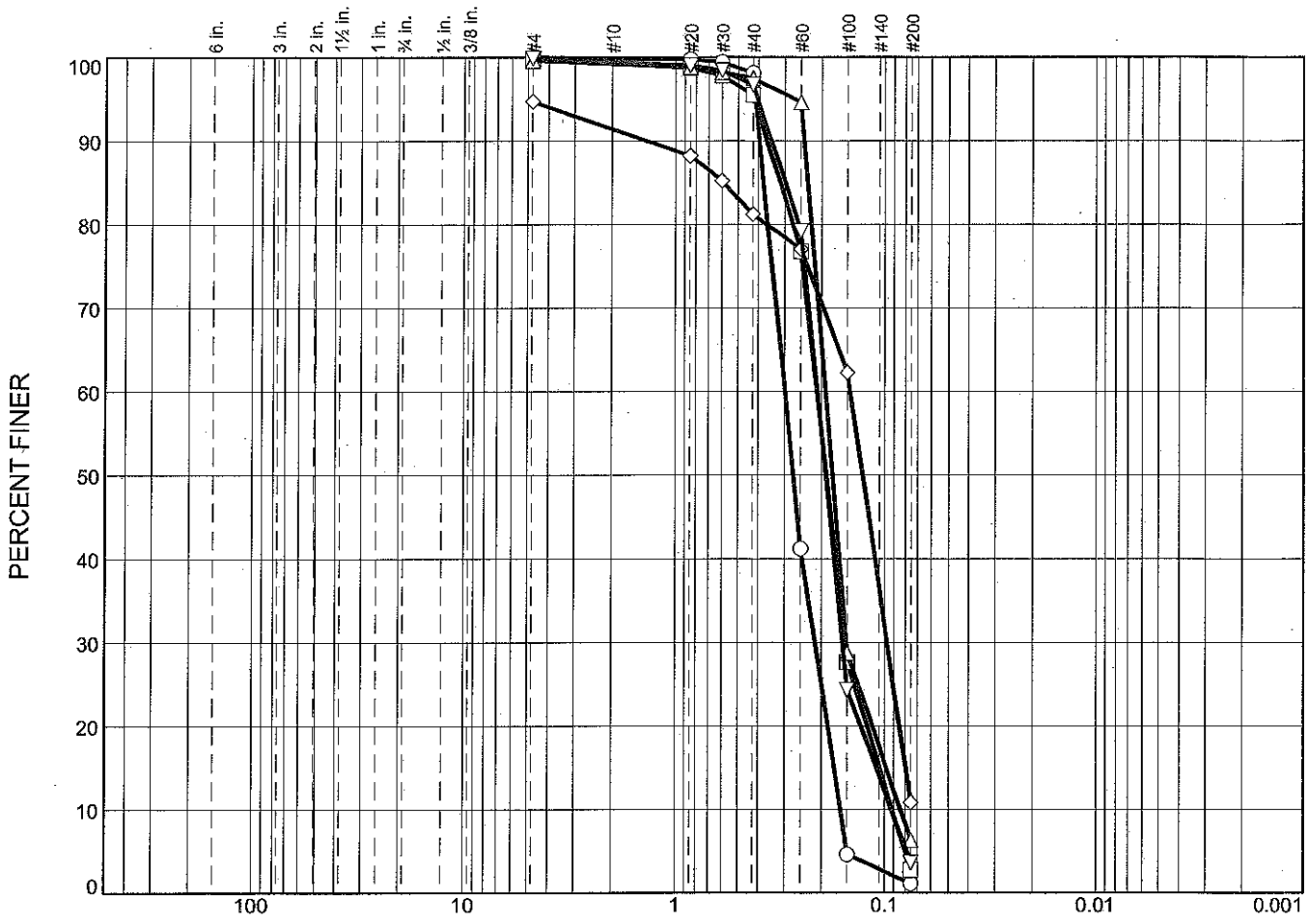
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-1

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	1.7	97.0	1.1	
□				0.6	3.7	92.8	2.7	
△				0.4	1.7	91.2	6.3	
◇				3.3	10.2	70.4	10.8	
▽				0.5	2.7	93.1	3.6	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-01	-10'		SP
□		ER-01	-20'		SP
△		ER-01	-30'		
◇		ER-01	-40'		
▽		ER-01	-50'		SP

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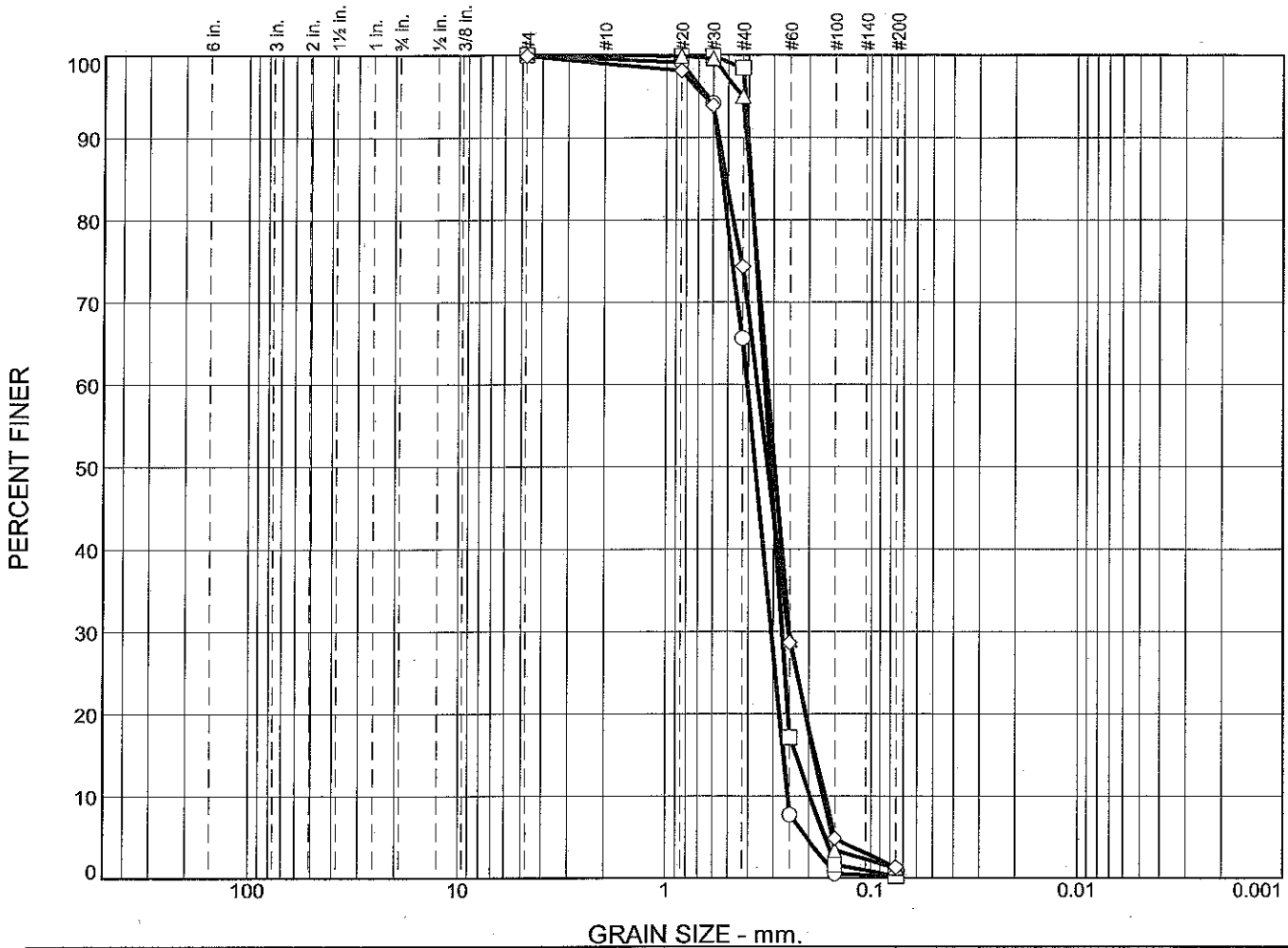
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-2

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.5	33.9	65.4	0.2	
□	0.0	0.0	0.0	0.1	1.4	98.3	0.2	
△	0.0	0.0	0.0	0.1	4.9	93.8	1.2	
◇				0.9	24.7	73.0	1.3	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-03	Backshore		SP
□		ER-03	Berm		SP
△		ER-03	Swash		SP
◇		ER-03	Wave		SP

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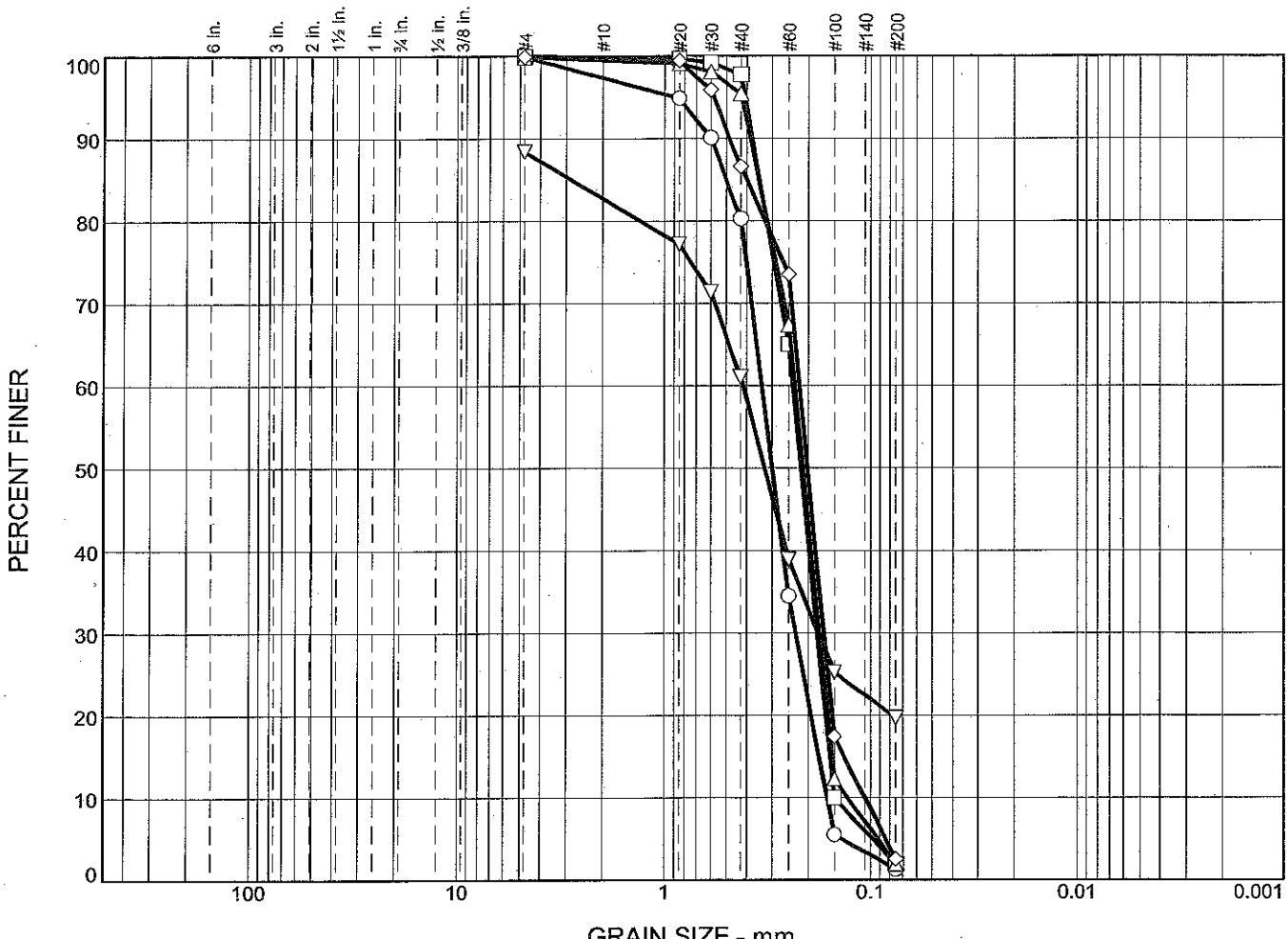
Project No.: 3011-0-0-100

Figure A-3

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				2.5	17.1	79.0	1.3	
□	0.0	0.0	0.0	0.2	2.0	95.9	1.9	
△				0.4	4.0	93.6	1.9	
◇				0.3	13.0	84.1	2.5	
▽				5.6	21.7	41.4	19.7	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-03	-10'		SP
□		ER-03	-20'		SP
△		ER-03	-30'		SP
◇		ER-03	-40'		SP
▽		ER-03	-50'		

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Project No.: 3011-0-0-100

Figure A-4

Exhibit A

Particle Size Distribution Report

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				0.4	67.9	31.2	0.4	
□	0.0	0.0	0.0	0.8	29.2	69.8	0.2	
△	0.0	0.0	0.0	2.1	17.0	79.8	1.1	
◇	0.0	0.0	0.0	3.7	15.1	79.8	1.4	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-06	Backshore		SP
□		ER-06	Berm		SP
△		ER-06	Swash		SP
◇		ER-06	Wave		SP

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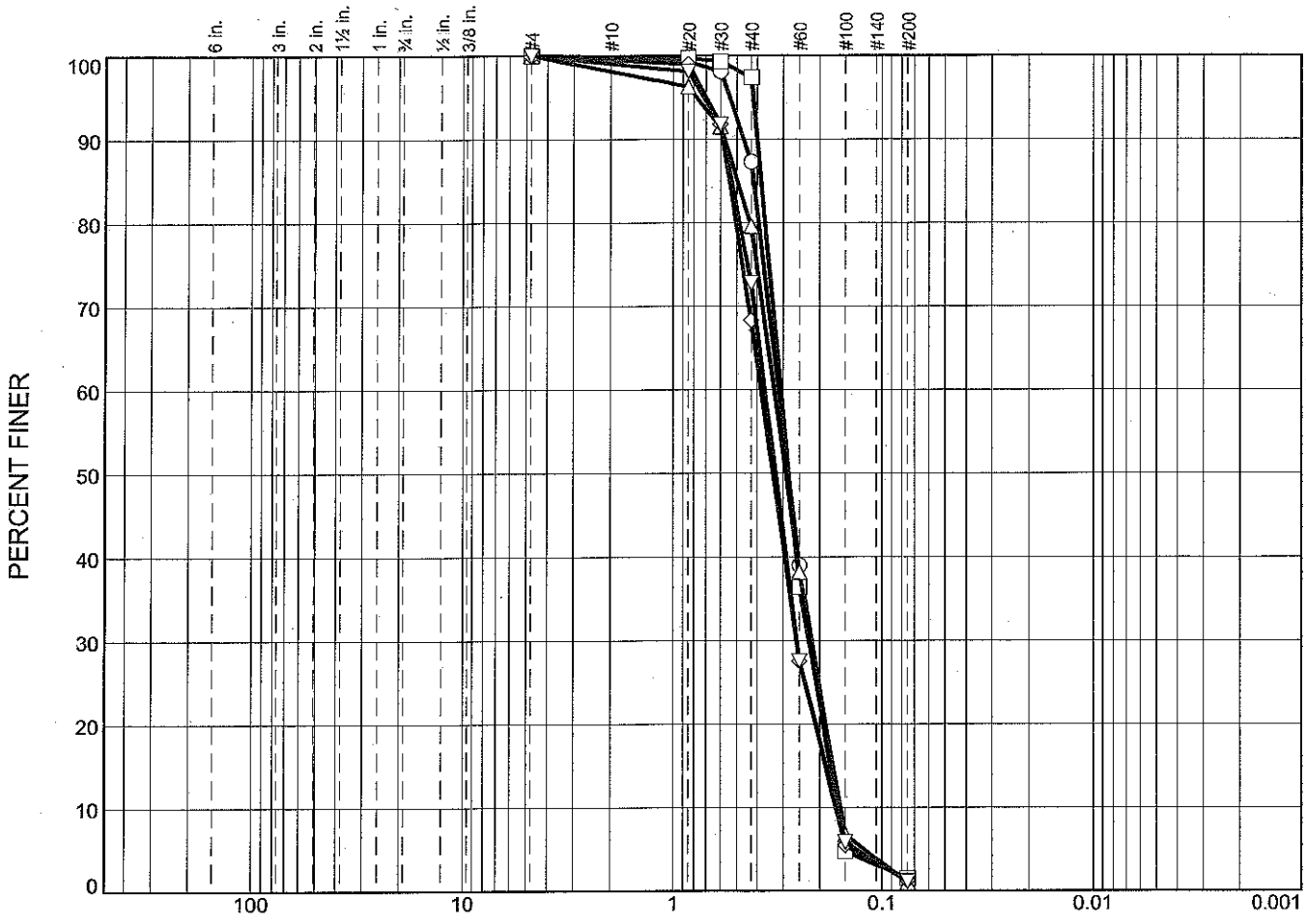
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-5

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.4	12.3	85.9	1.4	
□	0.0	0.0	0.0	0.2	2.4	95.9	1.5	
△	0.0	0.0	0.0	1.9	18.5	78.6	1.0	
◇				0.5	31.1	67.1	1.2	
▽	0.0	0.0	0.0	1.0	26.2	71.7	1.1	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-06	-10'		SP
□		ER-06	-20'		SP
△		ER-06	-30'		SP
◇		ER-06	-40'		SP
▽		ER-06	-50'		SP

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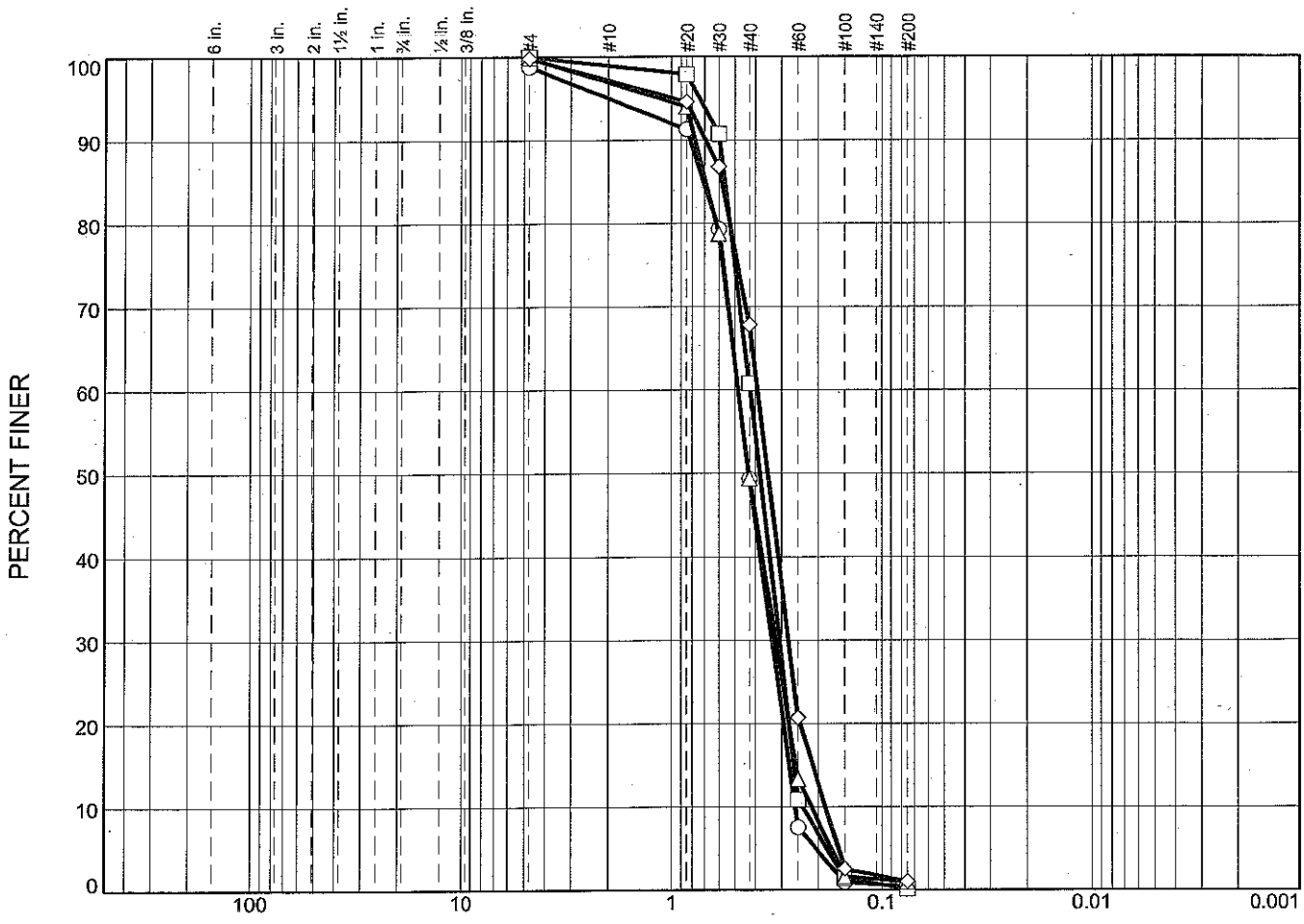
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-6

