CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2015-0009

WASTE DISCHARGE REQUIREMENTS and WATER QUALITY CERTIFICATION for:

LIND MARINE INCORPORATED
SAND MINING IN SUISUN BAY

The California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), finds that:

A. Purpose of Order: This Order regulates sand mining operations (project) within Suisun Bay conducted by Lind Marine Incorporated (Lind) (previously Jerico Products, Inc.), including the discharge of decant water from those operations.

This Order constitutes Waste Discharge Requirements (WDRs) and provides the Water Quality Certification (Certification) for the project described herein.

B. Project Overview: Lind conducts sand mining operations in the Middle Ground Island lease area, southeast of Ryer Island and west of Middle Ground Island in Suisun Bay. Sand mining is the intentional dredging of sand and fine to medium gravel (hereinafter referred to collectively as sand) to be later used and sold for commercial purposes. Sand is dredged from various areas in the San Francisco Bay Estuary (Estuary) and is transported to upland facilities (sand yards) for processing and storage.

Lind's sand mining equipment consists of two tugboats, the *Trig Lind* and the *Petaluma*, and a hopper barge, the *J5200*, which is equipped with suction dredge equipment. The barge *J5200* is 200 feet long by 45 feet wide, with a total cargo capacity of approximately 1,850 cubic yards (cy). Lind's equipment and methods limit it to mining in water depths from approximately -15 feet to -40 feet mean lower low water (MLLW).

During mining operations, the end of the suction pipe is buried about 5 to 8 feet into the sand substrate. The 14-inch diameter suction pipe opening is equipped with a 6-inch "grizzly," a square grid to prevent entrainment of material 6 inches or larger in diameter. Water and sand are drawn into the drag head by the suction of a centrifugal pump. Water drawn into the suction pipe through the substrate creates a sand-water slurry that allows the sand to be suspended and pumped into the hopper barge. Lind's equipment has a maximum pumping capacity of 5,000 gallons per minute (gpm). At Middle Ground Shoal, the sand to water proportion is normally approximately 23% sand and 77% water.

C. Discharge Description: During mining, a sand-water slurry fills the barge hopper through a flume chute running length-wise above the hopper. The chute is equipped with 13 gates fitted with ¼ inch to ½ inch mesh screens. The slurry flows through these gates, which are controlled to evenly fill the hopper. Excess water and gravel particles larger than the mesh screens are discharged through a pipe extending below the surface of the water. Water displaced by accumulating sand within the hopper barge returns to the receiving waters through overflow weirs or through subsurface discharges. The cargo hopper is also fitted with fine mesh screens along the bottom

centerline of the barge where water that has filtered through the sand is also collected and pumped overboard.

The discharge, also known as return flow, decant water, or overflow, contains material that does not settle out in the hopper, such as fine-grain sediment (silt and clay particles), aeration bubbles, dissolved substances, detritus, and plankton. It may also contain larger-size aggregates. Due to these characteristics, a visible plume (turbidity) may occur around the barge while the discharge is taking place. Based on the equipment and methods used for sand mining within the Estuary, commercial sand characteristically ranges in size from approximately 1 mm to 12 mm (1/2 inch), with larger and smaller particles discharged overboard. No chemicals or other materials are added to the overflow plume during sand mining. Lind has estimated that it discharges approximately 1,080,750 gallons (5,241 cy) of decant water containing about 0.4 cy of fine-grain suspended sediment per mining event.

Once mining is completed, the barge is taken to one of Lind's sand yard offloading sites located in Petaluma, Napa, or Collinsville. Appendix A shows sand yard locations in the Bay Area. At the offloading site, a conveyer belt mounted on the barge is lowered and moved to the side of the barge, where an excavator or front-end loader transfers the sand from the hopper onto the barge conveyor belt, which leads to a shore-side conveyor system that dumps the sand into a pile for distribution. Lind does not wash the sand with fresh water or process it in any other way prior to delivery to its customers.

Sand yards in the Bay Area are relatively small (typically 4-5 acres) and have limited capability to stockpile or store sand for an extended period. Therefore, sand mining in the Estuary is conducted in response to short-term demand. Stormwater discharges from Bay Area sand yards, which are not otherwise commingled with wastewater, are regulated under the statewide NPDES Industrial Stormwater General Permit (NPDES Permit No. CAS000001). As such, they are not addressed in this Order.

D. Regulatory Status: Sand mining decant or overflow water discharges are currently regulated under Water Board Order No. 95-177, as amended by Order No. 00-048, adopted on August 25, 1995, and June 21, 2000, respectively. Lind has submitted an application to the Water Board to reissue WDRs and issue a Certification to mine sand in Middle Ground Shoal in Suisun Bay for ten years (2015 - 2025).

In addition to obtaining WDRs/ Certification and a permit from the U.S Army Corps of Engineers (Corps) under section 10 of the Rivers and Harbors Act of 1899, Lind must also obtain and comply with the following approvals/permits for the project:

- An approved reclamation plan from the State Mining and Geology Board (SMGB). SMGB has approval authority over the reclamation plans prepared pursuant to the Surface Mining and Reclamation Act for sand mining sites. SMGB adopted resolution No. 2005-02 in February 2005, approving the reclamation plans for ten marine sand mining leases in the Central Bay, Suisun Bay, and the western Delta.