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				3.8	45.7	48.9	0.4	
□	0.0	0.0	0.0	1.1	38.1	60.7	0.1	
△				3.0	47.5	48.5	0.9	
◇				2.6	29.4	66.8	1.0	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-08	Backshore		SP
□		ER-08	Berm		SP
△		ER-08	Swash		SP
◇		ER-08	Wave		SP

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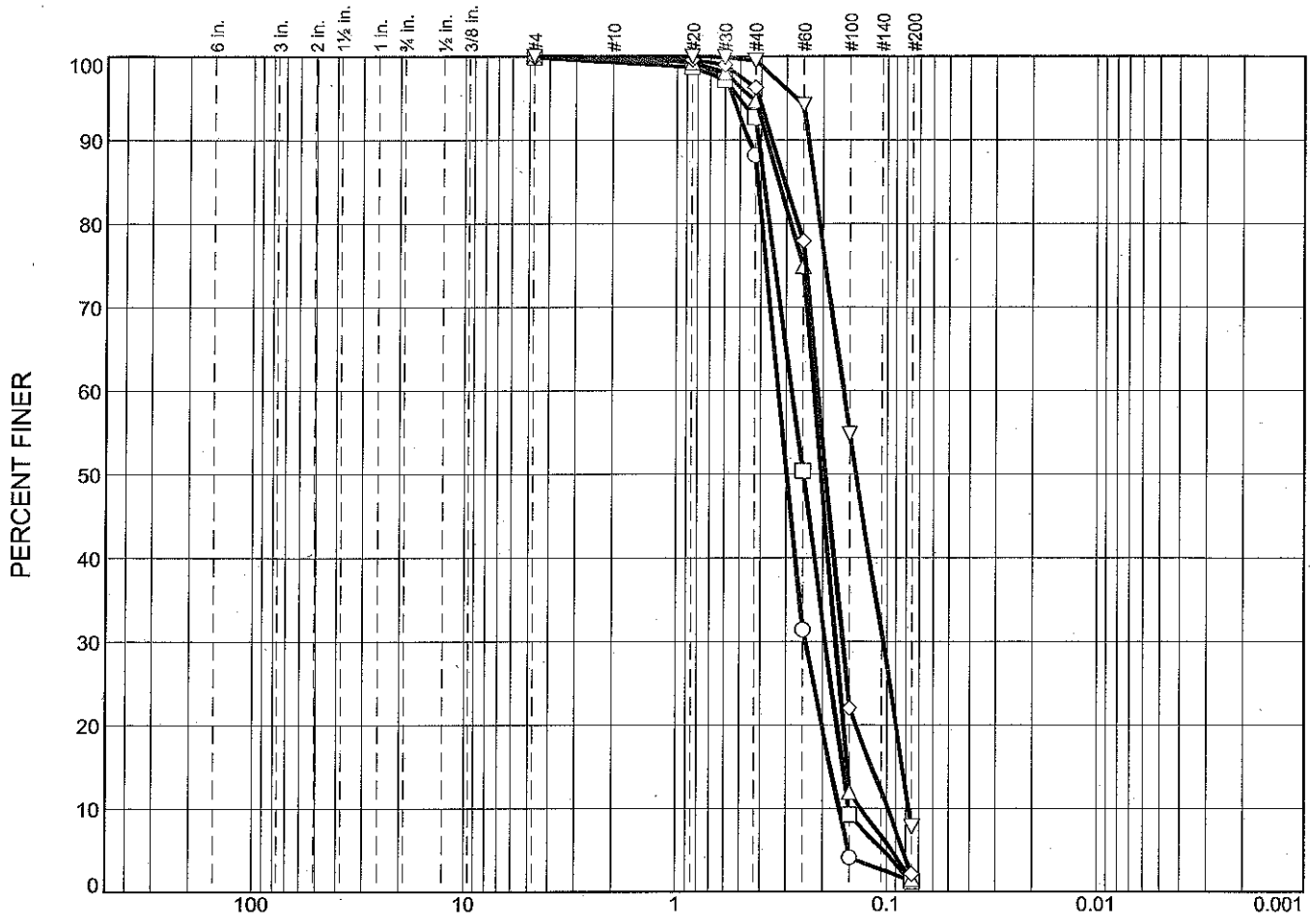
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-7

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	11.5	86.9	1.3	
□				0.6	6.6	91.5	1.2	
△				0.3	4.9	93.2	1.5	
◇				0.2	3.4	94.2	2.1	
▽	0.0	0.0	0.0	0.0	0.5	91.7	7.8	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		ER-08	-10'		SP
□		ER-08	-20'		SP
△		ER-08	-30'		SP
◇		ER-08	-40'		SP
▽		ER-08	-50'		

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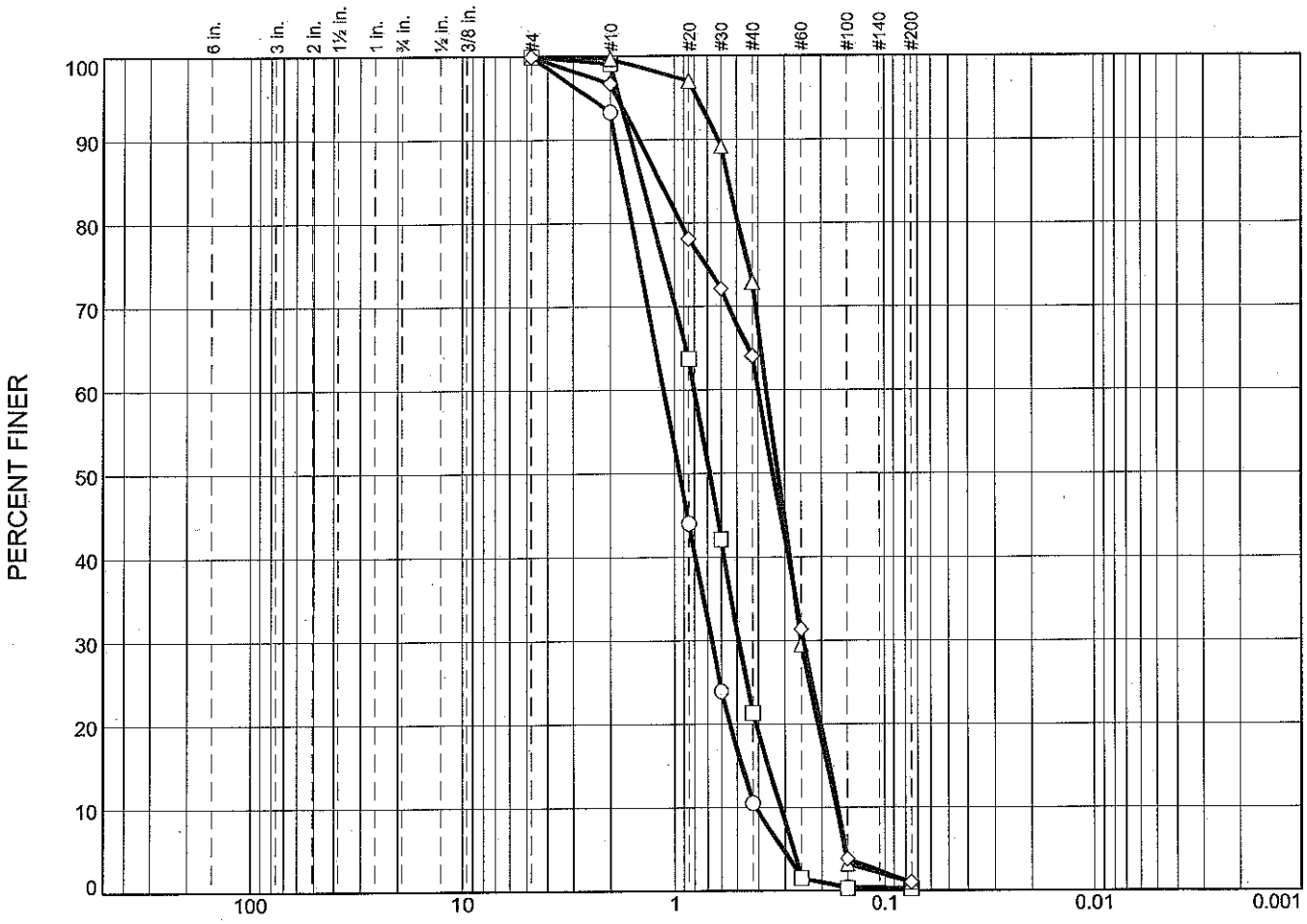
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-8

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				6.6	82.8	10.2	0.3	
□				0.8	77.8	21.1	0.2	
△				0.2	26.8	71.9	1.0	
◇				3.2	32.7	63.0	1.0	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		OTH-02	Backshore		SP
□		OTH-02	Berm		SP
△		OTH-02	Swash		SP
◇		OTH-02	Wave		SP

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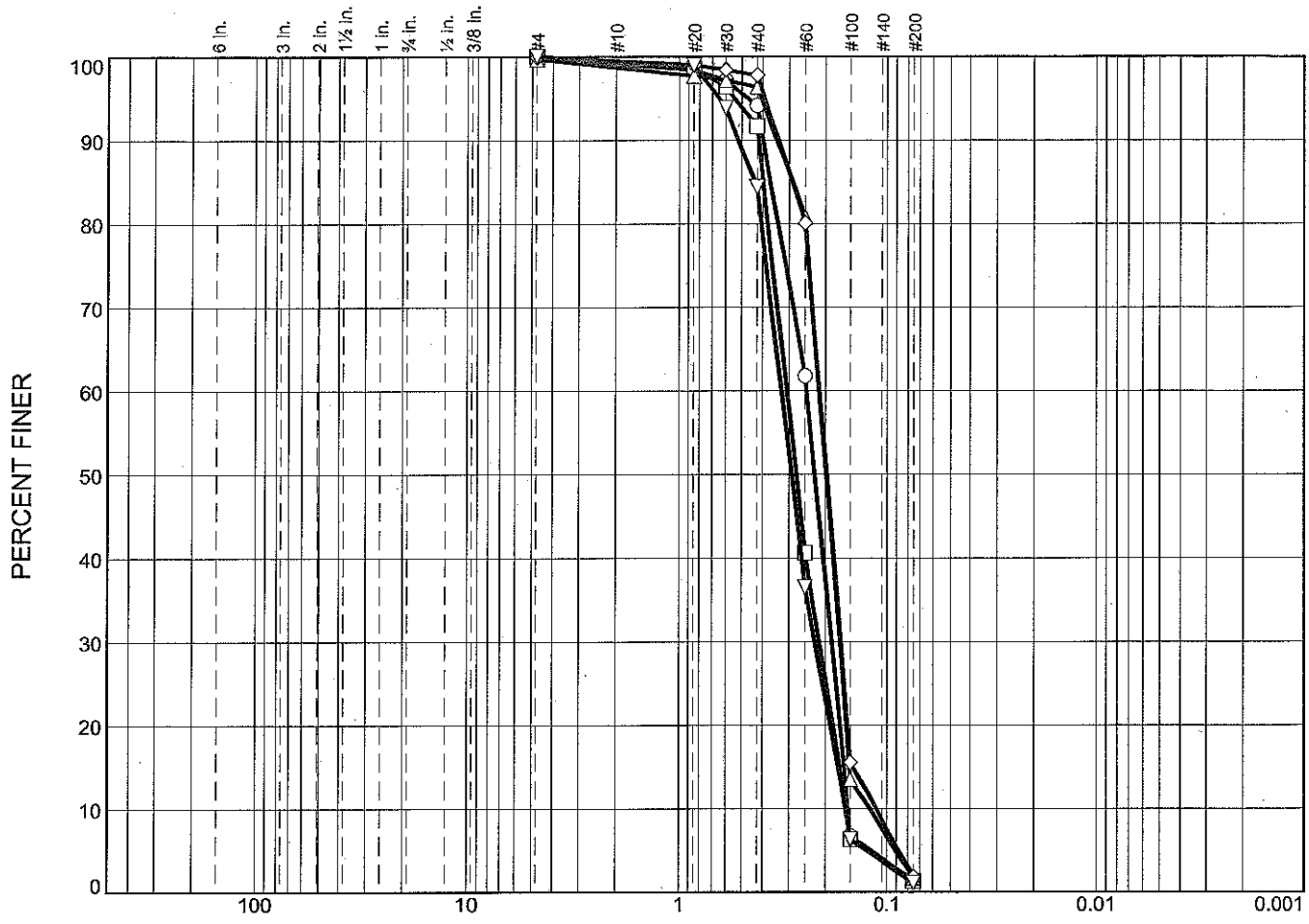
Project No.: 3011-0-0-100

Figure A-9

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				0.7	4.9	92.8	1.4	
□	0.0	0.0	0.0	0.7	7.6	90.4	1.3	
△				1.0	2.3	94.7	1.7	
◇				0.5	1.6	96.0	1.8	
▽	0.0	0.0	0.0	0.5	15.1	83.3	1.1	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		OTH-02	-10'		SP
□		OTH-02	-20'		SP
△		OTH-02	-30'		SP
◇		OTH-02	-40'		SP
▽		OTH-02	-50'		SP

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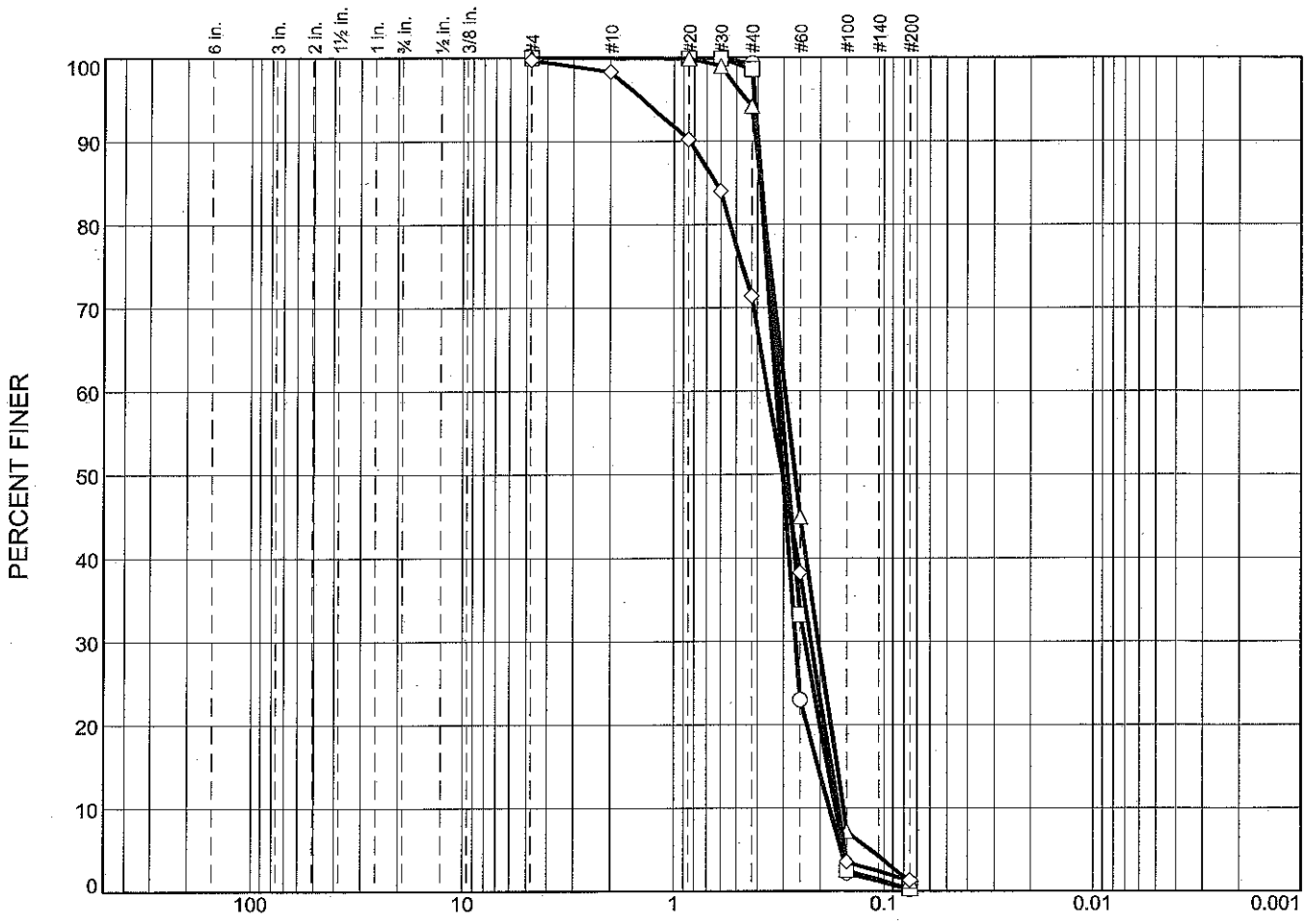
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-10

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.6	99.1	0.2	
□	0.0	0.0	0.0	0.1	1.3	98.3	0.3	
△	0.0	0.0	0.0	0.1	5.7	93.0	1.2	
◇				1.4	26.9	70.1	1.3	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		TH-01	Backshore		SP
□		TH-01	Berm		SP
△		TH-01	Swash		SP
◇		TH-01	Wave		SP

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Client: Noble Consultants

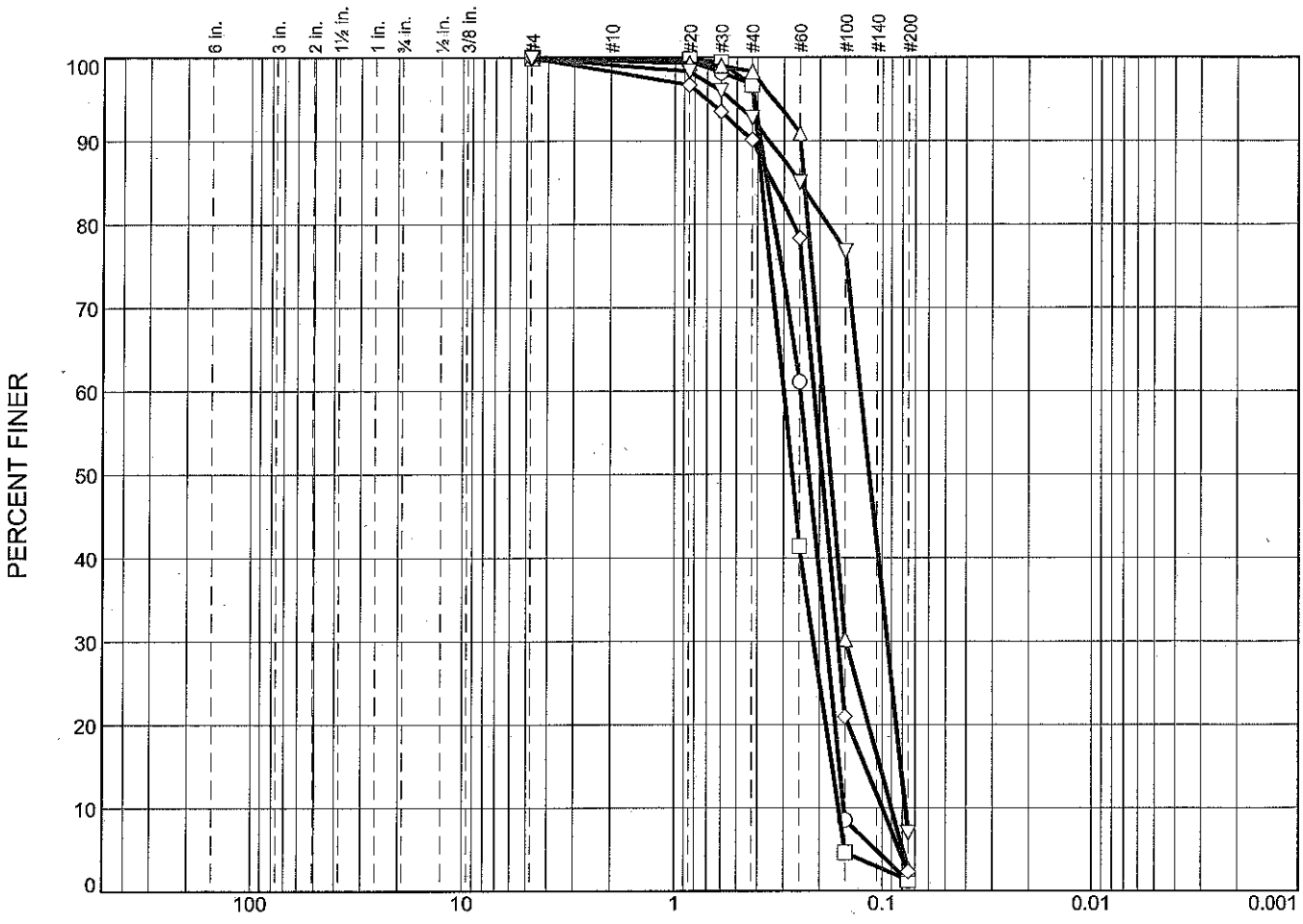
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-11

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	2.9	95.6	1.2	
□	0.0	0.0	0.0	0.1	3.2	95.4	1.3	
△				0.3	1.3	95.7	2.6	
◇				1.6	8.2	87.8	2.3	
▽				0.8	6.3	85.8	7.0	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		TH-01	-10'		SP
□		TH-01	-20'		SP
△		TH-01	-30'		SP
◇		TH-01	-40'		SP
▽		TH-01	-50'		

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Client: Noble Consultants

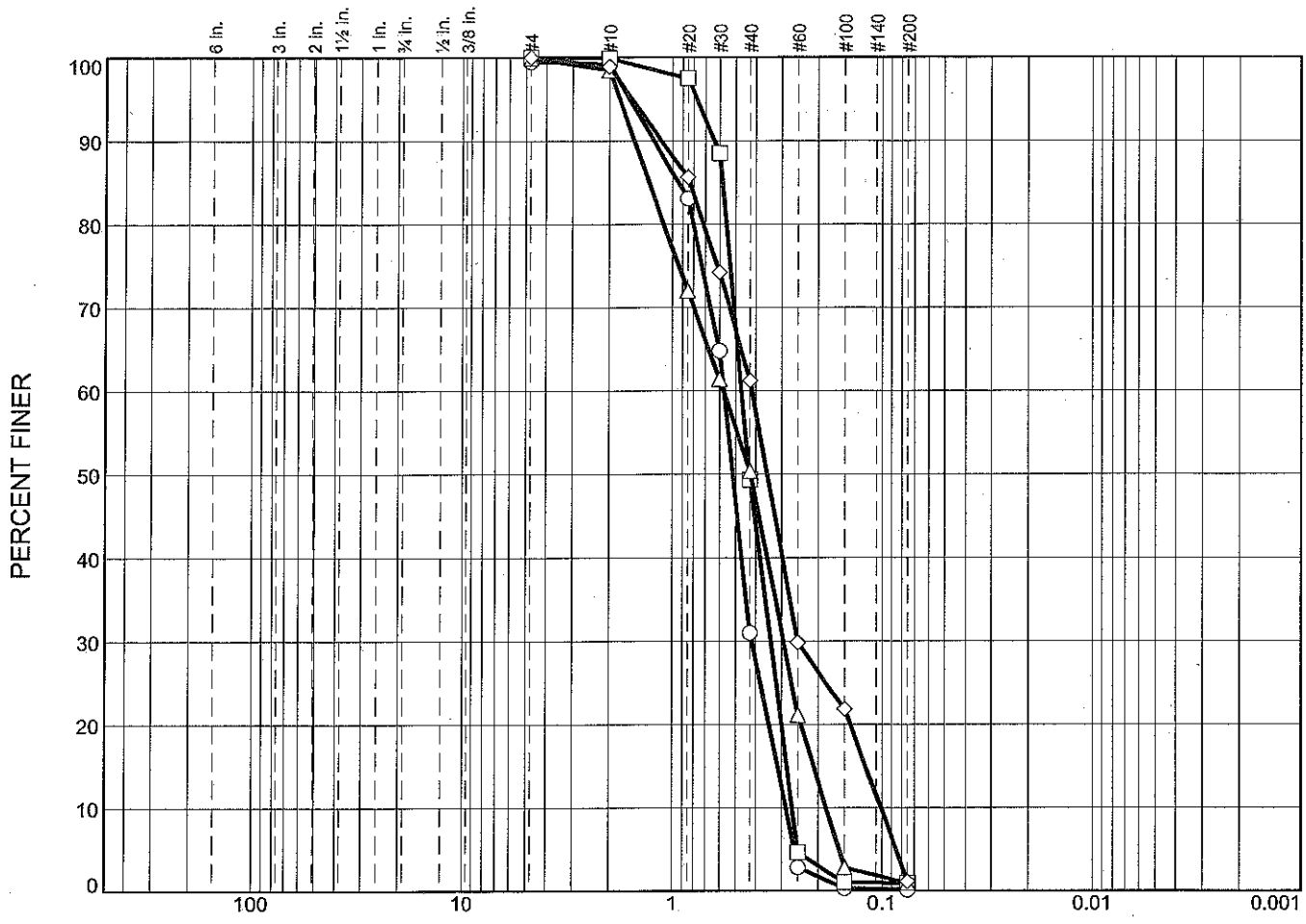
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-12

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				0.3	68.2	30.9	0.1	
□	0.0	0.0	0.0	0.1	50.6	48.4	0.9	
△				1.4	48.1	49.5	0.9	
◇	0.0	0.0	0.0	1.1	37.7	60.1	1.1	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		TH-02	Backshore		SP
□		TH-02	Berm		SP
△		TH-02	Swash		SP
◇		TH-02	Wave		SP

Gorian & Associates

Thousand Oaks, CA

Client: Noble Consultants

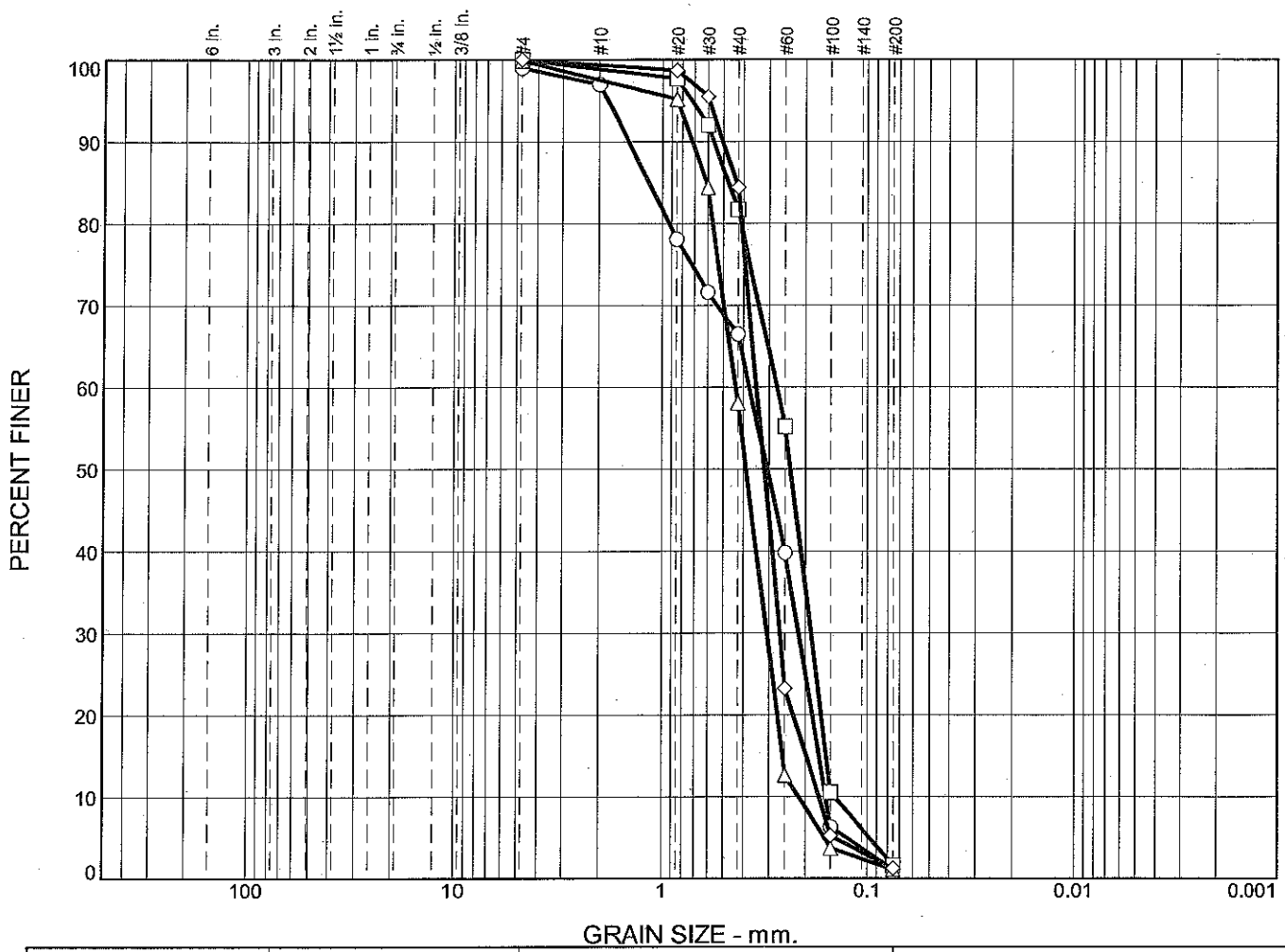
Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-13

Exhibit A

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				2.0	30.5	65.4	1.1	
□	0.0	0.0	0.0	1.2	17.1	80.1	1.6	
△				2.4	39.4	57.0	1.1	
◇	0.0	0.0	0.0	0.7	14.9	83.2	1.2	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		TH-02	-20'		SP
□		TH-02	-30'		SP
△		TH-02	-40'		SP
◇		TH-02	-50'		SP

Gorian & Associates

Thousand Oaks, CA

Client: Noble Consultants

Project: Southern Monterey Bay Sediment Sampling

Project No.: 3011-0-0-100

Figure A-14

Appendix B

Construction Estimates Memorandum

ESA

550 Kearny Street
Suite 800
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memorandum

date	May 15, 2018 (with corrections/clarifications added October 31, 2018)
to	Priya Finnemore, Erick Cooke
cc	Bob Battalio
from	James Jackson, Jean Toilliez (corrections/clarifications by Priya Finnemore + James Jackson)
subject	Equipment and Hours for Sand Hauling and Spreading – Monterey Bay Opportunistic Beach Nourishment Program

This memo summarizes the equipment use associated with sand placement activities as estimated for the Monterey Bay OBNP engineering cost estimate presented in the Sediment Report. The two characteristic sand sources include:

- Laguna Grande Sediment Traps (estimated 425 CY per year)
- EcoResort (estimated 400,000 CY available)

*The EcoResort source was used for the calculation of estimated hauling distances in Tables 2-3 below.

The maximum yearly nourishment rates were estimated based on existing available space at each receiver site, and assume that only 50% of each receiver site would be nourished at a given time to limit ecological impacts. The available space is based on average beach widths at each receiver site, determined from 2010 Lidar as the distance from the beach berm to the backshore toe. Sand placements are assumed to occur in two elements (Figure 1): a three-foot lift over the available beach width (beach berm to backshore toe) and a back-beach berm extending 3:1 (h:v) up to backshore, leaving 30 feet open beach with just the 3-ft lift.

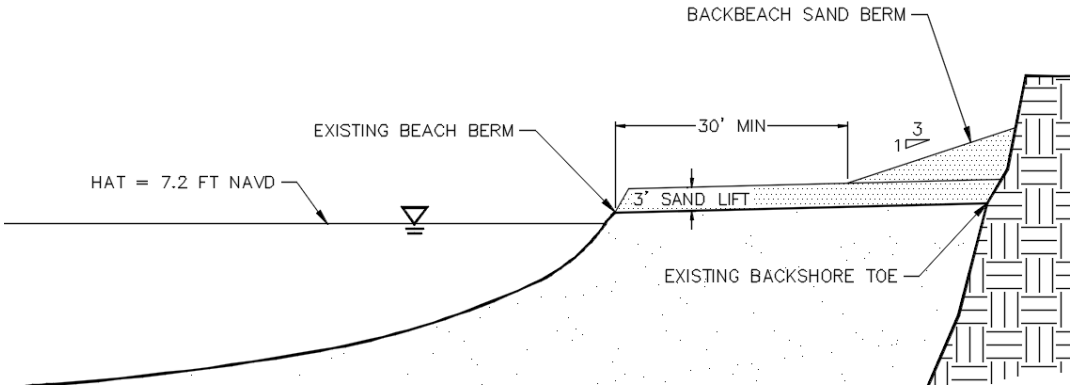

Figure 1. Sand placement schematic showing three-foot lift and back beach berm located to provide minimum 30 feet seaward to existing beach berm.

Available beach widths and corresponding volumes for maximum sand placements are presented in Table 1 below. The CEMEX receiver site is different from others in that there is a large area for sand placement, whereas placement in the other receiver sites is constrained to the dry beach (or at adjacent stockpile areas). A nominal volume of 200,000 CY was chosen for CEMEX due to the greater available space for stockpiling/placement.

Table 1. Available volume for sand placement in each receiver site.

Receiver Site	Reach Length (ft)	Beach Width (ft)	Max available volume (CY)	Max placement volume with 50% placement (CY)
Marina	3,300	75	70,000	35,000
Sand City	3,300	75	70,000	35,000
North Monterey	2,500	52	22,000	11,000
Del Monte	6,000	42	34,000	17,000
CEMEX	TBD	TBD	200,000	100,000

Yearly Maximum Sand Placement Activities

The following tables (Tables 2-3) provide the maximum potential equipment hours and associated hauling miles to excavate, haul and spread opportunistic sand from EcoResort at each receiver site and present a comparison with the hours and miles estimated to excavate, haul, and spread the same sand at the Monterey Regional Waste Management District's Marina Sanitary Landfill (Landfill) located at 14201 Del Monte Boulevard, in the City of Marina, California (note: this comparison is provided to illustrate how the Program offers a reduction in equipment hours and miles travelled when using the Program's receiver sites, as opposed to hauling the same sand to the landfill).

The quantities in Tables 2-3 were developed based upon the 'Construction Cost Estimate Parameters' identified further below.

For the purposes of evaluating potential Program environmental impacts, the following assumptions should be made:

- Yearly maximum sand placement activities (at the assumed 50% placement) would occur once per year at each of the 5 receiver sites
- The Program would be authorized under long-term (or 'programmatic') permits and approvals, lasting 5 to 10 years each, and eligible for multiple renewals assuming the Program is deemed effective and environmentally beneficial overall. As such, the Program effects can be treated as 'operational' effects rather than Project-specific effects (that would normally be limited to one distinct and complete project).

The equipment assumed for each activity is as follows:

Excavation – 1.5 CY crawler mounted (Cat 320)
Hauling – 12 CY tri-axle Peterbilt 328
Spreading – 300 HP Dozer (Cat D8T) and 1-1/2 CY Front loader (Cat 930M)

While the Program assumes that the sand will be excavated regardless of acceptance in the Program, excavation activity is provided for reference. **However, the excavation activity shown herein should NOT be used for calculations of Program impacts (including noise or air quality impacts), as the excavation is assumed to be analyzed separately as a part of whichever Project will result in the generation of the source sand.**

Estimates in Tables 2 and 3 below are provided for 2 scenarios: full site nourishments which would place the 'maximum available volume' (less likely), as well as the recommended nourishment actions which would result in the '50% volume placement.'

Table 2. Maximum yearly equipment hours for excavation, hauling and spreading of opportunistic sand from EcoResort under 2 scenarios.

	Maximum available volume				*50% volume placement*		
hrs per year	**Excavation**	**Hauling**	**Spreading**		**Excavation**	**Hauling**	**Spreading**
Del Monte	770	3,360	910		385	1,680	455
North Monterey	770	3,360	910		385	1,680	455
Sand City	242	978	286		121	489	143
Marina	374	2,074	442		187	1,037	221
CEMEX	2,200	14,800	2,600		1,100	7,400	1,300
Total	**4,356**	**24,572**	**5,148**		**2,178**	**12,286**	**2,574**
Compare to Landfill	4,356	29,304	5,148		2,178	14,652	2,574

Table 3. Truck miles per year to haul sand from EcoResort sources to receiver sites under 2 scenarios.

mi per year	**Max available volume**	**50% volume placement**
Del Monte	42,000	21,000
North Monterey	42,000	21,000
Sand City	6,600	3,300
Marina	44,200	22,100
CEMEX	420,000	210,000
Total	554,800	277,400
Compare to Landfill	831,600	415,800

Construction Cost Estimate Parameters

The following tables provide parameters used to estimate the cost of excavating, hauling and spreading of sand from the two characteristic sand sources to the five receiver sites and the Marina Landfill. The information in the below tables was used to inform Tables 2-3 above.

Table 4. Round-trip distances (miles) between source sites and receiver/disposal sites.

Receiver/Disposal	Ecoresort	Laguna Grande
Del Monte	6	6
North Monterey	6	5
Sand City	3	5
Marina	13	18
CEMEX	21	26
Landfill	21	26

Table 5. Production rates for hauling per cycle (assuming 12CY tri-axle Peterbilt 328)

Cycle (avg. speed)	Daily output [CY/Day]	Per hour [CY/Hr]	Hr per 10 CY	Min per 10 CY
4 miles (20 MPH)	180.00	22.50	0.44	26.67
6 miles (25 MPH)	168.00	21.00	0.48	28.57
10 miles (25 MPH)	132.00	16.50	0.61	36.36
20 miles (35 MPH)	108.00	13.50	0.74	44.44
30 miles (35 MPH)	72.00	9.00	1.11	66.67

Table 5 assumes 20 minute waiting for all cycles; for less than 6 miles, use 20 MPH; for 6 to 10 miles, use 25 MPH; for more than 10 miles, use 30 MPH.

Table 6. Production rates for excavation (note: not considered in cost estimate or environmental analyses, but provided for reference; Program assumes sands would be excavated under separate projects, regardless of Program activities).

Production rates for excavation	Daily output [CY/Day]	Per hour [CY/Hr]	Hr per 10 CY	Min per 10 CY
Excavation (1.5 CY, crawler mounted) (Cat 320)	1,000.00	125.00	0.08	4.80
Loading, 15% loss of productivity	750.00	93.75	0.11	6.40

Table 7. Spreading rates.

Spreading	Daily output [CY/Day]	Per hour [CY/Hr]	Hr per 10 CY	Min per 10 CY
Dozer 300 HP, 300' lifts (Cat D8T)	600	75.00	0.13	8.00
Front loader, 1-1/2 CY (Cat 930M)	970	121.25	0.08	4.95

Table 8. Equipment-hours to move 10CY from Laguna Grande to receiver/disposal site (round trip)

Cycle (miles) from source	6	5	5	18	26	26
Phase	**Del Monte**	**North Monterey**	**Sand City**	**Marina**	**CEMEX**	**Landfill**
Excavation	0.11	0.11	0.11	0.11	0.11	0.11
Hauling	0.48	0.44	0.44	0.74	1.11	1.11
Spreading	0.13	0.13	0.13	0.13	0.13	0.13
Total	0.72	0.68	0.68	0.98	1.35	1.35

Table 9. Equipment-hours to move 10CY from EcoResort to receiver/disposal site (round trip)

Cycle (miles) from source	6	6	3	13	21	21
Phase	**Del Monte**	**North Monterey**	**Sand City**	**Marina Site**	**CEMEX**	**Landfill**
Excavation	0.11	0.11	0.11	0.11	0.11	0.11
Hauling	0.48	0.48	0.44	0.61	0.74	0.74
Spreading	0.13	0.13	0.13	0.13	0.13	0.13
Total	0.72	0.72	0.68	0.85	0.98	0.98

Appendix C
Air Quality Modeling Data

Air Quality and GHG Appendix:

CalEEMod output with input assumptions for each receiver site. Maximum daily output for air quality assessment. Annual output for GHG assessment.