- An Incidental Take Permit from the California Department of Fish and Wildlife (CDFW). Lind submitted its application on July 11, 2013, and CDFW issued the permit on April 1, 2014. CDFW issued an amendment to the permit on October 14, 2014.

- A permit from the San Francisco Bay Conservation and Development Commission (BCDC) pursuant to McAteer-Petris Act. Lind has submitted an application to BCDC.

- Biological opinions from the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts to federally-listed special status species and essential fish habitat. USFWS issued a biological opinion on October 22, 2014.

E. Sand Mining Project Description

1. **Project Location:** Two marine aggregate companies, Hanson Marine Operations (Hanson) and Lind Marine Incorporated, and a joint venture, Suisun Associates, with Hanson and Lind as the joint venture partners, currently harvest sand commercially from the San Francisco Bay and the western Delta.

   The specific area where Lind proposes to continue mining sand is the Middle Ground lease location shown in Appendix A. Both Hanson and Lind currently mine the Middle Ground parcel under separate leases with the Grossi family, which owns the rights to the Middle Ground area.

   Sand mining does not occur uniformly within the lease areas but is typically clustered within specific areas where sand deposits have a low percentage of fine material (silts, clay, and mud). Material with a low percentage of fines is more suitable for use in construction materials. In addition, mining locations are limited by equipment constraints and permit requirements. The actual locations where sand mining occurs are regulated and/or influenced by a number of factors, which include designated lease areas, navigation restrictions, areas having suitable water depths for mining, areas where sand is known from historical observations to accumulate, and areas having moderately high water velocities resulting in frequent sand movement, replenishment, and scour of fines from sand deposits.

2. **Project Purpose and History:** The purpose of sand mining in the Estuary is to obtain aggregate that is primarily used for construction activities within the greater San Francisco Bay Area, either as fill and base material or as an ingredient in ready-mix concrete and hot mix asphalt. Sand obtained from the Estuary is used in the construction and maintenance of highway and freeway systems, commercial and public buildings, and residential construction.

   Sand has been mined commercially from the Estuary for more than seven decades, beginning in the 1930s. In the late 1970s, Morris Shell, formerly Pioneer Shell, began sand mining at Middle Ground Shoal in Suisun Bay, Chipps Island, and New York Slough. Mike Lind, current owner of Lind Marine Inc., purchased Morris Shell and subsequently changed the name of the company to Jerico Products, Incorporated. Jerico Products changed its name to Lind Marine Incorporated in mid-2014.

3. **Sand Mining Volume:** In its application, Lind proposed to mine up to 150,000 cy of sand annually over a ten-year period from the 367-acre area of submerged lands known as Middle Ground Island Sand Shoals (Grossi family lease), adjacent to Middle Ground Island in Suisun Bay (see map, Appendix A-2).

NOAA Fisheries has stated during its in-progress consultation on impacts to Essential Fish Habitat that it needs additional data regarding impacts to benthic habitat. We have determined that, as a precautionary measure, it is appropriate to reduce the volume of sand that can be extracted from all lease areas to avoid and minimize any extraction-related potential effects to beneficial uses (e.g., subtidal and intertidal benthic habitat) as follows:

Annual Volume	125,000 cy
Peak Year Volume	150,000 cy
Ten-Year (2015-2025) Maximum (Not-to-Exceed) Volume	1,250,000 cy

The ten-year maximum (not-to-exceed) volume allows for multiple peak years when construction-related demand for sand is greater than the allowed annual volume.

4. **Sand Mining Methods:** Lind uses the stationary potholing method of hydraulic sand mining. Stationary potholing involves an initial search for an appropriate sand source, followed by "stationary" mining by burying the suction pipe into the substrate and keeping it from moving by either anchoring or engine thrust.

   The suction pipe is equipped with small external vent pipes that extend a few feet above it and pull in water to help create the sand-water slurry when the pipe is buried in the substrate so deeply that insufficient water can be drawn through the sand substrate itself. This allows for sand to be mined without moving the suction pipe and for the suction pipe to be inserted farther under the substrate surface. As sand is pumped to the barge, adjacent sand is mobilized and falls into the pothole created by the suction head. The suction end is lowered to keep it in the substrate as the pothole is deepened.

   As mining commences, the dredge's operators determine the suitability of the sand for mining. Tests include grab samples to determine the gradation of the sand (coarse or fine) and visual observations of the slurry (a dark color indicates high sand to water proportion, signifying either loose, unconsolidated sand and/or finer sand). Vacuum measurements on the drag arm and density measurements of the slurry and pump RPMs give indications of the slurry density as well. Once the operator has determined a suitable location and the barge has been placed in position, an anchor is dropped from the bow of the barge. The barge is allowed to pivot and shift into position by drifting on the current. Once the barge has drifted to a stable position, the hydraulic suction pipe assembly is lowered into the water using a cable winch system to the substrate surface. The pump is primed and the pipe filled with water when the suction end is lower than 3 feet from the sand surface. The suction pipe is then slowly lowered about 5 to 8 feet into the sand, which further stabilizes the barge, and mining begins.