Monterey Bay OBNP - CEMEX

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	150.00	User Defined Unit	3.47	150,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage assumes 1500 ft x 100 ft aerial estimate.

Construction Phase - Schedule based on breeding season window. Duration based on limited production rate of 2 dozers (1200CY/day) for spreading 200k CY.

Off-road Equipment - Equipment per 10/31/ Tech memo but assume double the equipment to accomodate 200k CY.

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 3.5 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	8.00	152.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialImported	0.00	200,000.00
tblLandUse	LandUseSquareFeet	0.00	150,000.00
tblLandUse	LotAcreage	0.00	3.47
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripLength	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3042	5.3083	1.6621	9.0300e-003	1.0855	0.1272	1.2127	0.5469	0.1176	0.6644	0.0000	856.2122	856.2122	0.0830	0.0000	858.2860

Maximum	**0.3042**	**5.3083**	**1.6621**	**9.0300e-003**	**1.0855**	**0.1272**	**1.2127**	**0.5469**	**0.1176**	**0.6644**	**0.0000**	**856.2122**	**856.2122**	**0.0830**	**0.0000**	**858.2860**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3042	5.3083	1.6621	9.0300e-003	1.0855	0.1272	1.2127	0.5469	0.1176	0.6644	0.0000	856.2120	856.2120	0.0830	0.0000	858.2858
Maximum	**0.3042**	**5.3083**	**1.6621**	**9.0300e-003**	**1.0855**	**0.1272**	**1.2127**	**0.5469**	**0.1176**	**0.6644**	**0.0000**	**856.2120**	**856.2120**	**0.0830**	**0.0000**	**858.2858**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-1-2019**	**5-31-2019**	2.4111	2.4111
2	**6-1-2019**	**8-31-2019**	2.4034	2.4034
3	**9-1-2019**	**9-30-2019**	0.7837	0.7837
		Highest	2.4111	2.4111

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Area	1.8000e-004	2.0000e-005	1.9300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7200e-003	3.7200e-003	1.0000e-005	0.0000	3.9700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-004**	**2.0000e-005**	**1.9300e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.7200e-003**	**3.7200e-003**	**1.0000e-005**	**0.0000**	**3.9700e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8000e-004	2.0000e-005	1.9300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7200e-003	3.7200e-003	1.0000e-005	0.0000	3.9700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-004**	**2.0000e-005**	**1.9300e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.7200e-003**	**3.7200e-003**	**1.0000e-005**	**0.0000**	**3.9700e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2019	9/30/2019	5	152	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	15.00	0.00	25,000.00	10.80	7.30	13.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					0.9387	0.0000	0.9387	0.5066	0.0000	0.5066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2078	2.1906	1.0012	1.7700e-003		0.1132	0.1132		0.1042	0.1042	0.0000	158.9855	158.9855	0.0503	0.0000	160.2430
Total	**0.2078**	**2.1906**	**1.0012**	**1.7700e-003**	**0.9387**	**0.1132**	**1.0519**	**0.5066**	**0.1042**	**0.6108**	**0.0000**	**158.9855**	**158.9855**	**0.0503**	**0.0000**	**160.2430**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0908	3.1125	0.6141	7.1700e-003	0.1378	0.0139	0.1517	0.0379	0.0133	0.0512	0.0000	688.3422	688.3422	0.0322	0.0000	689.1477
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5100e-003	5.2500e-003	0.0468	1.0000e-004	9.0600e-003	8.0000e-005	9.1400e-003	2.4100e-003	8.0000e-005	2.4900e-003	0.0000	8.8845	8.8845	4.3000e-004	0.0000	8.8952
Total	**0.0963**	**3.1177**	**0.6609**	**7.2700e-003**	**0.1468**	**0.0140**	**0.1608**	**0.0403**	**0.0134**	**0.0537**	**0.0000**	**697.2267**	**697.2267**	**0.0327**	**0.0000**	**698.0429**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.9387	0.0000	0.9387	0.5066	0.0000	0.5066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2078	2.1906	1.0012	1.7700e-003		0.1132	0.1132		0.1042	0.1042	0.0000	158.9853	158.9853	0.0503	0.0000	160.2428

Total	**0.2078**	**2.1906**	**1.0012**	**1.7700e-003**	**0.9387**	**0.1132**	**1.0519**	**0.5066**	**0.1042**	**0.6108**	**0.0000**	**158.9853**	**158.9853**	**0.0503**	**0.0000**	**160.2428**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0908	3.1125	0.6141	7.1700e-003	0.1378	0.0139	0.1517	0.0379	0.0133	0.0512	0.0000	688.3422	688.3422	0.0322	0.0000	689.1477
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5100e-003	5.2500e-003	0.0468	1.0000e-004	9.0600e-003	8.0000e-005	9.1400e-003	2.4100e-003	8.0000e-005	2.4900e-003	0.0000	8.8845	8.8845	4.3000e-004	0.0000	8.8952
Total	**0.0963**	**3.1177**	**0.6609**	**7.2700e-003**	**0.1468**	**0.0140**	**0.1608**	**0.0403**	**0.0134**	**0.0537**	**0.0000**	**697.2267**	**697.2267**	**0.0327**	**0.0000**	**698.0429**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Mitigated	1.8000e-004	2.0000e-005	1.9300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7200e-003	3.7200e-003	1.0000e-005	0.0000	3.9700e-003
Unmitigated	1.8000e-004	2.0000e-005	1.9300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7200e-003	3.7200e-003	1.0000e-005	0.0000	3.9700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7200e-003	3.7200e-003	1.0000e-005	0.0000	3.9700e-003
Total	**1.8000e-004**	**2.0000e-005**	**1.9300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.7200e-003**	**3.7200e-003**	**1.0000e-005**	**0.0000**	**3.9700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7200e-003	3.7200e-003	1.0000e-005	0.0000	3.9700e-003
Total	**1.8000e-004**	**2.0000e-005**	**1.9300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.7200e-003**	**3.7200e-003**	**1.0000e-005**	**0.0000**	**3.9700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - CEMEX

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	150.00	User Defined Unit	3.47	150,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage assumes 1500 ft x 100 ft aerial estimate.

Construction Phase - Schedule based on breeding season window. Duration based on limited production rate of 2 dozers (1200CY/day) for spreading 200k CY.

Off-road Equipment - Equipment per 10/31/ Tech memo but assume double the equipment to accomodate 200k CY.

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 3.5 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	8.00	152.00
tblConstructionPhase	PhaseEndDate	3/12/2019	9/30/2019
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialImported	0.00	200,000.00
tblLandUse	LandUseSquareFeet	0.00	150,000.00
tblLandUse	LotAcreage	0.00	3.47
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripLength	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.9812	69.1665	21.5100	0.1200	14.3398	1.6713	16.0112	7.2097	1.5443	8.7539	0.0000	12,541.2189	12,541.2189	1.1869	0.0000	12,570.8920

Maximum	**3.9812**	**69.1665**	**21.5100**	**0.1200**	**14.3398**	**1.6713**	**16.0112**	**7.2097**	**1.5443**	**8.7539**	**0.0000**	**12,541.2189**	**12,541.2189**	**1.1869**	**0.0000**	**12,570.8920**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.9812	69.1665	21.5100	0.1200	14.3398	1.6713	16.0112	7.2097	1.5443	8.7539	0.0000	12,541.2189	12,541.2189	1.1869	0.0000	12,570.8920
Maximum	**3.9812**	**69.1665**	**21.5100**	**0.1200**	**14.3398**	**1.6713**	**16.0112**	**7.2097**	**1.5443**	**8.7539**	**0.0000**	**12,541.2189**	**12,541.2189**	**1.1869**	**0.0000**	**12,570.8920**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4500e-003	1.4000e-004	0.0154	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0328	0.0328	9.0000e-005		0.0350
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Total	**1.4500e-003**	**1.4000e-004**	**0.0154**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**		**0.0328**	**0.0328**	**9.0000e-005**	**0.0000**	**0.0350**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4500e-003	1.4000e-004	0.0154	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0328	0.0328	9.0000e-005		0.0350
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.4500e-003**	**1.4000e-004**	**0.0154**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**		**0.0328**	**0.0328**	**9.0000e-005**	**0.0000**	**0.0350**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2019	9/30/2019	5	152	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	15.00	0.00	25,000.00	10.80	7.30	13.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3509	0.0000	12.3509	6.6658	0.0000	6.6658			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704		2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.3509**	**1.4896**	**13.8404**	**6.6658**	**1.3704**	**8.0362**		**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1732	40.2826	7.6885	0.0954	1.8658	0.1807	2.0465	0.5112	0.1729	0.6840		10,098.4600	10,098.4600	0.4508		10,109.7308
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0604	0.6480	1.3800e-003	0.1232	1.1100e-003	0.1243	0.0327	1.0200e-003	0.0337		136.8182	136.8182	6.5200e-003		136.9811
Total	**1.2464**	**40.3430**	**8.3365**	**0.0968**	**1.9890**	**0.1818**	**2.1708**	**0.5438**	**0.1739**	**0.7177**		**10,235.2782**	**10,235.2782**	**0.4574**		**10,246.7119**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3509	0.0000	12.3509	6.6658	0.0000	6.6658			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704	0.0000	2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.3509**	**1.4896**	**13.8404**	**6.6658**	**1.3704**	**8.0362**	**0.0000**	**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1732	40.2826	7.6885	0.0954	1.8658	0.1807	2.0465	0.5112	0.1729	0.6840		10,098.4600	10,098.4600	0.4508		10,109.7308

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0604	0.6480	1.3800e-003	0.1232	1.1100e-003	0.1243	0.0327	1.0200e-003	0.0337		136.8182	136.8182	6.5200e-003		136.9811
Total	**1.2464**	**40.3430**	**8.3365**	**0.0968**	**1.9890**	**0.1818**	**2.1708**	**0.5438**	**0.1739**	**0.7177**		**10,235.2782**	**10,235.2782**	**0.4574**		**10,246.7119**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-C	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4500e-003	1.4000e-004	0.0154	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0328	0.0328	9.0000e-005		0.0350
Unmitigated	1.4500e-003	1.4000e-004	0.0154	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0328	0.0328	9.0000e-005		0.0350

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4500e-003	1.4000e-004	0.0154	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0328	0.0328	9.0000e-005		0.0350
Total	**1.4500e-003**	**1.4000e-004**	**0.0154**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0328**	**0.0328**	**9.0000e-005**		**0.0350**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4500e-003	1.4000e-004	0.0154	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0328	0.0328	9.0000e-005		0.0350
Total	**1.4500e-003**	**1.4000e-004**	**0.0154**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0328**	**0.0328**	**9.0000e-005**		**0.0350**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - North MontereyDel Monte - Monterey County, Annual

Monterey Bay OBNP - North MontereyDel Monte

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	130.00	User Defined Unit	5.78	252,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on bredding season. Duration based on limited production rate (600CY/day) of dozer for spreading 35k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 5.68 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	126000	65000
tblAreaCoating	Area_Nonresidential_Interior	378000	195000
tblConstructionPhase	NumDays	20.00	57.00
tblGrading	AcresOfGrading	0.00	5.68
tblGrading	MaterialImported	0.00	34,000.00
tblLandUse	LandUseSquareFeet	0.00	252,000.00
tblLandUse	LotAcreage	0.00	5.78
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	3.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0554	0.7809	0.3414	9.7000e-004	0.1855	0.0257	0.2112	0.0972	0.0237	0.1209	0.0000	90.2550	90.2550	0.0177	0.0000	90.6976
Maximum	**0.0554**	**0.7809**	**0.3414**	**9.7000e-004**	**0.1855**	**0.0257**	**0.2112**	**0.0972**	**0.0237**	**0.1209**	**0.0000**	**90.2550**	**90.2550**	**0.0177**	**0.0000**	**90.6976**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0554	0.7809	0.3414	9.7000e-004	0.1855	0.0257	0.2112	0.0972	0.0237	0.1209	0.0000	90.2550	90.2550	0.0177	0.0000	90.6975
Maximum	**0.0554**	**0.7809**	**0.3414**	**9.7000e-004**	**0.1855**	**0.0257**	**0.2112**	**0.0972**	**0.0237**	**0.1209**	**0.0000**	**90.2550**	**90.2550**	**0.0177**	**0.0000**	**90.6975**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-15-2019**	**6-14-2019**	0.8484	0.8484
		Highest	0.8484	0.8484

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0747	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0747**	**2.0000e-005**	**1.6700e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0747	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0747**	**2.0000e-005**	**1.6700e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	6/3/2019	5	57	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.68

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	0.00	4,250.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1783	0.0000	0.1783	0.0952	0.0000	0.0952	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0464	0.4872	0.2807	4.8000e-004		0.0249	0.0249		0.0229	0.0229	0.0000	43.0248	43.0248	0.0136	0.0000	43.3651
Total	**0.0464**	**0.4872**	**0.2807**	**4.8000e-004**	**0.1783**	**0.0249**	**0.2032**	**0.0952**	**0.0229**	**0.1181**	**0.0000**	**43.0248**	**43.0248**	**0.0136**	**0.0000**	**43.3651**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8600e-003	0.2927	0.0513	4.7000e-004	5.4400e-003	7.7000e-004	6.2100e-003	1.5000e-003	7.4000e-004	2.2400e-003	0.0000	45.4533	45.4533	4.0000e-003	0.0000	45.5534
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-003	1.0500e-003	9.3700e-003	2.0000e-005	1.8100e-003	2.0000e-005	1.8300e-003	4.8000e-004	2.0000e-005	5.0000e-004	0.0000	1.7769	1.7769	9.0000e-005	0.0000	1.7791
Total	**8.9600e-003**	**0.2937**	**0.0607**	**4.9000e-004**	**7.2500e-003**	**7.9000e-004**	**8.0400e-003**	**1.9800e-003**	**7.6000e-004**	**2.7400e-003**	**0.0000**	**47.2302**	**47.2302**	**4.0900e-003**	**0.0000**	**47.3325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1783	0.0000	0.1783	0.0952	0.0000	0.0952	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0464	0.4872	0.2807	4.8000e-004		0.0249	0.0249		0.0229	0.0229	0.0000	43.0248	43.0248	0.0136	0.0000	43.3651
Total	**0.0464**	**0.4872**	**0.2807**	**4.8000e-004**	**0.1783**	**0.0249**	**0.2032**	**0.0952**	**0.0229**	**0.1181**	**0.0000**	**43.0248**	**43.0248**	**0.0136**	**0.0000**	**43.3651**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	7.8600e-003	0.2927	0.0513	4.7000e-004	5.4400e-003	7.7000e-004	6.2100e-003	1.5000e-003	7.4000e-004	2.2400e-003	0.0000	45.4533	45.4533	4.0000e-003	0.0000	45.5534
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-003	1.0500e-003	9.3700e-003	2.0000e-005	1.8100e-003	2.0000e-005	1.8300e-003	4.8000e-004	2.0000e-005	5.0000e-004	0.0000	1.7769	1.7769	9.0000e-005	0.0000	1.7791
Total	**8.9600e-003**	**0.2937**	**0.0607**	**4.9000e-004**	**7.2500e-003**	**7.9000e-004**	**8.0400e-003**	**1.9800e-003**	**7.6000e-004**	**2.7400e-003**	**0.0000**	**47.2302**	**47.2302**	**4.0900e-003**	**0.0000**	**47.3325**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0747	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Unmitigated	1.0747	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0904					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9842					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Total	**1.0747**	**2.0000e-005**	**1.6700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0904					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9842					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Total	**1.0747**	**2.0000e-005**	**1.6700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - North MontereyDel Monte

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	130.00	User Defined Unit	5.78	252,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on bredding season. Duration based on limited production rate (600CY/day) of dozer for spreading 35k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 5.68 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	126000	65000
tblAreaCoating	Area_Nonresidential_Interior	378000	195000
tblConstructionPhase	NumDays	20.00	57.00
tblGrading	AcresOfGrading	0.00	5.68
tblGrading	MaterialImported	0.00	34,000.00
tblLandUse	LandUseSquareFeet	0.00	252,000.00
tblLandUse	LotAcreage	0.00	5.78
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	3.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.9323	27.4246	11.7931	0.0346	6.5178	0.9007	7.4185	3.4124	0.8296	4.2419	0.0000	3,547.0774	3,547.0774	0.6771	0.0000	3,564.0045
Maximum	**1.9323**	**27.4246**	**11.7931**	**0.0346**	**6.5178**	**0.9007**	**7.4185**	**3.4124**	**0.8296**	**4.2419**	**0.0000**	**3,547.0774**	**3,547.0774**	**0.6771**	**0.0000**	**3,564.0045**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.9323	27.4246	11.7931	0.0346	6.5178	0.9007	7.4185	3.4124	0.8296	4.2419	0.0000	3,547.0774	3,547.0774	0.6771	0.0000	3,564.0045
Maximum	**1.9323**	**27.4246**	**11.7931**	**0.0346**	**6.5178**	**0.9007**	**7.4185**	**3.4124**	**0.8296**	**4.2419**	**0.0000**	**3,547.0774**	**3,547.0774**	**0.6771**	**0.0000**	**3,564.0045**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.8893	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.8893**	**1.2000e-004**	**0.0134**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**	**0.0000**	**0.0304**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.8893	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.8893**	**1.2000e-004**	**0.0134**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**	**0.0000**	**0.0304**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	6/3/2019	5	57	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.68

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40

Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	0.00	4,250.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2557	0.0000	6.2557	3.3410	0.0000	3.3410			0.0000			0.0000
Off-Road	1.6281	17.0937	9.8500	0.0168		0.8741	0.8741		0.8042	0.8042		1,664.0959	1,664.0959	0.5265		1,677.2585
Total	**1.6281**	**17.0937**	**9.8500**	**0.0168**	**6.2557**	**0.8741**	**7.1298**	**3.3410**	**0.8042**	**4.1452**		**1,664.0959**	**1,664.0959**	**0.5265**		**1,677.2585**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2652	10.2988	1.5976	0.0171	0.1964	0.0260	0.2224	0.0539	0.0248	0.0788		1,810.0117	1,810.0117	0.1471		1,813.6894

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0390	0.0322	0.3456	7.3000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.4000e-004	0.0180		72.9697	72.9697	3.4800e-003		73.0566
Total	**0.3042**	**10.3310**	**1.9432**	**0.0178**	**0.2621**	**0.0266**	**0.2887**	**0.0713**	**0.0254**	**0.0967**		**1,882.9815**	**1,882.9815**	**0.1506**		**1,886.7460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2557	0.0000	6.2557	3.3410	0.0000	3.3410			0.0000			0.0000
Off-Road	1.6281	17.0937	9.8500	0.0168		0.8741	0.8741		0.8042	0.8042	0.0000	1,664.0959	1,664.0959	0.5265		1,677.2585
Total	**1.6281**	**17.0937**	**9.8500**	**0.0168**	**6.2557**	**0.8741**	**7.1298**	**3.3410**	**0.8042**	**4.1452**	**0.0000**	**1,664.0959**	**1,664.0959**	**0.5265**		**1,677.2585**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2652	10.2988	1.5976	0.0171	0.1964	0.0260	0.2224	0.0539	0.0248	0.0788		1,810.0117	1,810.0117	0.1471		1,813.6894
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0390	0.0322	0.3456	7.3000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.4000e-004	0.0180		72.9697	72.9697	3.4800e-003		73.0566
Total	**0.3042**	**10.3310**	**1.9432**	**0.0178**	**0.2621**	**0.0266**	**0.2887**	**0.0713**	**0.0254**	**0.0967**		**1,882.9815**	**1,882.9815**	**0.1506**		**1,886.7460**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.8893	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Unmitigated	5.8893	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	0.4953					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.3928					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Total	**5.8893**	**1.2000e-004**	**0.0134**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**		**0.0304**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4953					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.3928					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Total	**5.8893**	**1.2000e-004**	**0.0134**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**		**0.0304**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - Marina Maximum