   If the sand becomes unsuitable (too coarse or fine) or the substrate too consolidated to mine, the operator shuts down the pump, picks up the suction pipe, and proceeds to another location to resume mining.

5. **Mining Event Duration**
   It typically takes an average of 4.67 hours for Lind to load the *J5200* barge to its 1,850 cy capacity when mining sand at Middle Ground Shoal. Depending on the offloading

locations, the entire operation – including loading, unloading and travel time – can take anywhere from 8 to 24 hours. Tidal conditions may further reduce the frequency of sand mining operations and disturbance of the sand shoals (e.g, the onset of low tide at the time a barge is available to return to the sand shoal or arrive at an offload location could delay the sand mining activity). Under these circumstances from an operational perspective, the greatest frequency that the same mining vessel would disturb any single area is twice in any 24-hour period.

6. **Sand Mining Impacts on Benthic Habitat**
Lind has submitted Biological Assessments for consultation with NOAA Fisheries and USFWS regarding potential impacts to federally-listed special status species and essential fish habitat. The Biological Assessments concluded that the proposed sand mining is not expected to change the benthic habitat or community and will not substantially affect the availability or distribution of foraging habitat for protected fish species. These conclusions were primarily based on the findings of a 2009 benthic study by Applied Marine Sciences (AMS). However, NOAA Fisheries staff indicated that the AMS study design did not account for naturally variable short-term population fluctuations (e.g., diurnal and seasonal) in the benthos at or between sites, nor did it establish pre-mining benthic community baselines that could be compared to post-mining communities. Furthermore, it did not assess the epibenthic community, an important source of fish forage. NOAA Fisheries determined that an additional, supplemental benthic habitat evaluation study is necessary. Provision 6 requires Lind to coordinate with NOAA Fisheries, USFWS, and CDFW to develop a work plan and complete investigations as per the approved work plan to verify the results of the 2009 AMS study. Provision 5 requires Lind to organize a technical advisory committee (TAC) to develop a work plan for the study, identify experienced contractors to conduct it, and review all data deliverables.

7. **Potential Entrainment Impacts**
Suction head dredging has the capability to affect multiple vertebrate and invertebrate communities inhabiting the Estuary, including benthic infauna and epifauna, mobile invertebrates such as shrimp and crabs, demersal and pelagic fish, and the planktonic stages of both invertebrates and fish. The suction current created to pump the sand slurry off of the seafloor, up the dredge pipe, and onboard the barge could be too strong for some organisms and age classes to escape entrainment.

During sand mining using the stationary potholing method, entrainment of larval, juvenile, and adult fish and invertebrates from the water column is expected to occur during initial priming and clearing of the centrifugal pump when the end of the suction pipe is positioned near the bottom of the water column, within 3 feet of the seafloor.

In addition, larval fish can be entrained through the small external vent pipes that extend a few feet above the suction pipe intake, which draw in water to thin the sand slurry if it becomes too dense to effectively pump. Lind has installed a positive barrier fish screen at the collective intake end of the vent pipes. The screen is sized to exclude juvenile and adult fish, but it currently is not technologically possible to exclude larvae.

8. **Avoidance, Minimization, and Mitigation Measures**
The following measures are intended to minimize adverse effects on special-status species and their habitats within the project area:

- A positive barrier fish screen that meets CDFW, USFWS, and NOAA Fisheries specifications has been installed on Lind mining equipment (intake end of vent pipes) to prevent entrainment take of adult and juvenile special-status fish species when water is drawn in through the vent pipe to thin the sand slurry at times when it becomes too dense.

- To minimize fish entrainment, when priming the pump or clearing the suction pipe, the intake end of the pipe is held as close to the bottom as possible, no more than 3 feet off the bottom at its maximum height in the water column.

- To avoid impacts to sensitive shallow water habitat, mining is not allowed within 200 feet of any shoreline or within 250 feet of areas with water depths less than or equal to -9 feet MLLW in the Middle Ground area of Suisun Bay.

- Based on consultations with CDFW and USFWS, during longfin and delta smelt spawning season (December 1 through June 30), Lind will implement mining volume reductions in the Middle Ground lease area to avoid and minimize potential entrainment of larval smelt.

- To minimize entrainment take of larval longfin smelt and delta smelt, Lind will observe seasonal mining depth restrictions in the Middle Ground area. No mining will be allowed December through June in water depths less than or equal to -25 feet MLLW and no mining will be allowed July through November in water depths less than or equal to -15 feet MLLW.

- To fully mitigate incidental take of species protected under the State and federal Endangered Species Acts that fish screens cannot avoid or minimize, Lind is required by CDFW and USFWS to purchase credits from a CDFW and USFWS-approved mitigation bank to provide permanent protection and perpetual management of compensatory habitat.

9. **Discharge Characterization and Receiving Water Quality Evaluation Study**
Provision 4 of this Order requires Lind to complete a study characterizing the quality of its effluent (i.e., hopper barge decant/overflow discharge) and the impacts of this discharge and mining on receiving water quality.

In November 1993, MEC Analytical Systems, Inc. completed a study, *Special Studies for Sand Mining Discharges of the Tidewater Sand and Gravel Company*, to evaluate Central Bay sand mining effluent quality and its potential impacts on receiving water quality. The study found, generally, that the effluent met water quality objectives under typical sand mining conditions.