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	247.50	User Defined Unit	5.68	247,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on bredding season. Duration based on limited production rate (600CY/day) of dozer for spreading 70k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 5.68 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	20.00	117.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	0.00	5.68
tblGrading	MaterialImported	0.00	70,000.00
tblLandscapeEquipment	NumberSummerDays	250	1
tblLandUse	LandUseSquareFeet	0.00	247,500.00
tblLandUse	LotAcreage	0.00	5.68
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	6.50
tblTripsAndVMT	WorkerTripNumber	5.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1059	1.6201	0.5653	2.2700e-003	0.3939	0.0464	0.4403	0.2036	0.0428	0.2464	0.0000	213.1764	213.1764	0.0290	0.0000	213.9012
Maximum	**0.1059**	**1.6201**	**0.5653**	**2.2700e-003**	**0.3939**	**0.0464**	**0.4403**	**0.2036**	**0.0428**	**0.2464**	**0.0000**	**213.1764**	**213.1764**	**0.0290**	**0.0000**	**213.9012**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1059	1.6200	0.5653	2.2700e-003	0.3939	0.0464	0.4403	0.2036	0.0428	0.2464	0.0000	213.1763	213.1763	0.0290	0.0000	213.9012
Maximum	**0.1059**	**1.6200**	**0.5653**	**2.2700e-003**	**0.3939**	**0.0464**	**0.4403**	**0.2036**	**0.0428**	**0.2464**	**0.0000**	**213.1763**	**213.1763**	**0.0290**	**0.0000**	**213.9012**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-15-2019**	**6-14-2019**	0.9661	0.9661
2	**6-15-2019**	**9-14-2019**	0.7664	0.7664
		Highest	0.9661	0.9661

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	8/26/2019	5	117	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.68

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	15.00	0.00	8,750.00	10.80	7.30	6.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					0.3628	0.0000	0.3628	0.1951	0.0000	0.1951	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0800	0.8431	0.3853	6.8000e-004		0.0436	0.0436		0.0401	0.0401	0.0000	61.1885	61.1885	0.0194	0.0000	61.6725
Total	**0.0800**	**0.8431**	**0.3853**	**6.8000e-004**	**0.3628**	**0.0436**	**0.4064**	**0.1951**	**0.0401**	**0.2352**	**0.0000**	**61.1885**	**61.1885**	**0.0194**	**0.0000**	**61.6725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0216	0.7729	0.1439	1.5100e-003	0.0242	2.7400e-003	0.0269	6.6400e-003	2.6200e-003	9.2600e-003	0.0000	145.1491	145.1491	9.3100e-003	0.0000	145.3818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2400e-003	4.0400e-003	0.0360	8.0000e-005	6.9700e-003	6.0000e-005	7.0400e-003	1.8500e-003	6.0000e-005	1.9100e-003	0.0000	6.8388	6.8388	3.3000e-004	0.0000	6.8470
Total	**0.0259**	**0.7770**	**0.1799**	**1.5900e-003**	**0.0311**	**2.8000e-003**	**0.0339**	**8.4900e-003**	**2.6800e-003**	**0.0112**	**0.0000**	**151.9879**	**151.9879**	**9.6400e-003**	**0.0000**	**152.2288**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3628	0.0000	0.3628	0.1951	0.0000	0.1951	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0800	0.8431	0.3853	6.8000e-004		0.0436	0.0436		0.0401	0.0401	0.0000	61.1884	61.1884	0.0194	0.0000	61.6724
Total	**0.0800**	**0.8431**	**0.3853**	**6.8000e-004**	**0.3628**	**0.0436**	**0.4064**	**0.1951**	**0.0401**	**0.2352**	**0.0000**	**61.1884**	**61.1884**	**0.0194**	**0.0000**	**61.6724**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0216	0.7729	0.1439	1.5100e-003	0.0242	2.7400e-003	0.0269	6.6400e-003	2.6200e-003	9.2600e-003	0.0000	145.1491	145.1491	9.3100e-003	0.0000	145.3818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2400e-003	4.0400e-003	0.0360	8.0000e-005	6.9700e-003	6.0000e-005	7.0400e-003	1.8500e-003	6.0000e-005	1.9100e-003	0.0000	6.8388	6.8388	3.3000e-004	0.0000	6.8470
Total	**0.0259**	**0.7770**	**0.1799**	**1.5900e-003**	**0.0311**	**2.8000e-003**	**0.0339**	**8.4900e-003**	**2.6800e-003**	**0.0112**	**0.0000**	**151.9879**	**151.9879**	**9.6400e-003**	**0.0000**	**152.2288**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - Marina Maximum - Monterey County, Summer

Monterey Bay OBNP - Marina Maximum

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	247.50	User Defined Unit	5.68	247,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on bredding season. Duration based on limited production rate (600CY/day) of dozer for spreading 70k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Grading - Site is 5.68 acres

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	20.00	117.00
tblConstructionPhase	PhaseEndDate	4/11/2019	8/26/2019
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	0.00	5.68
tblGrading	MaterialImported	0.00	70,000.00
tblLandscapeEquipment	NumberSummerDays	250	1
tblLandUse	LandUseSquareFeet	0.00	247,500.00
tblLandUse	LotAcreage	0.00	5.68
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	6.50
tblTripsAndVMT	WorkerTripNumber	5.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8001	27.5974	9.4999	0.0393	6.7501	0.7916	7.5417	3.4844	0.7299	4.2143	0.0000	4,076.9677	4,076.9677	0.5390	0.0000	4,090.4417

Maximum	**1.8001**	**27.5974**	**9.4999**	**0.0393**	**6.7501**	**0.7916**	**7.5417**	**3.4844**	**0.7299**	**4.2143**	**0.0000**	**4,076.9677**	**4,076.9677**	**0.5390**	**0.0000**	**4,090.4417**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8001	27.5974	9.4999	0.0393	6.7501	0.7916	7.5417	3.4844	0.7299	4.2143	0.0000	4,076.9677	4,076.9677	0.5390	0.0000	4,090.4417
Maximum	**1.8001**	**27.5974**	**9.4999**	**0.0393**	**6.7501**	**0.7916**	**7.5417**	**3.4844**	**0.7299**	**4.2143**	**0.0000**	**4,076.9677**	**4,076.9677**	**0.5390**	**0.0000**	**4,090.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**	**0.0000**	**0.0578**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**	**0.0000**	**0.0578**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	8/26/2019	5	117	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.68

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	15.00	0.00	8,750.00	10.80	7.30	6.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2019	0.0000	6.2019	3.3352	0.0000	3.3352			0.0000			0.0000
Off-Road	1.3674	14.4118	6.5868	0.0116		0.7448	0.7448		0.6852	0.6852		1,152.9703	1,152.9703	0.3648		1,162.0900
Total	**1.3674**	**14.4118**	**6.5868**	**0.0116**	**6.2019**	**0.7448**	**6.9467**	**3.3352**	**0.6852**	**4.0204**		**1,152.9703**	**1,152.9703**	**0.3648**		**1,162.0900**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3596	13.1252	2.2651	0.0263	0.4250	0.0457	0.4707	0.1165	0.0437	0.1602		2,787.1791	2,787.1791	0.1677		2,791.3705
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0604	0.6480	1.3800e-003	0.1232	1.1100e-003	0.1243	0.0327	1.0200e-003	0.0337		136.8182	136.8182	6.5200e-003		136.9811
Total	**0.4327**	**13.1856**	**2.9131**	**0.0277**	**0.5482**	**0.0468**	**0.5950**	**0.1492**	**0.0447**	**0.1939**		**2,923.9973**	**2,923.9973**	**0.1742**		**2,928.3516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2019	0.0000	6.2019	3.3352	0.0000	3.3352			0.0000			0.0000
Off-Road	1.3674	14.4118	6.5868	0.0116		0.7448	0.7448		0.6852	0.6852	0.0000	1,152.9703	1,152.9703	0.3648		1,162.0900
Total	**1.3674**	**14.4118**	**6.5868**	**0.0116**	**6.2019**	**0.7448**	**6.9467**	**3.3352**	**0.6852**	**4.0204**	**0.0000**	**1,152.9703**	**1,152.9703**	**0.3648**		**1,162.0900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3596	13.1252	2.2651	0.0263	0.4250	0.0457	0.4707	0.1165	0.0437	0.1602		2,787.1791	2,787.1791	0.1677		2,791.3705

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0604	0.6480	1.3800e-003	0.1232	1.1100e-003	0.1243	0.0327	1.0200e-003	0.0337		136.8182	136.8182	6.5200e-003		136.9811
Total	**0.4327**	**13.1856**	**2.9131**	**0.0277**	**0.5482**	**0.0468**	**0.5950**	**0.1492**	**0.0447**	**0.1939**		**2,923.9973**	**2,923.9973**	**0.1742**		**2,928.3516**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Unmitigated	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**		**0.0578**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**		**0.0578**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - North Monterey - Monterey County, Annual

Monterey Bay OBNP - North Monterey

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	130.00	User Defined Unit	2.98	130,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on bredding season. Duration based on limited production rate (600CY/day) of dozer for spreading 35k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 2.98 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	37.00
tblGrading	AcresOfGrading	0.00	3.00
tblGrading	MaterialImported	0.00	22,000.00
tblLandUse	LandUseSquareFeet	0.00	130,000.00
tblLandUse	LotAcreage	0.00	2.98
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	3.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0313	0.4568	0.1627	5.4000e-004	0.1204	0.0143	0.1346	0.0631	0.0132	0.0763	0.0000	50.2030	50.2030	8.7800e-003	0.0000	50.4225
Maximum	**0.0313**	**0.4568**	**0.1627**	**5.4000e-004**	**0.1204**	**0.0143**	**0.1346**	**0.0631**	**0.0132**	**0.0763**	**0.0000**	**50.2030**	**50.2030**	**8.7800e-003**	**0.0000**	**50.4225**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0313	0.4568	0.1627	5.4000e-004	0.1204	0.0143	0.1346	0.0631	0.0132	0.0763	0.0000	50.2029	50.2029	8.7800e-003	0.0000	50.4225
Maximum	**0.0313**	**0.4568**	**0.1627**	**5.4000e-004**	**0.1204**	**0.0143**	**0.1346**	**0.0631**	**0.0132**	**0.0763**	**0.0000**	**50.2029**	**50.2029**	**8.7800e-003**	**0.0000**	**50.4225**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-15-2019**	**6-14-2019**	0.4988	0.4988
		Highest	0.4988	0.4988

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5983	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5983**	**2.0000e-005**	**1.6700e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5983	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5983**	**2.0000e-005**	**1.6700e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	5/6/2019	5	37	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	10.00	0.00	2,750.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1154	0.0000	0.1154	0.0618	0.0000	0.0618	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0253	0.2666	0.1219	2.2000e-004		0.0138	0.0138		0.0127	0.0127	0.0000	19.3502	19.3502	6.1200e-003	0.0000	19.5033
Total	**0.0253**	**0.2666**	**0.1219**	**2.2000e-004**	**0.1154**	**0.0138**	**0.1291**	**0.0618**	**0.0127**	**0.0745**	**0.0000**	**19.3502**	**19.3502**	**6.1200e-003**	**0.0000**	**19.5033**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0800e-003	0.1894	0.0332	3.1000e-004	3.5200e-003	5.0000e-004	4.0200e-003	9.7000e-004	4.8000e-004	1.4500e-003	0.0000	29.4110	29.4110	2.5900e-003	0.0000	29.4757
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	8.5000e-004	7.6000e-003	2.0000e-005	1.4700e-003	1.0000e-005	1.4800e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.4418	1.4418	7.0000e-005	0.0000	1.4435
Total	**5.9700e-003**	**0.1902**	**0.0408**	**3.3000e-004**	**4.9900e-003**	**5.1000e-004**	**5.5000e-003**	**1.3600e-003**	**4.9000e-004**	**1.8500e-003**	**0.0000**	**30.8528**	**30.8528**	**2.6600e-003**	**0.0000**	**30.9193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1154	0.0000	0.1154	0.0618	0.0000	0.0618	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0253	0.2666	0.1219	2.2000e-004		0.0138	0.0138		0.0127	0.0127	0.0000	19.3502	19.3502	6.1200e-003	0.0000	19.5032
Total	**0.0253**	**0.2666**	**0.1219**	**2.2000e-004**	**0.1154**	**0.0138**	**0.1291**	**0.0618**	**0.0127**	**0.0745**	**0.0000**	**19.3502**	**19.3502**	**6.1200e-003**	**0.0000**	**19.5032**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	5.0800e-003	0.1894	0.0332	3.1000e-004	3.5200e-003	5.0000e-004	4.0200e-003	9.7000e-004	4.8000e-004	1.4500e-003	0.0000	29.4110	29.4110	2.5900e-003	0.0000	29.4757
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	8.5000e-004	7.6000e-003	2.0000e-005	1.4700e-003	1.0000e-005	1.4800e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.4418	1.4418	7.0000e-005	0.0000	1.4435
Total	**5.9700e-003**	**0.1902**	**0.0408**	**3.3000e-004**	**4.9900e-003**	**5.1000e-004**	**5.5000e-003**	**1.3600e-003**	**4.9000e-004**	**1.8500e-003**	**0.0000**	**30.8528**	**30.8528**	**2.6600e-003**	**0.0000**	**30.9193**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5983	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Unmitigated	0.5983	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0904					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5077					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Total	**0.5983**	**2.0000e-005**	**1.6700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0904					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5077					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.6700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2300e-003	3.2300e-003	1.0000e-005	0.0000	3.4400e-003
Total	**0.5983**	**2.0000e-005**	**1.6700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2300e-003**	**3.2300e-003**	**1.0000e-005**	**0.0000**	**3.4400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - North Monterey - Monterey County, Summer

Monterey Bay OBNP - North Monterey

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	130.00	User Defined Unit	2.98	130,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on bredding season. Duration based on limited production rate (600CY/day) of dozer for spreading 35k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Grading - Site is 2.98 acres

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	37.00
tblConstructionPhase	PhaseEndDate	3/22/2019	5/6/2019
tblGrading	AcresOfGrading	0.00	3.00
tblGrading	MaterialImported	0.00	22,000.00
tblLandUse	LandUseSquareFeet	0.00	130,000.00
tblLandUse	LotAcreage	0.00	2.98
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	3.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.6805	24.7181	8.6113	0.0296	6.5135	0.7714	7.2849	3.4144	0.7106	4.1250	0.0000	3,048.4390	3,048.4390	0.5158	0.0000	3,061.3333
Maximum	**1.6805**	**24.7181**	**8.6113**	**0.0296**	**6.5135**	**0.7714**	**7.2849**	**3.4144**	**0.7106**	**4.1250**	**0.0000**	**3,048.4390**	**3,048.4390**	**0.5158**	**0.0000**	**3,061.3333**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.6805	24.7181	8.6113	0.0296	6.5135	0.7714	7.2849	3.4144	0.7106	4.1250	0.0000	3,048.4390	3,048.4390	0.5158	0.0000	3,061.3333
Maximum	**1.6805**	**24.7181**	**8.6113**	**0.0296**	**6.5135**	**0.7714**	**7.2849**	**3.4144**	**0.7106**	**4.1250**	**0.0000**	**3,048.4390**	**3,048.4390**	**0.5158**	**0.0000**	**3,061.3333**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.2785	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.2785**	**1.2000e-004**	**0.0134**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**	**0.0000**	**0.0304**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.2785	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.2785**	**1.2000e-004**	**0.0134**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**	**0.0000**	**0.0304**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	5/6/2019	5	37	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Rubber Tired Dozers	1	8.00	247	0.40

Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	10.00	0.00	2,750.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2356	0.0000	6.2356	3.3388	0.0000	3.3388			0.0000			0.0000
Off-Road	1.3674	14.4118	6.5868	0.0116		0.7448	0.7448		0.6852	0.6852		1,152.9703	1,152.9703	0.3648		1,162.0900
Total	**1.3674**	**14.4118**	**6.5868**	**0.0116**	**6.2356**	**0.7448**	**6.9804**	**3.3388**	**0.6852**	**4.0240**		**1,152.9703**	**1,152.9703**	**0.3648**		**1,162.0900**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2643	10.2660	1.5925	0.0171	0.1958	0.0259	0.2216	0.0537	0.0248	0.0785		1,804.2565	1,804.2565	0.1466		1,807.9225

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0403	0.4320	9.2000e-004	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		91.2122	91.2122	4.3400e-003		91.3208
Total	**0.3131**	**10.3063**	**2.0245**	**0.0180**	**0.2779**	**0.0266**	**0.3045**	**0.0755**	**0.0254**	**0.1010**		**1,895.4687**	**1,895.4687**	**0.1510**		**1,899.2433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2356	0.0000	6.2356	3.3388	0.0000	3.3388			0.0000			0.0000
Off-Road	1.3674	14.4118	6.5868	0.0116		0.7448	0.7448		0.6852	0.6852	0.0000	1,152.9703	1,152.9703	0.3648		1,162.0900
Total	**1.3674**	**14.4118**	**6.5868**	**0.0116**	**6.2356**	**0.7448**	**6.9804**	**3.3388**	**0.6852**	**4.0240**	**0.0000**	**1,152.9703**	**1,152.9703**	**0.3648**		**1,162.0900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2643	10.2660	1.5925	0.0171	0.1958	0.0259	0.2216	0.0537	0.0248	0.0785		1,804.2565	1,804.2565	0.1466		1,807.9225
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0403	0.4320	9.2000e-004	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		91.2122	91.2122	4.3400e-003		91.3208
Total	**0.3131**	**10.3063**	**2.0245**	**0.0180**	**0.2779**	**0.0266**	**0.3045**	**0.0755**	**0.0254**	**0.1010**		**1,895.4687**	**1,895.4687**	**0.1510**		**1,899.2433**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.2785	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Unmitigated	3.2785	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	0.4953					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.7820					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Total	**3.2785**	**1.2000e-004**	**0.0134**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**		**0.0304**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4953					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.7820					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2600e-003	1.2000e-004	0.0134	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0285	0.0285	8.0000e-005		0.0304
Total	**3.2785**	**1.2000e-004**	**0.0134**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0285**	**0.0285**	**8.0000e-005**		**0.0304**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - Sand City - Monterey County, Annual

Monterey Bay OBNP - Sand City

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	247.50	User Defined Unit	5.68	247,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on breeding season window. Duration based on limited production rate (600CY/day) of dozer for spreading 70k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 5.68 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	20.00	117.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	0.00	5.68
tblGrading	MaterialImported	0.00	70,000.00
tblLandscapeEquipment	NumberSummerDays	250	1
tblLandUse	LandUseSquareFeet	0.00	247,500.00
tblLandUse	LotAcreage	0.00	5.68
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	2.50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0968	1.4226	0.4975	1.6000e-003	0.3745	0.0450	0.4195	0.1983	0.0415	0.2398	0.0000	149.6814	149.6814	0.0276	0.0000	150.3705
Maximum	**0.0968**	**1.4226**	**0.4975**	**1.6000e-003**	**0.3745**	**0.0450**	**0.4195**	**0.1983**	**0.0415**	**0.2398**	**0.0000**	**149.6814**	**149.6814**	**0.0276**	**0.0000**	**150.3705**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0968	1.4226	0.4975	1.6000e-003	0.3745	0.0450	0.4195	0.1983	0.0415	0.2398	0.0000	149.6813	149.6813	0.0276	0.0000	150.3704
Maximum	**0.0968**	**1.4226**	**0.4975**	**1.6000e-003**	**0.3745**	**0.0450**	**0.4195**	**0.1983**	**0.0415**	**0.2398**	**0.0000**	**149.6813**	**149.6813**	**0.0276**	**0.0000**	**150.3704**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-15-2019**	**6-14-2019**	0.8535	0.8535
2	**6-15-2019**	**9-14-2019**	0.6780	0.6780
		Highest	0.8535	0.8535

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	8/26/2019	5	117	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.68

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	5.00	0.00	8,750.00	10.80	7.30	2.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3628	0.0000	0.3628	0.1951	0.0000	0.1951	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0800	0.8431	0.3853	6.8000e-004		0.0436	0.0436		0.0401	0.0401	0.0000	61.1885	61.1885	0.0194	0.0000	61.6725

Total	**0.0800**	**0.8431**	**0.3853**	**6.8000e-004**	**0.3628**	**0.0436**	**0.4064**	**0.1951**	**0.0401**	**0.2352**	**0.0000**	**61.1885**	**61.1885**	**0.0194**	**0.0000**	**61.6725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0154	0.5782	0.1002	9.0000e-004	9.3500e-003	1.4300e-003	0.0108	2.5700e-003	1.3700e-003	3.9400e-003	0.0000	86.2133	86.2133	8.0900e-003	0.0000	86.4156
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	1.3500e-003	0.0120	3.0000e-005	2.3200e-003	2.0000e-005	2.3500e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.2796	2.2796	1.1000e-004	0.0000	2.2823
Total	**0.0168**	**0.5795**	**0.1122**	**9.3000e-004**	**0.0117**	**1.4500e-003**	**0.0131**	**3.1900e-003**	**1.3900e-003**	**4.5800e-003**	**0.0000**	**88.4929**	**88.4929**	**8.2000e-003**	**0.0000**	**88.6980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3628	0.0000	0.3628	0.1951	0.0000	0.1951	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0800	0.8431	0.3853	6.8000e-004		0.0436	0.0436		0.0401	0.0401	0.0000	61.1884	61.1884	0.0194	0.0000	61.6724
Total	**0.0800**	**0.8431**	**0.3853**	**6.8000e-004**	**0.3628**	**0.0436**	**0.4064**	**0.1951**	**0.0401**	**0.2352**	**0.0000**	**61.1884**	**61.1884**	**0.0194**	**0.0000**	**61.6724**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0154	0.5782	0.1002	9.0000e-004	9.3500e-003	1.4300e-003	0.0108	2.5700e-003	1.3700e-003	3.9400e-003	0.0000	86.2133	86.2133	8.0900e-003	0.0000	86.4156
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	1.3500e-003	0.0120	3.0000e-005	2.3200e-003	2.0000e-005	2.3500e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.2796	2.2796	1.1000e-004	0.0000	2.2823
Total	**0.0168**	**0.5795**	**0.1122**	**9.3000e-004**	**0.0117**	**1.4500e-003**	**0.0131**	**3.1900e-003**	**1.3900e-003**	**4.5800e-003**	**0.0000**	**88.4929**	**88.4929**	**8.2000e-003**	**0.0000**	**88.6980**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Monterey Bay OBNP - Sand City

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	247.50	User Defined Unit	5.68	247,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Equipment emissions only

Land Use - Acreage per 10/31/18 tech memo

Construction Phase - Schedule based on breeding season window. Duration based on limited production rate (600CY/day) of dozer for spreading 70k CY

Off-road Equipment - Equipment per 10/31/ Tech memo

Trips and VMT - Haul trip length per 10/31 memo Table 4.