However, the 1993 study did not include Suisun Bay mining locations and equipment and environmental conditions may have changed in the ensuing 21 years; therefore, Lind needs to perform a new study to update the results of the 1993 study. This Order may be reopened to

require additional water quality monitoring and implementation of corrective measures if the new study indicates potentially unacceptable water quality impacts from sand mining discharges.

F. Compliance with Applicable Plans, Policies, and Regulations

The requirements in this Order are based on the requirements and authorities described below:

1. **California Environmental Quality Act (CEQA) Statement of Findings and Overriding Considerations**

   On October 19, 2012, the SLC, as lead agency, certified a Final Environmental Impact Report (FEIR) (State Clearinghouse No. 2007072036) for the San Francisco Bay and Delta Sand Mining Project in accordance with CEQA. The SLC also adopted a Statement of Findings and Statement of Overriding Considerations (SOC) (October 19, 2012).

   As directed by CEQA and the State CEQA Guidelines (PRC sections 211002.1(d), 21080.1, 21167.2; 15 CCR sections 15096(e),(f), 15231), the Water Board, as a responsible agency under CEQA, has considered the FEIR and SOC and finds that the Project has the following significant environmental effects that are within the Water Board's purview and jurisdiction:

   Bio-6 (Sand mining could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging.)

   The SLC determined that impacts will be less than significant with mitigation. The Water Board concurs and hereby finds that changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR and for the reasons described in the SLC's Findings on pages D-7 through D-9.

   Bio-8 (Regular operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt. The Project would result in a significant impact to delta smelt and longfin smelt as a result of entrainment and mortality during sand mining operations impacting delta smelt and longfin smelt thereby exceeding the established significance level criteria thresholds.)

   The SLC determined that impacts to delta and longfin smelt will remain significant and unavoidable even with implementation of the recommended mitigation measures. The Water Board concurs and hereby finds that (1) Changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR; (2) Such changes or alterations are within the responsibility and jurisdiction of the CDFW and not the SLC or Water Board. Such changes have been adopted by such other agency or can and should be adopted by such other agency; and (3) Specific economic, legal, social, technological or other considerations, including provision or employment opportunities for highly trained workers make infeasible the mitigation measures identified in the EIR. These findings are supported by the reasons described in the SLC's Findings on pages D-9 through D-14. In particular, Lind will implement measures required by CDFW to avoid and minimize effects to these and other State- and federally-listed species and their habitat within project areas. As compensatory mitigation for the incidental take impact during the proposed 10-year mining period, CDFW has required Lind to purchase 0.107 acres of shallow water habitat credits from a CDFW-approved mitigation or conservation bank.

Bio-9 (Green sturgeon, Chinook salmon, and steelhead trout will be impacted during sand mining. The Project will cause the entrainment and mortality of green sturgeon, Chinook salmon and steelhead trout during sand mining.)

The SLC determined that implementation of mitigation measure MM Bio-8a will reduce effects of the Approved Project due to entrainment of Chinook salmon, steelhead trout, and green sturgeon to less than significant. The Water Board concurs and hereby finds that changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR for the reasons described in the SLC's Findings on pages D-14 through D-16. In addition, these changes or alterations are within the responsibility and jurisdiction of CDFW and not the SLC or Water Board. CDFW has required implementation of mitigation measure MM Bio-8a in the Incidental Take Permit for the Project.

In addition to the original Approved Project, the Water Board has ordered Lind to abide by certain conditions, discharge prohibitions, and receiving water limitations in order to meet beneficial uses and water quality objectives. These conditions, discharge prohibitions, and receiving water limitations do not create any new significant impacts or increase the severity of impacts requiring any additional CEQA analysis as provided by PRC section 21166 and CEQA Guidelines sections 15162, 15163.

2. **San Francisco Bay Basin Water Quality Control Plan (Basin Plan)**
California Water Code section 13240 authorizes the Water Board to develop a Water Quality Control Plan for the San Francisco Bay Basin, which is the Water Board's master water quality control planning document (the Basin Plan). The Basin Plan designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board (State Water Board), U.S. EPA, and the Office of Administrative Law where required. The latest version can be found on the Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml. Requirements in this Order implement the Basin Plan.

The existing beneficial uses of Central San Francisco Bay and Suisun Bay include:

- Industrial service supply (IND)
- Industrial process supply (PROC)
- Commercial and sport fishing (COMM)
- Shellfish harvesting (SHELL) (Central Bay only)
- Estuarine Habitat (EST)
- Fish migration (MIGR)
- Preservation of rare and endangered species (RARE)
- Fish Spawning (SPWN)
- Wildlife habitat (WILD)
- Water contact recreation (REC-1)
- Noncontact water recreation (REC-2)
- Navigation (NAV)

3. **Anti-Degradation Policy**
   State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") requires that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Resolution 68-16 only allows change in the existing high quality if it has been demonstrated to the Water Board that the change is consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. Resolution 68-16 further requires that discharges meet WDRs that will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained. Resolution 68-16 incorporates the federal "antidegradation" policy (Cal. Code Regs., tit. 40, § 131.12).