Grading - Site is 5.68 acres

Vehicle Trips -

Consumer Products - Construction only. No operational emissions.

Area Coating - Construction only. No operational emissions.

Landscape Equipment - Construction only. No operational emissions.

Energy Use -

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	20.00	117.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	0.00	5.68
tblGrading	MaterialImported	0.00	70,000.00
tblLandscapeEquipment	NumberSummerDays	250	1
tblLandUse	LandUseSquareFeet	0.00	247,500.00
tblLandUse	LotAcreage	0.00	5.68
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	2.50

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.6444	24.3624	8.3105	0.0279	6.4074	0.7684	7.1758	3.3913	0.7078	4.0990	0.0000	2,875.2329	2,875.2329	0.5116	0.0000	2,888.0239
Maximum	**1.6444**	**24.3624**	**8.3105**	**0.0279**	**6.4074**	**0.7684**	**7.1758**	**3.3913**	**0.7078**	**4.0990**	**0.0000**	**2,875.2329**	**2,875.2329**	**0.5116**	**0.0000**	**2,888.0239**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.6444	24.3624	8.3105	0.0279	6.4074	0.7684	7.1758	3.3913	0.7078	4.0990	0.0000	2,875.2329	2,875.2329	0.5116	0.0000	2,888.0239
Maximum	**1.6444**	**24.3624**	**8.3105**	**0.0279**	**6.4074**	**0.7684**	**7.1758**	**3.3913**	**0.7078**	**4.0990**	**0.0000**	**2,875.2329**	**2,875.2329**	**0.5116**	**0.0000**	**2,888.0239**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**	**0.0000**	**0.0578**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**	**0.0000**	**0.0578**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/15/2019	8/26/2019	5	117	Spreading

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.68

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38

Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	5.00	0.00	8,750.00	10.80	7.30	2.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2019	0.0000	6.2019	3.3352	0.0000	3.3352			0.0000			0.0000
Off-Road	1.3674	14.4118	6.5868	0.0116		0.7448	0.7448		0.6852	0.6852		1,152.9703	1,152.9703	0.3648		1,162.0900
Total	**1.3674**	**14.4118**	**6.5868**	**0.0116**	**6.2019**	**0.7448**	**6.9467**	**3.3352**	**0.6852**	**4.0204**		**1,152.9703**	**1,152.9703**	**0.3648**		**1,162.0900**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.2526	9.9305	1.5077	0.0159	0.1644	0.0232	0.1877	0.0452	0.0222	0.0674		1,676.6565	1,676.6565	0.1447		1,680.2735
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0244	0.0201	0.2160	4.6000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		45.6061	45.6061	2.1700e-003		45.6604
Total	**0.2770**	**9.9506**	**1.7237**	**0.0163**	**0.2055**	**0.0236**	**0.2291**	**0.0561**	**0.0226**	**0.0786**		**1,722.2625**	**1,722.2625**	**0.1469**		**1,725.9338**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2019	0.0000	6.2019	3.3352	0.0000	3.3352			0.0000			0.0000
Off-Road	1.3674	14.4118	6.5868	0.0116		0.7448	0.7448		0.6852	0.6852	0.0000	1,152.9703	1,152.9703	0.3648		1,162.0900
Total	**1.3674**	**14.4118**	**6.5868**	**0.0116**	**6.2019**	**0.7448**	**6.9467**	**3.3352**	**0.6852**	**4.0204**	**0.0000**	**1,152.9703**	**1,152.9703**	**0.3648**		**1,162.0900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2526	9.9305	1.5077	0.0159	0.1644	0.0232	0.1877	0.0452	0.0222	0.0674		1,676.6565	1,676.6565	0.1447		1,680.2735
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0244	0.0201	0.2160	4.6000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		45.6061	45.6061	2.1700e-003		45.6604
Total	**0.2770**	**9.9506**	**1.7237**	**0.0163**	**0.2055**	**0.0236**	**0.2291**	**0.0561**	**0.0226**	**0.0786**		**1,722.2625**	**1,722.2625**	**0.1469**		**1,725.9338**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Unmitigated	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**		**0.0578**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3900e-003	2.3000e-004	0.0254	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		0.0542	0.0542	1.5000e-004		0.0578
Total	**2.3900e-003**	**2.3000e-004**	**0.0254**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**		**0.0542**	**0.0542**	**1.5000e-004**		**0.0578**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix D
Special Status Species List

TABLE 1
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES				
Plants				
coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	FE/SE/ CRPR 1B.1	Coastal dunes, sandy areas in coastal bluff scrub, and mesic areas in coastal prairie habitats. Often associated with vernally mesic areas.	Known regional distribution is restricted to a single population on the Monterey Peninsula along 17-Mile Drive near Pebble Beach. Otherwise known from southern California.	**Low to Moderate.** Known population is approximately 3.5 miles west of the proposed Del Monte site. All receiver sites provide suitable habitat.
marsh sandwort (*Arenaria paludicola*)	FE/SE/ CRPR 1B.1	Freshwater wetlands and wetland riparian habitats.	Known remaining distribution limited to San Luis Obispo County and reintroduction sites in Santa Cruz, Nipomo, and Los Osos.	**Low.** Project area is outside known range of the species.
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	FT/--/CRPR 1B.2	Sandy soils in maritime chaparral, woodland, coastal dunes, coastal scrub, and valley and foothill grassland habitats.	Documented in suitable habitat throughout the Monterey Bay region	**Observed.** CNDDB occurrence records within the study area for all sites. High potential to occur where there is suitable habitat in the vicinity of all project components.
robust spineflower (*Chorizanthe robusta* var. *robusta*)	FE/--/CRPR 1B.1	Sandy or gravelly soils in coastal dunes, coastal scrub, and openings in woodland habitats.	The species is primarily limited to Santa Cruz County, but historically observed in Monterey County.	**Low to Moderate.** May occur in suitable habitat throughout the project area. However, no local CNDDB records.
seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*)	--/SE/CRPR 1B.1	In areas with sandy soils and often in disturbed sites within closed-cone coniferous forest, maritime chaparral, woodland, coastal dunes, and coastal scrub habitats.	Endemic to northwestern Monterey and Santa Barbara Counties. CNDDB documented occurrences throughout Monterey Bay region.	**Observed.** CNDDB occurrence records within the Marina, Sand City, North Monterey, and Del Monte sites, although the CNDDB indicates that the occurrence records within the Sand City, North Monterey, and Del Monte sites may be extirpated. May occur in suitable habitat throughout the project area.
Menzies' wallflower (*Erysimum menziesii*) Includes the formerly recognized subspecies *E. menziesii* ssp. *yadonii and ssp. menziesii*	FE/SE/ CRPR 1B.1	Coastal dune habitat.	Known from Pacific Grove and Asilomar State Beach area as well as the dunes west of Highway 1 and Marina and Fort Ord National Monument.	**Observed.** CNDDB occurrences records within the Marina site and CEMEX site. May occur in suitable habitat throughout the study area.
sand gilia (*Gilia tenuiflora* ssp. *arenaria*)	FE/ST/ CRPR 1B.2	Sandy soils and openings in maritime chaparral, woodland, coastal dunes, and coastal scrub habitats.	Central dune scrub (stabilized) west of Highway 1, Asilomar State Beach area, and maritime chaparral on eastern former Fort Ord lands.	**Observed.** CNDDB occurrence records within the Marina, Sand City, Del Monte, and CEMEX sites. May occur in suitable habitat throughout the study area.
Gowen cypress (*Hesperocyparis goveniana*)	FT/CRPR 1B.2	In closed-cone coniferous forest and maritime chaparral habitat.	Known from only three native occurrences in the Monterey area including Del Monte Forest and Point Lobos.	**Low.** No CNDDB occurrence records in the vicinity of the study area. Suitable habitat likely absent from the study area.
Contra Costa goldfields (Lasthenia conjugens)	FE/CRPR 1B.1	Mesic areas in woodland, alkaline playas, valley/foothill grassland, and vernal pools.	Documented from vernal pools and wet depressions on eastern portion of former Fort Ord lands.	**Low. No CNDDB occurrence records in the vicinity of the study area. Suitable habitat likely absent from the study area.**