   Sand mining, as proposed, is not expected to result in water quality less than that prescribed in the policies. No pollution or nuisance is expected to occur and the highest water quality consistent with the maximum benefit of the people of the State will be maintained. This Order proposes to allow sand mining at a reduced level as compared with the prior permit or the project application. Therefore, it is anticipated that the effects of sand mining, as authorized by this Order, will have even less of an impact than those discussed in the EIR and will not degrade water quality.

4. **Public Notice**
   The Water Board notified Lind and interested agencies and persons of its intent to issue WDRs and Water Quality Certification for the project and provided a 30-day public comment period during which they could submit their written views and recommendations.

5. **Public Hearing**
   The Water Board, in a public meeting, heard and considered all comments pertaining to the WDRs and Water Quality Certification for the project.

IT IS HEREBY ORDERED that Lind, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of water, material, or wastes that is not otherwise authorized by the Order is prohibited.

2. The Basin Plan prohibits discharge of waste water which has "particular characteristics of concern to beneficial uses" (a) at any point in San Francisco Bay and (b) "at any point where the waste water does not receive a minimum initial dilution of at least 10:1 or into any non-tidal water, dead end slough, similar confined water, or any immediate tributary thereof." All shoals presently mined for sand, as listed under Table 1, are expected to have a dilution ratio of at least 10:1. The determination was made based on the depth of the receiving water bodies where sand mining typically occurs (-20 to -45 feet MLLW in Suisun Bay) and potential maximum overflow or decant discharge rate of 5,000 gpm.

3. The discharge shall not cause a condition of pollution or nuisance as defined in Water Code sections 13050(l) and (m), respectively.

4. The discharge of effluent which meets the definition of a hazardous or designated waste as defined in Title 23, Division 3, Chapter 15 of the California Administrative Code is prohibited. Only dredged material that has been demonstrated to be non-hazardous may be mined.

B. RECEIVING WATER LIMITATIONS

1. The discharge of decant/overflow effluent from Lind's hopper barge shall not cause the following conditions to exist in waters of the State:

    a. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

    b. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

    c. Oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

    d. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.

    e. Alteration of temperature beyond present natural background levels.

    f. Changes in turbidity that cause nuisance or adversely affect beneficial uses, or increases from normal background light penetration or turbidity greater than 10 percent in areas where natural turbidity is greater than 50 nephelometric turbidity units.

    g. Coloration that causes nuisance or adversely affects beneficial uses.

    h. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge shall not cause waters of the State to exceed the following quality limits:

    a. Dissolved Oxygen — 7.0 mg/L minimum in Suisun Bay (if natural factors cause lower dissolved oxygen concentrations, then this discharge shall not cause further reductions).

    b. Dissolved Sulfide — Natural background level.

    c. pH — The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

C. PROVISIONS

1. **Reporting Requirements**
   All technical and monitoring reports required by to this Order are required pursuant to section 13267 of the Water Code. Failure to submit reports in accordance with schedules established by this Order or attachments or appendices to this Order, or failure to submit a report of sufficient technical quality acceptable to the Executive Officer, may subject Lind to enforcement action pursuant to section 13268 of the Water Code.

2. **Monitoring and Reporting**
   Lind shall comply with the Self-Monitoring and Reporting Program (SMP) attached to this Order and as may be amended by the Executive Officer. The Executive Officer may amend the SMP in response to a written request by Lind or as necessary to assure collection of information to demonstrate compliance with this Order.

3. **Reopener Provisions**
   The Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances or as otherwise allowed by law:

   a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

   b. If a water quality study (or studies) or other relevant information provides a basis for determining that a permit condition should be modified.

   c. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.

   d. If conditions in federal permits and state permits, which are referenced by this permit, are modified.

4. **Special Study to Evaluate Effluent and Receiving Water Quality**
   Lind shall submit a Sampling and Analysis Plan (SAP), acceptable to the Executive Officer, within 30 days of Order adoption, for a study to characterize effluent and receiving water quality. In particular, the study shall characterize overflow effluent toxicity and composition (suspended sediment, conventional pollutant, and toxic pollutant concentrations), the spatial and temporal extent of the overflow plume in the receiving water based on the magnitude of suspended sediment concentrations within the plume, and shall compare overflow plume suspended sediment concentrations to background (ambient) conditions. The selection of sampling locations and number of sampling events shall be representative of the mining area and mining method, adequate to capture seasonal variations, and be conducted under both flood and ebb tide cycles.

   The SAP shall include, at a minimum, sampling locations, a sampling schedule, laboratory information, analytical methods, QA/QC information, and a reporting schedule.

   Lind shall start implementing the SAP within 45 days of the Executive Officer's approval. Lind shall submit a final study report within 60 days of data collection completion but in case

later than June 30, 2017. Lind may collaborate with other sand miners to fund and perform the required study.

5. **Benthic Study Technical Advisory Committee (TAC)**
Lind shall organize and convene a TAC that includes representatives from SLC, the Corps, the Water Board, NOAA Fisheries, USFWS, CDFW, BCDC, Lind, Hanson Marine Operations, and at least one scientist with expertise in Estuary benthic ecology, preferably from USGS or affiliated with a local university. Lind shall coordinate with the TAC to develop a work plan for the benthic study, identify experienced contractors to conduct it, and review all data deliverables.

6. **Benthic Habitat Impact Evaluation Study**
Based on the final work plan developed through the TAC, Lind shall complete, no later than December 31, 2018, a benthic habitat evaluation study that includes, but is not limited to, the following objectives:

   - Characterize the benthic community and habitat within areas where sand mining is permitted to occur and adjacent areas having similar habitat characteristics where sand mining is not permitted. Characteristics of the benthic community include species composition, biomass of the dominant taxa, density (abundance), and species diversity. Benthic habitat characteristics include consideration of substrate particle size, bed form, evidence of natural and anthropogenic disturbance, and other physical conditions;

   - Identify differences between communities inhabiting mining leases and control sites; and

   - Obtain a better understanding of the effects of sand mining on benthic communities and their rates of recovery following sand mining events.

   Lind may collaborate with other sand miners to fund and perform the required study. Lind shall submit copies of its progress reports and the final report to Water Board staff according to the TAC-approved study and reporting plan.

7. **Lease Area Boundaries**
Lind shall limit sand mining and effluent (overflow) discharges to specific SLC-designated lease areas. Mining is not permitted outside of the lease areas. These limitations reduce and avoid the risk of mining in sensitive subtidal habitat that is located outside the designated lease areas. Specifically, Lind shall operate sand mining dredges only within the area described in Finding E.3 and as shown in Appendix A-2.

8. **Annual and Seasonal Volume Limits**
Lind shall limit the volume of sand mined at Middle Ground Shoal in Suisun Bay annually and over the 10-year effective period of these WDRs as shown in Finding E.3. To reduce the potential for entrainment of larval longfin smelt and delta smelt in the Middle Ground lease area, Lind shall limit the volume of sand mined between December 1 and June 30 each year as required by CDFW Incidental Take Permit 2081-2012-012-03, Amendment No. 1, dated October 14, 2014, and by USFWS in its Biological Opinion dated October 22, 2014.

9. **Location and Depth Restrictions**
   Lind shall comply with the mining location and depth restrictions shown below:

Mining Location & Depth Restrictions	
Middle Ground	No mining within 200 feet of any shoreline No mining within 250 feet of depths < -9 feet MLLW No mining within depths <-25 feet MLLW from December 1 through June 30 No mining within depths < -15 feet MLLW from July 1 through November 30

10. **Spill Prevention Plan**
    Lind shall maintain and implement a plan demonstrating that adequate measures are in place to prevent and respond to accidental releases of hydraulic fluids, solvents, oils, and other hazardous materials.

11. **Spill Notification and Response**
    Lind shall notify Water Board staff immediately by telephone and e-mail whenever a release of petroleum products or toxic chemicals to waters of the State occurs as a result of sand mining activity. Pursuant to Water Code section 13267, a written notification of spill response shall be submitted to the Water Board within 30 days of spill occurrence. The written notification shall identify the nature of the spill, describe the action necessary to remedy the condition, and specify a timetable, subject to the modifications of the Water Board, for remedial actions.

12. **Monitoring and Reporting**

    a. Lind shall measure and record dredging locations and areal extent of benthic disturbance per lease area, water depth at time of dredging, volumes dredged, and off-loading locations for dredging on a daily basis during operations. Monitoring and reporting shall be conducted in accordance with the Self-Monitoring Program (SMP, Appendix B).

    b. Lind shall file with the Water Board a report of any material change or proposed change in the character, location, or quantity of the effluent discharge.

    c. Dredging operations shall cease immediately whenever violations of requirements are detected through implementation of the SMP and operations shall not resume until alternative methods of compliance are provided. Lind shall notify the Water Board staff immediately by telephone and email whenever violations are detected. Operations shall not resume until Lind submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

Protection of Special Status Species

13. This Certification does not allow for the take, or incidental take except as described below, of any special status species. Lind shall use the appropriate protocols, as approved by State and federal resource agencies in their consultations on the project, to ensure that sand mining activities do not adversely impact Preservation of Rare and Endangered Species, a beneficial use of San Francisco Bay and its tributaries as set forth in the Basin Plan.

14. Lind shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the *Biological Opinion* issued for the project by USFWS on October 22, 2014.

15. Lind shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in NOAA Fisheries' *Endangered Species Consultation*, and, to the extent imposed as permit conditions by the Corps, the Conservation Recommendations in the Essential Fish Habitat Consultation also issued for the Project by NOAA Fisheries.

16. Lind shall adhere to the conditions of Incidental Take Permit No. 2081-2012-012-03 dated April 1, 2014, Amendment No. 1 dated October 14, 2014, and any subsequent amendments, issued for the Project by CDFW for entrainment of special status fish species (Chinook Salmon, Delta Smelt, and Longfin Smelt).

Standard Provisions

17. Lind shall maintain a copy of this Order on the vessel so as to be available at all times to all vessel personnel.

18. For the purposes of this Order, disposal of dredged material is defined as any ultimate use or disposition other than the resale of the sand for construction and other beneficial uses. For dredged material that is not of market grade and is not sold, the ultimate off-site disposal of the material is subject to the approval of the Executive Officer. This approval shall be based upon a demonstration that the ultimate disposal will occur at a site that has WDRs or another appropriate approval from the Water Board.