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Plants (cont.)				
beach layia (*Layia carnosa*)	FE/SE/ CRPR 1B.1	Coastal dune and sandy coastal scrub habitats.	Partially stabilized dunes along the Monterey peninsula (Pacific Grove to Carmel).	**Low.** No CNDDB occurrence records in the vicinity of the study area. Outside regional occurrence area.
Tidestrom's lupine (*Lupinus tidestromii*)	FE/SE/ CRPR 1B.1	Coastal dune habitat.	Partially stabilized dunes along the Monterey peninsula (Pacific Grove to Carmel)	**Low.** No CNDDB occurrence records in the vicinity of the study area. Outside regional occurrence area.
Yadon's rein orchid (*Piperia yadonii*)	FE/CRPR 1B.1	In sandy coastal bluff scrub, closed-coned coniferous forest and maritime chaparral habitats.	Known from multiple locations on the Monterey peninsula and in the Prunedale area north east of the project area.	**High.** May occur in suitable habitat within the study area. Closest CNDDB record is east of Highway 1 south of the Marina site, although the population is possibly extirpated.
Hickman's cinquefoil (*Potentilla hickmanii*)	FE/SE/CRPR 1B.1	Coastal bluff scrub, closed-cone coniferous forest, vernally mesic meadows and seeps, and freshwater marshes and swamps.	Known from understory of Monterey Pine forest on the Monterey peninsula.	**Low.** CNDDB documented locations in the vicinity of the Del Monte site are historical and/or inexact as to location.
Pacific Grove clover (*Trifolium polyodon*)	--/SR/CRPR 1B.1	Along small springs and seeps in grassy openings of closed-coned coniferous forest, coastal prairie, meadows and seeps, and valley and foothill grassland	Coast of Monterey Peninsula to hills in area of Segunda Reservoir.	**Low to Moderate.** Several CNDDB records south and east of the study area. May occur in suitable habitat if spring/seep conditions are present.
Monterey clover (*Trifolium trichocalyx*)	FE/SE/ CRPR 1B.1	Openings or burned areas in closed-cone coniferous forest habitat with sandy soils.	Known from understory of Monterey pine forest on the Monterey peninsula in Morse Botanical Preserve south of Pacific Grove	**Low.** CNDDB occurrence records from Monterey pine forest in Monterey peninsula. Suitable habitat likely absent from the study area.
Invertebrates				
vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/--	Ephemeral freshwater vernal pools.	Documented from Fort Hunter Ligget and Camp Roberts in southeastern Monterey County. Not recorded in northern Monterey County.	**Not expected.** Species not identified by CNDDB within project vicinity. Vernal pool habitat likely absent from the study area. Project is outside known range for the species.
Smith's blue butterfly (*Euphilotes enoptes smithi*)	FE/--	Coastal dunes and inland in coastal scrub, grassland, and chamise chaparral where host plants are present. Requires *Eriogonum parvifolium* and *E. latifolium* to complete its life cycle.	Primarily occurs in dune habitat along coast. Also occurs inland along and south of the Carmel River valley. Could occur elsewhere if host plant is present.	**Observed.** Several CNDDB occurrence records within all sites within the study area. High potential to occur in suitable habitat throughout the study area.
black abalone (*Haliotis cracherodii*)	FE	Coastal and offshore island intertidal habitats on exposed rocky shores where bedrock provides deep, protective crevices for shelter.	Black abalone range from about Point Arena, CA to Bahia Tortugas and Isla Guadalupe, Mexico. Black abalone are rare north of San Francisco and south of Punta Eugenia, though unconfirmed sightings have been reported as far north as Coos Bay, OR.	**Not Expected to Low.** Black abalone inhabit rocky intertidal and very shallow rocky subtidal habitat. Could be present on some rocky intertidal and shallow subtidal habitat hard substrate areas in the Del Monte study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Fish				
North American green sturgeon, Southern Distinct Population Segment (DPS) (*Acipenser medirostris*)	FT	Individuals occasionally enter coastal estuaries to forage. All of Monterey Bay is designated Critical Habitat for green sturgeon. Spawning occurs in the upper Sacramento River for the southern DPS and fish are known to frequent coastal waters < 110 meters.[16]	Within the marine environment, the Southern DPS occupies coastal bays and estuaries from Monterey Bay to Puget Sound in Washington.	**Not Expected to Low.** There are very few data on green sturgeon presence in coastal waters. This species may forage in or near the study areas but its distribution in ocean waters is essentially unknown. In 2006, an individual was entrained at the Moss Landing Power Plant intake. No other sightings or reported presence in other entrainment and fish studies have indicated a more than occasional presence.
tidewater goby (*Eucyclogobius newberryi*)	FE/CSSC	Shallow lagoons and lower stream reaches with fairly still, but not stagnant water.	Known to occur in Moro Cojo Slough, Pajaro River, and Elkhorn/Bennett Slough (possibly extirpated). Documented from the Salinas River Lagoon but thought to be extirpated from that location.	**Not Expected.** Based on documented occurrences species' distribution is primarily north of the project area. No tidal slough habitat within the study area.
steelhead, south-central California coast DPS (*Onchorhynchus mykiss irideus*)	FT/--	Free-flowing coastal rivers and streams. Spawning habitat: clear, cool streams with overhanging vegetation.	Occurs in coastal watersheds from the Pajaro River south to, but not including, the Santa Maria River. Salinas and Carmel Rivers are designated Critical Habitat for the species.	**Low to Moderate.** This ESU occupies rivers from the Pajaro River in Santa Cruz County to (but not including) the Santa Maria River in Santa Barbara County.
chinook salmon (winter-run) (*Oncorhynchus tshawytscha*)	CE, FE	Anadromous and semelparous. This means that as adults, they migrate from a marine environment into the fresh water streams and rivers of their birth (anadromous) where they spawn and die (semelparous).	Chinook salmon are normally entering the Sacramento River from November to June and spawning from late-April to mid-August, with a peak from May to June. They inhabit nearshore coastal waters of Central California throughout the year, but especially during migration time.	**Not Expected to Low.** Chinook salmon are not known to forage in shallow coastal waters, especially within the surf zone.
chinook salmon (Central California Evolutionary Significant Unit) (*Oncorhynchus tshawytscha*)	CT, FT	Spend approximately the first half of their life cycle rearing and feeding in streams and small freshwater tributaries. Spawning habitat is small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean.	Historically, there was a run in the Pajaro and Salinas Rivers but not since the 1990s. Current runs exist in Waddell Creek, Scott Creek, San Lorenzo River, Soquel Creek, and Aptos Creek.	**Not Expected.** Historic runs on the Pajaro and Salinas rivers occurred north of all of the study areas. In Monterey County, the only known current runs are two small runs in the Carmel and Big Sur Rivers, which are located south of the study areas.
coho salmon (Central California Evolutionary Significant Unit) (*Oncorhynchus kisutch*)	FT, CSC	Trout can be anadromous or freshwater resident (and under some circumstances, apparently yield offspring of the opposite form). Resident forms are usually called rainbow, or redband, trout. Those that are anadromous can spend up to 7 years in fresh water prior to smoltification, and then spend up to 3 years in salt water prior to first spawning.	This ESU occupies rivers from the Pajaro River in Santa Cruz County to (but not including) the Santa Maria River in Santa Barbara County.	**Not Expected to Low.** This ESU occupies rivers from the Pajaro River in Santa Cruz County to (but not including) the Santa Maria River in Santa Barbara County. Cojo salmon are not known to forage in shallow coastal waters, especially within the surf zone.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Fish (cont.)				
steelhead trout (South Central Coast Evolutionary Significant Unit) (*Onchorhynchus mykiss irideus*)	FE	Free-flowing coastal rivers and streams. Spawning habitat: clear, cool streams with overhanging vegetation.	Found along the entire Pacific Coast	**Not Expected to Low.** Seasonally present in Elkhorn Slough, Bennet Slough, and Salinas River, all of which are located north of all the study areas. Steelhead are not known to forage in shallow coastal waters, especially within the surf zone.
longfin smelt (*Spirinchus thaleichthys*)	FC/ST, CSSC	Anadromous smelt found in nearshore marine, estuary, and bay habitats.	Generally known from San Francisco Bay north to Humboldt Bay. One CNDDB occurrence at Moss Landing harbor which is not a known breeding site. Individuals may have been pushed south by ocean currents.	**Not Expected.** A single Longfin smelt collected from the Monterey Bay area was reported by Eschmeyer et al. (1983) but the San Francisco Bay-Delta population is considered to be the southernmost population for the species.
Amphibians				
California tiger salamander (*Ambystoma californiense*)	FT/ST	Vernal or temporary pools in annual grasslands, or open stages of woodlands. Typically aestivates in ground squirrel burrows.	Scattered distribution throughout Monterey County. Found in grasslands and aquatic habitats on eastern former Fort Ord and in Elkhorn Slough and Moro Cojo Slough areas north of the project area.	**Low.** No CNDDB occurrences identified within project footprint. Nearest documented locations from eastern Fort Ord and developed areas separate these CNDDB occurrence record locations from the study area.
Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)	FE/SE/FP	Freshwater wetlands with surrounding dense riparian vegetation in the Pajaro Valley and Moss Landing areas.	Monterey County records are north and east of Moss Landing, in upper Moro Cojo Slough, Bennett Slough, Struve Slough, Elkhorn Slough, and McCluskey Slough.	**Not expected.** Based on known distribution the species is not expected to occur within the study area.
California red-legged frog (*Rana draytonii*)	FT/CSSC	Slow water in streams, freshwater pools and ponds with overhanging or emergent vegetation. Requires pools of >0.5 m depth for breeding.	Known from scattered locations throughout Monterey County. In the vicinity of the project area observations are concentrated to the north in upper Moro Cojo Slough, Elkhorn Slough, and McCluskey Slough and to the south in the Carmel River and its tributaries.	**Low to Moderate.** Nearest CNDDB occurrence records are approximately 2 miles from the study area. Developed areas separate study area from many of the known occurrence records. Lagoons and lakes within the study area are relatively developed and surrounded by development, so provide limited quality habitat.
leatherback sea turtle (*Dermochelys coriacea*)	FE	Offshore pelagic environment	Occasionally will be sighted in the offshore waters within Monterey Bay.	**Not Expected to Low.** Leatherback sea turtles are most commonly seen between July and October, when the surface water temperature warms to 15-16° C and large jellyfish, the primary prey of the turtles, are seasonally abundant offshore.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Reptiles				
green sea turtle (*Chelonia mydas*)	FE	Primarily use three types of habitat: oceanic beaches (for nesting), convergence zones in the open ocean, and benthic feeding grounds in coastal areas.	In the eastern Pacific, green turtles have been sighted from Baja California to southern Alaska but most commonly occur from San Diego south.	**Not Expected to Low.** Sighted in Monterey Bay nearshore waters in 2011. Rare in Northern California.
olive ridley sea turtle (*Lepidochelys olivacea*)	FT	Mainly a "pelagic" sea turtle, but has been known to inhabit coastal areas, including bays and estuaries.	In the eastern Pacific, the range of the Olive Ridley turtle extends from southern California to northern Chile.	**Not Expected.** Rarely sighted in Northern California.
loggerhead sea turtle (*Caretta caretta*)	FT	Occupy three different ecosystems during their lives: the terrestrial zone, the oceanic zone (> 100 fathoms water depth), and the neritic one (< 100 fathoms water depth).	In the U.S., most recorded sightings are of juveniles off the coast of California but occasional sightings are reported along the coasts of Washington and Oregon.	**Not Expected.** Rarely sighted in Northern California.
Birds				
marbled murrelet (*Brachyramphus marmoratus*)	FT/SE	Nests up to 45 miles inland on the ground or a mossy tree branch. Requires old growth or mature redwood or fir for nesting. Feeds on small fish and plankton.	No documented nesting occurrences in Monterey County. However, the species is known from the waters of Monterey Bay.	**Low.** No suitable nesting habitat and no known documented locations within the vicinity of the study area. Nearest documented nesting location is within Henry Cowell Redwoods State Park in Santa Cruz County.
western snowy plover (*Charadrius alexandrinus nivosus*)	FT/CSSC	Resident on coastal beaches and salt panne habitat.	The species is known from the dunes and beaches throughout the Monterey Bay.	**Observed.** CNDDB occurrence records from study area at the Marina, Sand City, and CEMEX sites. High potential to occur along beach and dunes within the entire study area.
southwestern willow flycatcher (*Empidonax traillii extimus*)	FE/SE	Breeds in mature riparian habitat along rivers, streams, or other wetlands.	No recent records of breeding birds west of the San Joaquin Valley.	**Not expected.** Considered extirpated from coastal California. Migrant willow flycatchers in Monterey County would almost certainly be northern-breeding, unlisted, subspecies.
California condor (*Gymnogyps californianus*)	FE/SE/FP	Forages for carrion over a variety of open habitats. Inhabits rugged canyons, gorges, and forested mountains. Nests by steep, rugged terrain with dense brush.	Regional reintroduction programs focused in Big Sur and at Pinnacles National Monument and Monterey County sightings are primarily restricted to the coastal mountains south of Carmel. No records of individuals in the project area.	**Low.** The study area does not include suitable nesting habitat.
California black rail (*Laterallus jamaicensis coturniculus*)	--/ST/FP	Inhabits freshwater marsh, wet meadows and shallow margins of saltwater marshes bordering larger bays.	Known from Monterey peninsula.	**Low.** CNDDB records from Monterey peninsula, but not along Monterey Bay. Lagoons and lakes within the study area are relatively developed and surrounded by development, so provide limited quality habitat.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Birds (cont.)				
California clapper rail (*Rallus longirostris obsoletus*)	FE/SE and FP	Inhabits multiple elevational tidal marsh zones and uses taller vegetation for protection.	A single historical CNNDB occurrence in Monterey County at Elkhorn Slough. One observation at Moss Landing harbor in 1980. No recent records.	**Not expected.** Given the sparse records for Monterey County, and absence of suitable habitat in the study area, this species is not expected to occur within the study area.
bank swallow (*Riparia riparia*)	--/ST	Nests in colonies in sandy banks along riparian habitat.	The single recent nesting record in northern Monterey County is located in a coastal sandbank north of Seaside from 2012. Observations within the project area include at Fort Ord Dunes State Park and Laguna Grande Park.	**Moderate.** There is a general CNDDB record for a nesting colony within the study area, although the CNDDB does not show the exact location of the colony. Could nest within sandy banks or forage in study area.
California least tern (*Sternula antillarum browni*)	FE/SE and FP	Nests in colonies on relatively open beaches kept free of vegetation by natural scouring from tidal action.	No CNDDB records in the project area.	**Low.** Given the sparse records for Monterey County the species is not expected to nest within the project area. May fly over the project area.
least Bell's vireo (*Vireo bellii pusillus*)	FE/SE	Breeds in thick willow riparian groves. Range, once thought to be limited to southern California, is expanding.	Closest occurrence is over 10 miles northeast of the study area.	**Low.** Given the lack of records for the species in the project vicinity and absence of thick willow riparian groves the species is not expected to occur.
Mammals				
southern sea otter (*Enhydra lutris nereis)*	FT, P	A top carnivore in its coastal range and a keystone species of the nearshore coastal zone. Frequent inhabitants of kelp forests.	Commonly found year-round in the nearshore waters of Monterey Bay.	**High.** Otters are commonly found in Monterey Bay and the nearshore waters.
California sea lion (*Zalophus californianus*)	P	Coastal waters of Monterey Bay are used for foraging with haul-out sites near Fishermen's Wharf; most abundant pinniped in MBNMS.	Commonly found year-round in Monterey Bay.	**Moderate.** Main haul-out sites are located south of the study area; however, foraging can be expected to occur over the entire continental shelf.
Steller sea lion (*Eumetopias jubatus*)	FT, P	Occasional visit in fall and winter utilizing the coastal waters of Monterey Bay for foraging usually found among the California sea lions on the Coast Guard jetty in Monterey harbor.	Seasonally found in the region at Año Nuevo Island.	**Not Expected to Low.** A small population breeds on Año Nuevo Island, just north of Monterey Bay and occasional individuals transit through MBNMS waters but nearshore sightings are rare. Individuals could haul-out at any location along the coast.
harbor seal (*Phoca vitulina richardii*)	P	Most commonly observed pinniped along MBNMS coastline. Use the offshore waters of Monterey Bay for foraging and beaches for resting. Occur on offshore rocks, on sand and mudflats in estuaries and bays, and on some isolated beaches.[1]	Commonly found year-round in Monterey Bay.	**High.** Residents of MBNMS throughout the year, occurring mainly close to shore. A large group can be regularly observed in and immediately south the Del Monte study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Mammals				
northern fur seal (*Callorhinus ursinus*)	FD, P	Pelagic, usually come ashore in California only when debilitated or when breeding.	Occur off of central California during winter following migration from northern breeding grounds.	**Not Expected.** Usually 18-28 km from shore in California, however, they have been observed within 5 km of Point Pinos to the south of the study areas. Few individuals observed on Año Nuevo Island.
northern elephant seal (*Mirounga angustirostris*)	P	Usually observed offshore swimming and foraging and only come ashore in Monterey Bay when debilitated or at one of the established rookeries.	Three rookeries are on mainland beaches in MBNMS at Pt. Piedras Blancas, Cape San Martin/Gorda, and Año Nuevo State Park.	**Not Expected to Low.** Northern elephant seals are widely distributed in MBNMS. They are sighted regularly over shelf, shelf-break and slope habitats and they are also present in deep ocean habitats seaward of the 2000 m isobaths. Rookeries are located to the north and south of the study areas.
Guadalupe fur seal (*Arctocephalus townsendi*)	FT, CT, FP	Breed along the eastern coast of Guadalupe Island, approximately 200 Kilometers west of Baja California.	Individuals have been sighted in the southern California Channel Islands, including two males who established territories on San Nicolas Island. Guadalupe fur seals have been reported on other southern California islands, and the Farallon Islands off northern California with increasing regularity since the 1980s and only occasional observed foraging and swimming in the waters of Monterey bay.	**Not Expected to Low.** This species is not known to regularly haul out or breed in any of the study areas, but occasionally individuals have been sighted in MBNMS waters or have stranded on beaches located within the study areas
harbor porpoise (*Phocoena phocoena*)	P	Observed in shallow sandy bottom areas of the Monterey Bay Shelf where they forage.	Commonly found year-round in Monterey Bay.	**Low to Moderate.** Although the main population is located offshore Sunset Beach State Park, located north of all of the study areas, individuals have been reported in the nearshore waters adjacent to the former Fort Ord military base.
Risso's dolphin (*Grampus griseus*)	P	Generally found in waters greater than 1,000m in depth and seaward of the continental shelf and slopes.	Occur offshore along California and the Pacific Northwest.	**Not Expected.** An increase in the number of Risso's dolphins in MBNMS has occurred since 1973; however, they generally occur in deeper waters offshore of the study areas.
common dolphin – Long-beaked (*Delphinus capensis*)	P	Found relatively close to shore swimming and foraging.	Commonly found year round in Monterey Bay.	**High.** The common dolphin is the most abundant cetacean found in the coastal waters of California, and the abundance within MBNMS has increased in recent years.[3] Can be frequently observed near the surf zone.
common dolphin – Short-beaked (*Delphinus delphis*)	P	A more pelagic species than the long-beaked common dolphin, they utilize Monterey Bay for foraging.	Occur offshore along the California Coast.	**Not Expected.** Generally found offshore of the study areas.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
FEDERAL OR STATE ENDANGERED OR THREATENED SPECIES (cont.)				
Mammals (cont.)				
Dall's porpoise (*Phocoenoides dalli*)	P	The most pelagic of the porpoises in MBNMS, they utilize Monterey bay for foraging.	Occur throughout the Northern Pacific Ocean –	**Not Expected.** Most frequently seen off of Point Piños and over the Monterey Canyon, both of which are outside of the study areas.[3]
bottlenose dolphin (*Tursiops truncatus*)	FD, P	Includes coastal and offshore populations. Both species use the waters of Monterey Bay for foraging.	Commonly found year round in Monterey Bay.	**Moderate.** This species is considered a resident of Monterey Bay, and is confined to occur within 0.7 miles of shore.
Pacific white-sided dolphin (*Lagenorhynchus obliquidens*)	P	Commonly seen near the shelf break in the offshore waters of Monterey Bay.	Commonly found year round in Monterey Bay.	**Not Expected to Low.** This had been the most frequently seen dolphin in Monterey Bay but has recently been replaced by the common dolphin. Occurs primarily within 15km west of Carmel Bay to the south of the study areas and within 25km southwest of Santa Cruz to the north of the study areas.
OTHER SPECIAL-STATUS SPECIES				
Plants				
vernal pool bent grass (*Agrostis lacuna-vernalis*)	CRPR 1B.1	Occurs in mima mound areas within or on the margins of vernal pools.	CNDDB records in eastern portion of former Fort Ord lands.	**Not expected.** No suitable habitat within the study area.
Hickman's onion (*Allium hickmanii*)	CRPR 1B.2	Closed-cone coniferous forest, maritime chaparral, coastal prairie, coastal scrub, and valley and foothill grassland habitats.	Scattered locations from southern Monterey Peninsula to eastern portion of former Fort Ord.	**Low to Moderate.** Potential to occur in grassland or grassland understory of coast live oak woodland.
Howell's onion (*Allium howellii var. howellii*)	CRPR 4.3	Clay or serpentine, valley and foothill grassland	No records in the Monterey Bay area.	**Not expected.** Not known from the project area.
Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)	CRPR 1B.2	Sandy areas in closed-cone coniferous forest, chaparral, woodland, and coastal scrub habitats.	Known from eastern portion of former Fort Ord lands and the Monterey peninsula.	**Low to Moderate.** Several CNDDB records within two miles of the study area. May occur in woodland and scrub communities within the study area.
Toro manzanita (*Arctostaphylos montereyensis*)	CRPR 1B.2	Sandy areas in maritime chaparral, woodland, and coastal scrub habitats.	Known from eastern portion of former Fort Ord lands, Toro Regional Park, and the Monterey airport.	**Low to Moderate.** Several CNDDB records within two miles of the study area. May occur in woodland and scrub communities within the study area.
Pajaro manzanita (*Arctostaphylos pajaroensis*)	CRPR 1B.1	Sandy soils in chaparral habitat.	CNDDB records from uplands above Elkhorn Slough, along General Jim Moore Boulevard, near the Monterey airport, on eastern portion of former Fort Ord lands, and near Highway 1 at Lightfighter Drive.	**Low to Moderate.** Potential to occur within chaparral habitat at this site.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
sandmat manzanita (*Arctostaphylos pumila*)	CRPR 1B.2	Opening with sandy soils in closed-cone coniferous forest, maritime chaparral, woodland, coastal dunes, and coastal scrub habitats.	Throughout former Fort Ord lands, including along General Jim Moore Boulevard and coastal dunes, and near the Monterey peninsula airport.	**Observed.** CNDDB records within the Sand City site. High potential to occur in suitable habitat throughout the study area.
ocean bluff milkvetch (*Astragalus nuttallii* var. *nuttallii)*	CRPR 4.2	Sandy soils in coastal habitat of central coast California	Endemic to central coast California and documented throughout Monterey County where habitat is present.	**High.** study area is within the known range of this species and provides suitable habitat for this species.
alkali milk-vetch (*Astragalus tener* var. *tener*)	CRPR 1B.2	Alkaline playas, valley and foothill grassland (adobe clay), and vernal pools.	Known from only two historical (late 1800's) locations in Monterey and San Benito Counties.	**Low.** Regional occurrences are historical only and closest CNDDB observation over 7 miles from the study area. Likely limited suitable habitat within the study area.
twisted horsehair lichen (*Bryoria spiralifera*)	CRPR 1B.1	Usually observed on conifers in North Coast coniferous forest. Usually on *Picea sitchensis*, *Pinus contorta* var. *contorta*, *Pseudotsuga menziesii*, *Abies grandis*, and *Tsuga heterophylla*.	Known from southern Monterey Bay.	**Low.** Suitable habitat likely absent from the study area.
pink Johnny-nip (*Castilleja ambigua* var. *insalutata*)	CRPR 1B.1	Coastal prairie and scrub.	CNNDB records from Monterey peninsula, south of Carmel, and the central portion of Ford Ord National Monument	**High, Possibly Observed.** Species documented historically at Deer Flat Park within the Del Monte site. Potential to occur within central dune scrub in the study area.
Monterey Coast paintbrush (*Castilleja latifolia*)	CRPR 4.3	Sandy soils in closed-cone coniferous forest, coastal dunes, coastal scrub, and openings in cismontane woodland.	Occurs in Monterey and Santa Cruz Counties.	**High.** Potential to occur in central dune scrub within the study area.
Point Reyes ceanothus (*Ceanothus gloriosus* var. *gloriosus*)	CRPR 4.3	Sandy soil is coastal bluff scrub, closed-cone coniferous forest, coastal dunes, and coastal scrub.	Known from southern Monterey Bay.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Monterey ceanothus (*Ceanothus rigidus*)	CRPR 4.2	Closed-cone coniferous forest, chaparral, coastal scrub.	Known from throughout the Monterey Bay region.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	CRPR 1B.1	Valley & foothill grassland habitat, particularly in areas with alkaline substrates and in sumps or disturbed areas where water collects; ephemeral drainages.	Known from multiple locations primarily east and north of study area.	**Low to Moderate.** CNDDB occurrence records are over 3 miles north and east of the study area. Potential to occur within suitable habitat within the study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
Douglas' spineflower (*Chorizanthe douglasii*)	CRPR 4.3	Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland	Known from Monterey Bay region.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Fort Ord spineflower (*Chorizanthe minutiflora*)	CRPR 1B.1	Sandy openings in chaparral and coastal scrub.	Unknown regional occurrence.	**Moderate.** Potential to occur within central dune scrub and other suitable habitat within the study area.
Jolon clarkia (*Clarkia jolonensis*)	CRPR 1B.2	Edges or recently burned areas of chaparral, coastal scrub, oak woodland or riparian woodland.	Historical records in coastal areas from Moss Landing to Monterey peninsula. Extant populations in Monterey County south of peninsula.	**High.** Non-specific historical record around the Del Monte, North Monterey, and Sand City sites. Potential to occur within central dune scrub and other suitable habitat within the study area.
Lewis' clarkia (*Clarkia lewisii*)	CRPR 4.3	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	Known from Monterey Bay region.	**High.** Potential to occur within central dune scrub and other suitable habitat within the study area.
San Francisco collinsia (*Collinsia multicolor*)	CRPR 1B.2	Sometimes occurs in serpentine habitats. Closed-cone coniferous forest and coastal scrub.	One collection on the Monterey peninsula from 1903.	**Low.** No recent observations in the region. Suitable closed-cone coniferous forest habitat likely absent from the study area.
branching beach aster (*Corethrogyne filaginifolia* [formerly *leucophylla*])	CRPR 3.2	Closed –cone coniferous forest, coastal dunes	Known from throughout the Monterey Bay region.	**High.** Known from the region and suitable central dune scrub habitat is present in the study area.
Rattan's cryptantha (*Cryptantha rattanii*)	CRPR 4.3	Cismontane woodland, riparian woodland, valley and foothill grassland	Known from Monterey peninsula	**Low.** Suitable habitat likely absent from the study area.
Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*)	CRPR 1B.2	Occurs in chaparral openings, woodland (mesic) and coastal scrub.	A single CNDDB documented occurrence from the Santa Lucia mountains south of Carmel Valley.	**Low.** Given the sparse records for Monterey County the species has a low potential to occur within the study area.
Hutchinson's larkspur (*Delphinium hutchinsoniae*)	CRPR 1B.2	Broadleaved upland forest, chaparral, coastal prairie, and coastal scrub habitats.	Extreme eastern portion of former Fort Ord lands and areas south of Carmel Valley. A single historical non-specific CNDDB occurrence from the Monterey peninsula.	**Low.** Given the sparse records in the vicinity of the study area the species has a low potential to occur within the study area.
umbrella larkspur (*Delphinium umbraculorum*)	CRPR 1B.3	Woodland	Although there is a non-specific occurrence recorded for the species "in the Monterey quad" the species range encompasses the Santa Lucia mountains south of the project area, as well as San Luis Obispo, Santa Barbara, and Ventura Counties.	**Low.** The project area is outside the known range of the species.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
virgate eriastrum (*Eriastrum virgatum*)	CRPR 4.3	Sandy soils in coastal bluff scrub, chaparral, coastal dunes, and coastal scrub	Known from the Monterey Bay region and Monterey peninsula.	**Moderate.** This species is known from the region and suitable central dune scrub habitat is present in the study area.
Eastwood's goldenbush (*Ericameria fasciculata*)	CRPR 1B.1	Openings with sandy soils in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub habitats.	Endemic to Monterey County. CNDDB records from dunes near Marina and Seaside, former Fort Ord lands along General Jim Moore Boulevard, Monterey peninsula and Carmel River valley.	**High.** Historic non-specific CNDDB records from the Sand City, North Monterey, and Del Monte sites. May occur in central dune scrub and other suitable habitat throughout the study area.
elegant wild buckwheat (*Eriogonum elegans*)	CRPR 4.3	Usually in sandy or gravelly soils, often in washes, and sometimes in roadsides in cismontane woodland and valley and foothill grassland	Known from the Monterey peninsula.	**Low.** No records in the general project area and suitable habitat is likely absent from the study area.
Pinnacles buckwheat (*Eriogonum nortonii*)	CRPR 1B.3	Sandy soil in chaparral and valley and foothill grasslands. Often found on recent burns.	Endemic to Monterey and San Benito Counties. Known from Pinnacles National Monument, the mountains west of Hollister and several locations south of the Carmel River valley.	**Low.** No occurrences identified within the general project area, most of which is below the known elevation range for the species.
sand-loving wallflower (*Erysimum ammophilum*)	CRPR 1B.2	Sandy areas and openings in maritime chaparral, coastal dunes, and coastal scrub habitats.	Although known from several other coastal counties, center of distribution is Monterey County. Known from dunes near Marina and Seaside, former Fort Ord lands along General Jim Moore Boulevard and east.	**Observed.** CNDDB occurrence records within the Marina, North Monterey, Sand City, Del Monte, and CEMEX sites. High potential to occur in central dune scrub and other suitable habitat within the study area.
fragrant fritillary (*Fritillaria liliacea*)	CRPR 1B.2	Often found in serpentine soils in woodland, coastal prairie, coastal scrub, and valley and foothill grassland.	Confined to four known occurrences in Monterey County. Most recent are at Prunedale and Aromas. Historical records from Pebble Beach area and south of Big Sur.	**Low.** No occurrences identified within the vicinity of the study area. Suitable habitat likely absent from the study area.
San Francisco gumplant (*Grindelia hirsutula* var. *maritima*)	CRPR 3.2	Occurs in sandy or serpentinite soils in coastal bluff scrub, coastal scrub, and valley and foothill grassland	Occurs in coastal California from Marin to San Luis Obispo Counties.	**Low.** No occurrences identified within the vicinity of the study area.
Monterey cypress (*Hesperocyparis macrocarpa*)	CRPR 1B.2	Typically grows in pure stands with an understory of scattered dwarf shrubs and perennial herbs. Forms closed-cone coniferous woodland and forest.	Two natural populations endemic to Monterey county and located between Point Cypress and Pescadero Point and at Point Lobos, south of the project area. Also widely planted along the California coast.	**Not expected.** Species may occur within study area, but trees would be planted and not protected as special-status.
Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*)	CRPR 1B.1	In openings with sandy or gravelly substrates within closed-cone coniferous forest, maritime chaparral, and coastal scrub habitats.	Occurrences in Monterey County are concentrated in the Monterey Bay area. Known from the dunes near Marina and Seaside, former Fort Ord lands along General Jim Moore Boulevard and east.	**High.** Historic non-specific CNDDB record from the Del Monte and North Monterey sites. Potential to occur in central dune scrub and other suitable habitat within the study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
Point Reyes horkelia (*Horkelia marinensis*)	CRPR 1B.2	Coastal strand, coastal prairie, northern coastal scrub and dune habitats.	Coastal areas from Mendocino to San Luis Obispo counties. One historical CNDDB occurrence documented in the project vicinity in Marina.	**Low.** Based on known distribution the species is not expected to occur within the study area.
coast iris (*Iris longipetala*)	CRPR 4.2	Mesic areas in coastal prairie, lower montane coniferous forest, meadows and seeps.	Known from Monterey peninsula.	**Low.** No occurrence records in the vicinity of the study area. Suitable habitat likely absent from the study area.
legenere (*Legenere limosa*)	CRPR 1B.1	Occurs in vernal pools, and floodplains of intermittent streams surrounded by grassland, open woodland, or hardwood forest.	A single CNDDB record on the eastern portion of former Fort Ord.	**Low.** Lack of CNDDB observations in the vicinity of the study area. Suitable habitat likely absent from the study area.
small-leaved lomatium (*Lomatium parvifolium*)	CRPR 4.2	Serpentinite in closed-cone coniferous forest, chaparral, coastal scrub, and riparian woodland.	Known from Monterey Bay area.	**High.** Known from the vicinity of the study area. Potential to occur in central dune scrub and other suitable habitat within the study area.
Carmel Valley bush-mallow (*Malacothamnus palmeri* var. *involucratus*)	CRPR 1B.2	A fire-dependent species found on talus hilltops and slopes in chaparral, woodland, and coastal scrub. Sometimes on serpentine substrates.	Endemic to Monterey and San Luis Obispo Counties. One historical observation “near Pacific Grove”. More recent observations in Carmel Valley and hills to north. Also occurs in the Santa Lucia Mountains.	**Low.** Lack of CNDDB observations along the coast near the study area. Suitable woodland habitat likely absent from the study area.
Santa Lucia bush-mallow (*Malacothamnus palmeri* var. *palmeri*)	CRPR 1B.2	Rocky chaparral.	Endemic to Monterey and San Luis Obispo Counties. Distribution is poorly understood, with few documented occurrences.	**Low.** A single historical (1985) observation from the vicinity of Carmel. Suitable chaparral habitat likely absent from the study area.
Carmel Valley malacothrix (*Malacothrix saxatilis* var. *arachnoidea*)	CRPR 1B.2	Occurs in meadows of foothill woodland and chaparral communities. Almost always under natural conditions in non wetlands in California	Endemic to Monterey and Santa Barbara Counties. Known primarily from the Carmel River valley.	**Low.** No records within the vicinity of the study area. Suitable woodland and chaparral habitat likely absent from the study area.
Mt. Diablo cottonweed (*Micropus amphibolus*)	CRPR 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland	Known from Santa Lucia Mountains in Monterey and Santa Cruz Mountains	**Low.** No records within the vicinity of the study area. Suitable forest, woodland, and chaparral habitat likely absent from the study area.
marsh microseris (*Microseris paludosa*)	CRPR 1B.2	Closed-cone coniferous forest, woodland, coastal scrub, and valley and foothill grassland. Reports in project region from vernally wet areas.	Documented from the Del Monte Forest, vernal pools in east former Fort Ord lands, and Monterey County Veteran’s Park, as well as locations near Carmel and in hills east of Carmel.	**Low.** Suitable forest and woodland habitat likely absent from the study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
northern curly-leaved monardella (*Monardella sinuata* ssp. *nigrescens*)	CRPR 1B.2	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest.	Known from coastal Monterey Bay. Documented on inland ranges of former Fort Ord lands.	**High.** Historic non-specific CNDDB records from the Sand City and Del Monte Sites. May occur in central dune scrub and chaparral habitat within the study area.
woodland woollythreads (*Monolopia gracilens*)	CRPR 1B.2	Serpentine soils in broadleafed upland forest, chaparral, woodland, and North Coast coniferous forest openings, and valley and foothill grasslands.	A single historical collection from the Monterey area, exact location unknown. A single collection from Santa Lucia mountains to the southeast of the project area.	**Low.** Historic non-specific CNDDB record from the Del Monte site. Suitable forest and woodland habitat likely absent from the study area.
California adder's-tongue (*Ophioglossum californicum*)	CRPR 4.2	Mesic areas in chaparral, valley and foothill grassland, and vernal pools	Known from the Monterey peninsula.	**Low.** No records from the Monterey Bay coast. Suitable vernal pool habitat likely absent from the study area.
South coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*)	CRPR 3.2	Sandy, sometimes rocky, soils in chaparral, coastal dunes, coastal scrub, and coastal salt marshes and swamps.	Coastal areas from Monterey to southern California	**High.** Known from the region and suitable central dune scrub habitat within the study area.
Monterey pine (*Pinus radiata*)	CRPR 1B.1	Closed-cone coniferous forest and woodland habitats.	Three natural populations remain on California coast at Ano Nuevo to the north, Monterey area, and Cambria to the south. Widely used in landscaping and other plantings.	**Low to Moderate.** Extant natural populations largely restricted to the Monterey peninsula. Del Monte site is within historic range of this species.
Michael's rein orchid (*Piperia michaelii*)	CRPR 4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest.	Known from southern Monterey Bay.	**High.** Known from the region. Potential to occur in central dune scrub and other suitable habitat within the study area.
Choris's popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*)	CRPR 1B.2	Vernal pools or vernally wet swales in chaparral, coastal prairie, and coastal scrub.	Known from Monterey County.	**Low.** Vernal pools and vernally wet swales likely absent from the study area.
Hickman's popcorn flower (*Plagiobothrys chorisianus* var. *hickmanii*)	CRPR 4.2	Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, and vernal pools	Known from Monterey peninsula and inland Monterey Bay area.	**Low to Moderate.** Known from the vicinity of the study area and suitable wetland areas may be present within the study area.
Angel's hair lichen (*Ramalina thrausta*)	CRPR 2B.1	Found on dead twigs and other lichens in north coast coniferous forest	One local record from Carmel.	**Low.** No observations in the vicinity of the study area and suitable habitat likely absent from the study area.
Lobb's aquatic buttercup (*Ranunculus lobbii*)	CRPR 4.2	Mesic areas in cismontane woodland, north coast coniferous forest, valley and foothill grassland, and vernal pools.	Known from eastern former Fort Ord lands and from coastal Monterey bay.	**Moderate.** Known from the vicinity of the study area and suitable wetland areas may be present within the study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
Pine rose (*Rosa pinetorum*)	CRPR 1B.2	Closed-cone coniferous forest habitat.	Manzanita County Park and vicinity of Edward Morse botanical preserve; Monterey Peninsula.	**Low.** Historic non-specific CNDDB record within the North Monterey and Sand City sites. Suitable habitat likely absent from the study area.
maple-leaved checkerbloom (*Sidalcea malachroides*)	CRPR 4.2	Broadleafed upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland	Known from Monterey and Santa Cruz Counties and northern California coastal areas.	**Low.** Closest record is historical and from the Carmel/Pacific Grove area. Suitable forest habitat is likely absent from the study area.
Santa Cruz microseris (*Stebbinsoseris decipiens*)	CRPR 1B.2	Open areas, sometimes in serpentine soils within broadleaf upland forest, chaparral, coastal prairie and scrub, and valley and foothill grassland.	Known from Monterey peninsula and in the hills southeast of the study area.	**Low.** Known records are generally outside the vicinity of the study area. Suitable forest habitat likely absent from the study area.
Santa Cruz clover (*Trifolium buckwestiorum*)	CRPR 1B.1	On margins of broadleaved upland forest, woodland, and coastal prairie.	Known from Santa Cruz and Monterey Counties. Records in the project vicinity are from the eastern portion of former Fort Ord lands and from Highway 68.	**Low.** Known records are generally outside the vicinity of the study area. Suitable forest and woodland habitat likely absent from the study area.
saline clover (*Trifolium hydrophilum* = *depauperatum* var. *hydrophilum*)	CRPR 1B.2	Marshes and swamps, vernal pools, and alkaline, mesic areas in valley and foothill grassland.	Large populations documented in vicinity of Moss Landing; historical collection in vicinity of Pacific Grove.	**Low.** No occurrences identified in vicinity of study area. Suitable vernal pool habitat likely absent from the study area.
Invertebrates				
globose dune beetle *(Coelus globosus)*	--/**	Loose sandy areas in foredunes and sand hummocks	Sand dunes from Bodega Bay to Ensenada, Baja California	**Moderate to High.** 1972 CNDDB record from the Sand City and North Monterey sites. Potential to occur along the beach and sand dunes throughout the study area.
monarch butterfly (*Danaus plexippus*) California overwintering population	--/**	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adults can be found in areas abundant with wildflowers. Autumnal and winter roosts in eucalyptus and conifers.	Known from numerous locations along the Santa Cruz and Monterey County coast. Overwintering sites in Pacific Grove.	**Observed.** Wintering site occurs within the Del Monte site.
Fish				
white sturgeon (*Acipenser transmontanus*)	CSC	Live in estuaries of large rivers, but migrate to spawn in freshwater and often travel long distances between river systems.	Exist in salt water from the Gulf of Alaska south to Ensenada, Mexico, but spawning only occurs in a few large rivers from the Sacramento- San Joaquin system northward. Self-sustaining spawning populations are currently only known in the Fraser (British Columbia), Columbia (Washington), and Sacramento (California) rivers.[11]	**Not Expected to Low.** There are very few data on white sturgeon presence in coastal waters. This species may forage in or near the study areas but its distribution in ocean waters is essentially unknown No other sightings or reported presence in other entrainment and fish studies have indicated a more than occasional presence.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Fish (cont.)				
white shark (*Carcharodon carcharias*)	CSC	In California, important white shark habitat occurs around Monterey Bay and Greater Farallones, national marine sanctuaries. White shark populations are impacted by purposeful and incidental capture by fisheries, marine pollution, and coastal habitat degradation	Present in coastal waters throughout the State.	**Low to Moderate.** Juveniles and adults are known to frequent the nearshore coastal waters along Monterey Bay coastline, including the waters in and adjacent to the surf zone.
basking shark (*Cetorhinus maximus*)	CSC	This species movements and migrations are poorly understood.	Usually sighted from British Columbia to Baja California in the winter and spring months; where they go once they leave coastal areas is unknown.	**Not Expected.** Basking shark populations were severely depleted by commercial fisheries of the 1950s, and they have never fully recovered due to slow growth and low fecundity.[15] Basking sharks typically inhabit deeper waters than those present in the study areas.
California grunion (*Leuresthes tenuis*)	--/--/CDFW fishery	Occurs in ocean and spawn on sandy beaches.	Southern California	**Low to Moderate.** Incidence of occurrence in Monterey is very low and highly sporadic, but may occasionally occur along beach in study area.
Amphibians				
foothill yellow-legged frog (*Rana boylii*)	SCT, CSSC	Partially shaded, shallow streams and riffles with a rocky substrate	One CNDDB observation from the Salinas River over 7 miles east of the study area.	**Low.** Suitable habitat likely absent from the study area.
Coast Range newt (*Taricha torosa*)	CSSC	Wet forests, oak forests, chaparral, and rolling grasslands, breed in ponds, reservoirs, and streams	Records from south of the Carmel River.	**Low to Moderate.** Potential to occur in aquatic habitat (ponds) and in adjacent upland areas such as woodland or grassland habitat.
Reptiles				
western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	Known from the Monterey Bay area	**Moderate.** CNDDB records in the vicinity of the study area. Potential to occur in suitable habitat at ponds or freshwater wetlands within the study area.
northern California legless lizard (*Anniella pulchra*) includes ssp. *nigra and pulchra*	CSSC	Sandy or loose, loamy soils, including stream terraces and coastal dunes. Dune scrub, maritime chaparral, oak woodland.	Known from multiple locations along the Monterey Bay.	**Observed.** CNDDB records from Del Monte, Marina, North Monterey, Sand City, and CEMEX sites. High potential to occur in central dune scrub throughout the study area.
coast horned lizard (*Phrynosoma blainvillii*)	CSSC	Exposed, gravely-sandy substrates, usually containing scattered shrubs, clearings in riparian woodlands.	Multiple records east of the study area, north and south of Reservation Road.	**High.** Known from the vicinity of the study area. Likely to occur in sandy soils within the study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Birds				
tricolored blackbird (*Agelaius tricolor*)	SCE/CSSC (nesting)	Breeds near freshwater in dense emergent vegetation.	Uncommon breeder in Monterey County. Several CNNDB records in the Monterey area. Known from Laguna Seca Recreation Area and eastern Fort Ord.	**Moderate.** Nesting birds observed just east of the Marina site. Potential to nest in ponds and marshes within the study area.
short-eared owl (*Asio flammeus*)	CSSC (nesting)	Coastal grasslands, marshes, dunes and agricultural areas. Nests are scraped out of the ground in dry areas among grasses and low forbs.	One nesting occurrence documented in CNDDB near the mouth of the Salinas River.	**Low to Moderate.** May forage or nest in scrublands near the coast throughout the study area.
burrowing owl (*Athene cunicularia*)	CSSC (nesting and wintering)	Grassland habitat with ground squirrel burrows (used for nesting and wintering).	Known from several locations within the Monterey Bay area.	**High.** CNNDB record within the Marina and Sand City sites. Potential to occur in suitable upland areas with ground squirrel burrows within the study area.
Ferruginous hawk (*Buteo regalis*)	WL (wintering)	Grasslands, sagebrush scrub, and conifer forest edges at low to moderate elevations.	One CNDDB occurrence documented four wintering adults from 2004 in grasslands of southern Armstrong Ranch.	**Low to Moderate.** Some potential to winter in upland grassland and scrub habitat within the study area.
northern harrier (*Circus cyaneus*)	CSSC	Forages in open grasslands, marshes, floodplains, and shrub lands. In western states, nests on the ground in dry uplands.	Know from the Monterey Bay area.	**Low to Moderate.** May nest in or adjacent to open grassland, marshes, or wetlands in the study area.
yellow rail (*Coturnicops noveboracensis*)	CSSC	Freshwater marshlands.	One historic record from Monterey and one records from Pacific Grove from 1970.	**Low.** No recent observations in the region.
black swift (*Cypseloides niger*)	CSSC (nesting)	Nests on wet cliffs, often behind waterfalls. Forages aerially.	Rare and local breeding resident at Point Lobos. Otherwise only rarely documented in the region.	**Low.** No recent observations in the region. Suitable nesting habitat likely absent from in the study area.
white-tailed kite (*Elanus leucurus*)	FP (nesting)	Resident of river valleys, riparian woodlands, and adjacent fields.	The species' range includes the western U.S. and the species can be found throughout California. White-tailed kite observations are numerous throughout Monterey County.	**Moderate to High.** Potential to nest or forage in the study area.
American peregrine falcon (*Falco peregrinus*)	FD/SD/FP	Forages for other birds over a variety of habitats. Nests primarily on rocky cliffs.	Numerous sightings throughout the Monterey Bay area. One nest record from the Moss Landing quadrangle, although the exact location is suppressed by the CNDDB.	**Moderate.** Nesting habitat is likely absent from the study area. High potential for occurrence of foraging individuals throughout the study area.
loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Resident in dry open grasslands and scrub dominated habitats.	Numerous sightings throughout the Monterey Bay area.	**High.** May occur in grassland, scrub, or oak woodland habitat within the study area.
brown pelican (*Pelecanus occidentalis*)	FD/SD/FP	Forages and roosts in coastal marine habitats.	Numerous sightings throughout the Monterey Bay area.	**Low.** Low potential to occur in the study area on anything other than a transient basis due to lack of suitable roosting or foraging habitat.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)				
Mammals				
pallid bat (*Antrozous pallidus*)	CSSC/ WBWG-H	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No CNDDB records within 10 miles of the study area. Distribution unknown in the Monterey region.	**Low to Moderate.** No occurrences identified within study area. Some suitable roosting habitat present under overpasses and in trees.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and abandoned buildings. Very sensitive to human disturbance.	Throughout the western U.S.	**Low to Moderate.** The project site is within the range of this species. Potential roosting structures (abandoned or isolated, undisturbed structures or caves) may be present within the study area.
Salinas kangaroo rat (*Dipodomys heermanni goldmani*)	--/**	Brushy and grassy areas.	Lower (northern) end of the Salinas Valley from the coast of Monterey Bay south of the mouth of the Salinas River to the vicinity of Soledad.	**Low to Moderate.** Potential to occur in brushy, chaparral, and grassy areas in the study area. Locally sensitive within the coastal areas of the City of Marina.
western red bat (*Lasiurus blossevillii*)	CSSC/ WBWG-H	Often associated with riparian habitats and edge habitats adjacent to streams and open fields.	Found in coastal areas south of the San Francisco Bay and in the Central Valley.	**Low to Moderate.** Suitable habitat in trees, particularly in riparian areas, within the study area.
hoary bat (*Lasiurus cinereus*)	WBWG-M	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	Widespread throughout California. Two historic CNDDB records within the region.	**Low.** Suitable habitat in trees within the study area.
Monterey dusky-footed woodrat (*Neotoma fuscipes luciana*)	CSSC	Riparian, dense chaparral, or oak woodlands with moderately dense understory and abundant dead wood for nest construction.	Endemic to western and central Monterey County and northwestern San Luis Obispo County.	**High.** Potential to occur in oak woodland and scrub habitat within the study area.
Monterey shrew (*Sorex ornatus salarius*)	CSSC	Coastal salt marshes and adjacent sandhills, Riparian wetland, woodland and upland communities with thick duff or downed logs. May also occur in coast live oak woodland, grasslands, coastal scrub, maritime chaparral, and savannah vegetation.	Distribution poorly known. Historical collections from the Pajaro River to Carmel. More recently collected from the Salinas River delta. No CNDDB records in the region.	**Moderate.** May potentially occur in central dune scrub, chaparral, and oak woodland within the study area.
American badger (*Taxidea taxus*)	CSSC	Grasslands and other open habitats with friable soils.	Distributed throughout the region. Locally known from Fort Ord.	**Low to Moderate.** Non-specific historical CNDDB occurrence record from the Sand City site. Potential to occur in grassland within the study area.