    Lind shall permit the Water Board or its authorized representative, upon presentation of identification:

    a. Entry onto the premises on-board any and all vessels and into offices where records are kept.
    b. Access to copy any records required to be kept under the terms and conditions of this Order.
    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order.
    d. Sampling of any discharge or surface water covered by this Order.

19. **Certification**
    The Water Board hereby certifies that any discharge from the referenced project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), and with other applicable requirements of State law. Clean

Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. The conditions of this Certification must be met to ensure that the project will comply with water quality standards, any applicable effluent limitation, standard of performance, prohibition, effluent standard, or pretreatment standard required pursuant to the Clean Water Act sections listed above and to ensure that the project will comply with any other appropriate requirements.

20. This Certification applies to the project as proposed in the application materials. Failure to implement the project as proposed is a violation of this Certification. Violation or threatened violation of the conditions of this Certification is subject to any remedies, penalties, process or sanctions as provided for under applicable State or federal law, including administrative civil liability pursuant to Water Code section 13350. Failure to meet any condition of a certification may subject Lind to civil liability imposed by the Water Board to a maximum of $5,000 per day of violation or $10 for each gallon of waste discharged in violation of the certification.

21. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23 (23 CCR), section 3867. The Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted and approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act or in response to new information concerning the conditions of the project.

22. This Certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

23. This Order does not remove liability under federal, State, or local laws, regulations or rules of other programs and agencies, nor does this Order authorize the discharge of wastes without appropriate permits from other agencies or organizations.

24. Water Board Order Nos. 95-177 and 00-048 are hereby rescinded.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 21 2015.

Digitally signed by Bruce H. Wolfe
DN: cn=Bruce H. Wolfe, o=SWRCB, ou=Region 2, email=bwolfe@waterboards.ca.gov, c=US
Date: 2015.01.28 17:37:09 -08'00'