TABLE 1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED FOR THE MONTEREY BAY OPPORTUNISTIC BEACH NOURISHMENT PROGRAM STUDY AREA

Name	Status* (USFWS/ CDFW/CRPR)	Habitat	Regional Distribution	Potential for Occurrence Within Study Area

*Special-Status Species Code Designations:

Federal
- FE = Federally listed as Endangered
- FT = Federally listed as Threatened
- P = Protected by Marine Mammal Protection Act
- FD = Federally delisted

State
- SE = State listed as Endangered
- ST = State listed as Threatened
- SR = State listed as Rare
- SD = State Delisted
- FP = State listed as Fully Protected
- SCE = State Candidate Endangered
- SCT = State Candidate Threatened
- CSSC = California Species of Special Concern
- 3503.5 = Section 3503.5 of the California Fish and Game Code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs.

** Locally sensitive

California Rare Plant Rank (Formerly known as CNPS List):

- 1A = Plants presumed extinct in California.
- 1B = Plants rare, threatened, or endangered in California and elsewhere.
- 2A = Plants presumed extirpated in California.
- 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.
- 3 = Plants about which more information is needed.
- 4 = Plants of limited distribution.

An extension reflecting the level of threat to each species is appended to each CRPR as follows:

- .1 – Seriously threatened in California.
- .2 – Moderately threatened in California.
- .3 – Not very threatened in California.

Western Bay Working Group (WBWG):

- WBWG-H = High priority; Species that are imperiled or at a high risk of imperilment.
- WBWG-M = Medium priority; Species that warrant a closer evaluation due to potential imperilment.

SOURCES: CalFlora, 2018; CDFW, 2018; CNPS, 2018; eBird, 2018; USFWS, 2018a; USFWS, 2018b.