Bruce H. Wolfe
Executive Officer

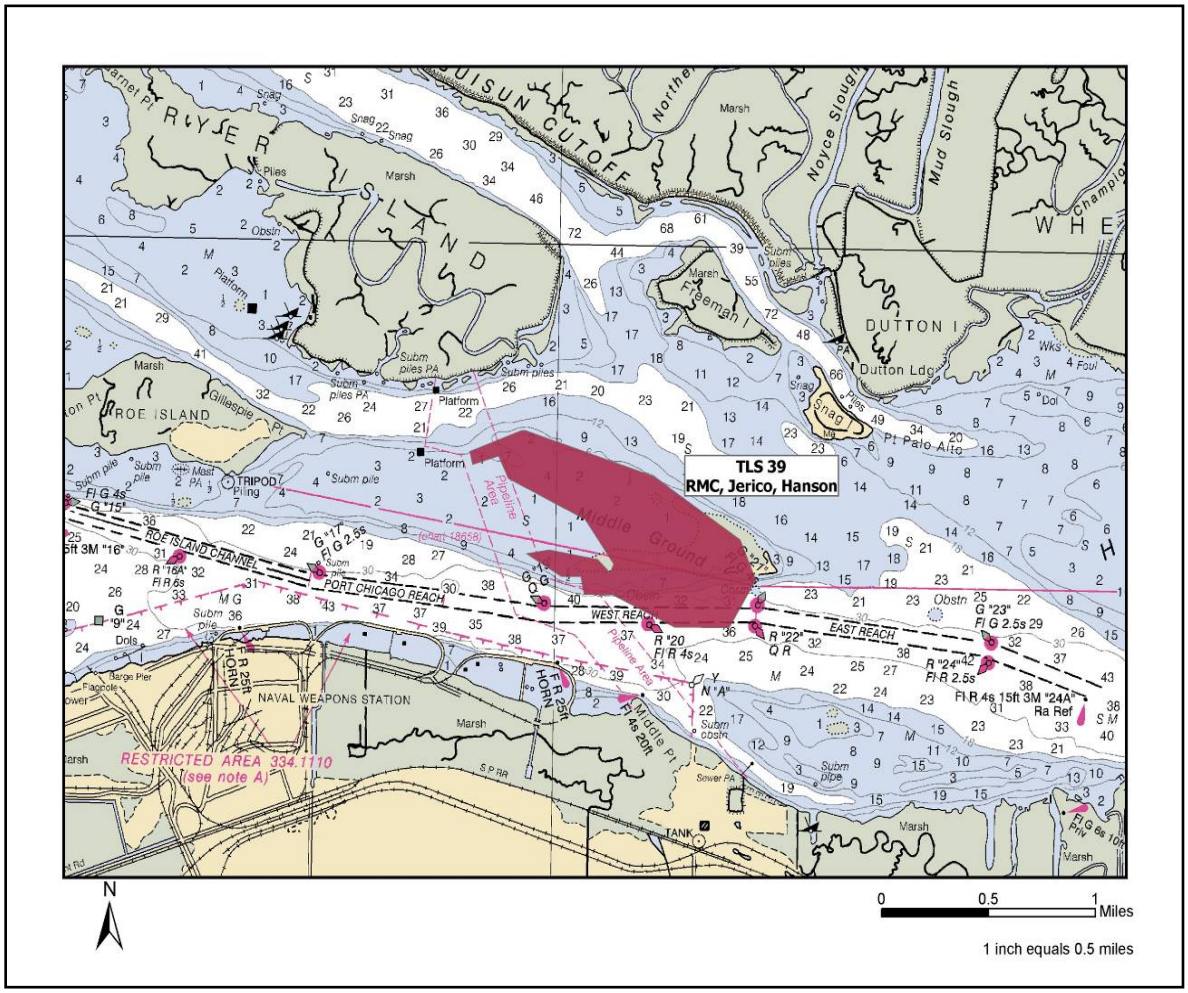
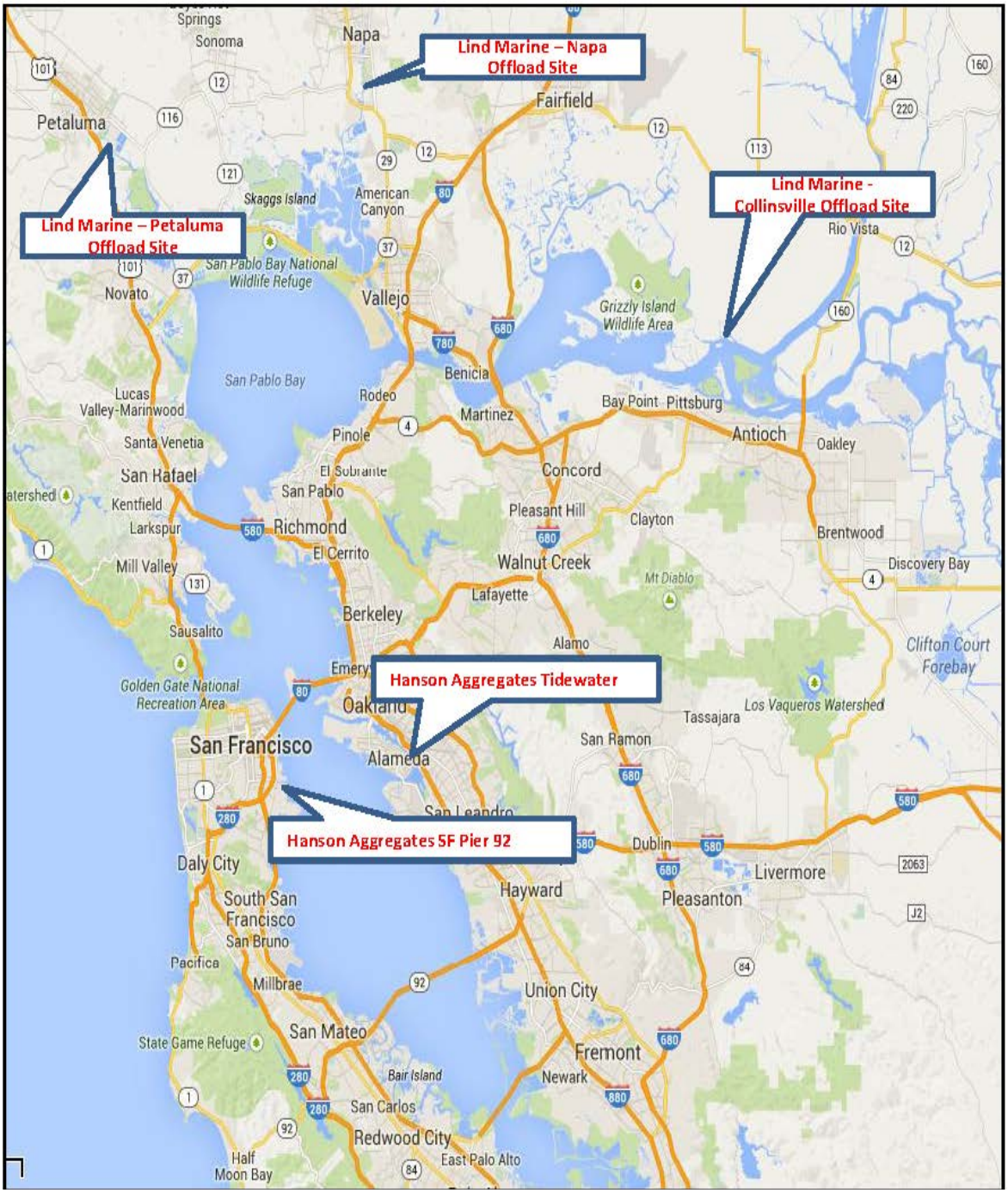
Appendices: Appendix A: Maps – Lease Locations and Upland Processing Facilities
Appendix B: Self-Monitoring Program (SMP)

APPENDIX A

Sand Mining Lease Location Maps and Upland Sand Processing Facility (Sand Yard) Location Map

Appendix A-1
Regional Map of General Sand Mining Lease Locations

Appendix A-2
Lind Marine Incorporated's Middle Ground Sand Mining Lease Location



Appendix A-3
Upland Sand Processing Facility (Sand Yard) Locations