

**STAFF REPORT  
C50**

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10/18/18  
W 27181  
G. Asimakopoulos

**GENERAL LEASE – INDUSTRIAL USE**

**APPLICANT:**

Nautilus Data Technologies, Inc., a Delaware corporation

**PROPOSED LEASE:**

*AREA, LAND TYPE, AND LOCATION:*

0.15± acres of proprietary land in the San Joaquin River located within the Port of Stockton, at Rough and Ready Island, adjacent to Assessor's Parcel Number 162-030-07, near Stockton, San Joaquin County.

*AUTHORIZED USE:*

Installation, use, and maintenance of a barge-mounted, water-cooled data center.

*LEASE TERM:*

Beginning October 18, 2018; ending September 20, 2023.

*CONSIDERATION:*

\$2,164 per year, with an annual Consumer Price Index adjustment.

*SPECIFIC LEASE PROVISIONS:*

Liability Insurance:

Liability insurance in an amount no less than \$2,000,000 per occurrence.

Surety Bond:

Surety bond or other security in the amount of ~~\$50,000~~ \$20,000.

Other:

1. The proposed lease requires annual reporting regarding energy usage and emergency deployments.
2. The proposed lease requires monitoring and reporting of water temperatures in the dissipation area around the discharge point of the cooling system to confirm the modeling and ensure

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resources are not adversely affected by the discharge of warmer water.

3. The proposed lease allows Commission staff to conduct Remotely Operated Underwater Vehicle surveys of the hull of the barge for research purposes to advance data collection and analysis in furtherance of the Commission's Marine Invasive Species Program.

**STAFF ANALYSIS AND RECOMMENDATION:**

**Authority:**

Public Resources Code sections 6005, 6216, 6301, 6501.1, and 6503; California Code of Regulations, title 2, sections 2000 and 2003.

**State's Best Interests Analysis:**

The Applicant has applied for a General Lease – Industrial Use for the proposed installation, use, and maintenance of a barge-mounted, water-cooled data center to be located at the Port of Stockton (Port), partially on State-owned proprietary land in the San Joaquin River (River), where it coincides with the Stockton Deep Water Ship Channel, at Rough and Ready Island. The proposed project would include permanent upland and in-water improvements to support mooring the barge in the northwest area of the Port's West Complex.

The State of California acquired the proposed lease area as proprietary land from Lindley-Patrick Farms, Inc. in 1928. The acquisition was a directive from the California Legislature to acquire land and to grant rights-of-way to the United States in favor of the Stockton Deep Water Channel Project (Chapter 517, Statutes of 1927). The proposed lease area was historically upland and was dredged to create the Stockton Deep Water Channel. The area was not part of the historic bed of the River, and the land was acquired as proprietary land instead of State sovereign land. Therefore, the proposed lease area is not impressed with a Public Trust easement nor subject to the Public Trust Doctrine. Consequently, a Public Trust analysis was not performed for this project.

However, staff did consider impacts to nearby Public Trust resources and Public Trust resources that will traverse to and from Public Trust land adjacent to the lease premises, such as water and marine species. The Mitigated Negative Declaration adopted by the Port addresses those impacts; however, staff recommends a lease provision requiring the Lessee to monitor and report water temperature fluctuations in and around the lease premises so staff can better understand the potential long-term

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impacts (water flow, water temperature, and tide cycles) of the data center on the River ecosystem.

A perpetual easement to use the land for maintenance of the Stockton Deep Water Channel was granted by the State of California to the United States, however that easement is not exclusive. The proposed lease will not interfere with the United States' easement over the proposed lease area.

Many project components would be constructed on Rough and Ready Island, upland of the State-owned proprietary land. For example, infrastructure improvements associated with parking, office space, operations, storage, utility connections, shoreline mooring points, and a new electrical utility substation to power the data center would be located on the upland area. In an emergency, the proposed project would rely on truck chassis-mounted, California Air Resources Board-approved, emergency backup generators placed on a new concrete pad that would replace an existing parking lot.

Two new 48-inch-diameter steel piles would be installed in the River adjacent to the State land to moor the barge. The new piles would be installed using a vibratory hammer operating from a barge anchored in the River. Geotechnical investigations previously conducted in the proposed project area indicate that vibratory installation is a viable pile installation methodology; however, in the unlikely event that any piles are unable to be appropriately installed using a vibratory hammer, they would be installed using an impact hammer. If required, impact hammer pile driving would occur only between July 1 and November 30 when listed salmonid species are least likely to be present in the construction area. All pile driving activity would occur between 7:00 a.m. and 7:00 p.m. It would take less than 4 days to do all in-water work using equipment operating from the levee top or from a construction barge operating in the River.

The data center barge would be fitted with mooring hardware and would be moored to the newly installed piles and shoreline mooring points using appropriately sized mooring lines. In addition, the piles would be fitted with rubber fenders to absorb energy and cushion the barge. Access to the moored barge would be provided by a newly installed extendable gangway measuring 40 feet long by 10 feet wide and constructed of open steel grate decking.

The data center would be created on a 5,000 ton, former flat-deck barge previously used for transporting rock and aggregate material in California

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waters. The barge is 35 feet tall, 230 feet long, and 55 feet wide across the main deck. The data center barge would be fully enclosed and would have a bald, flat exterior painted off-white above the main deck, black above the water line, and blue below the water line, with no visible logos. The interior would be equipped with electrical equipment, data systems, and exhaust fans, as well as a water intake and discharge system to provide facility cooling.

Water from the River would be used to cool the barge-mounted data center equipment via a controllable water intake and discharge system. Most air-cooled data centers use significant amounts of energy to keep their equipment cool by cooling the air circulating through the system. This project is expected to use 75 to 80 percent less energy because it would circulate naturally cold water from the River through the barge to cool the data equipment.

The water intake and discharge system would have four controllable intake and discharge pipes, with two on the bow and two on the stern. Typical River flow in the project area is approximately 500 cubic feet per second, and the intake flow rate onto the barge would be approximately 10 cubic feet per second, constituting a diversion rate of roughly 2 percent of the overall flow in the River. Water diverted onto the barge from the River would be discharged directly back into the River at an anticipated maximum increased temperature of 4 degrees Fahrenheit; however, based on modeling conducted by the Port, the water temperature would increase only by 0.1 to 0.2 degrees Fahrenheit within 500 feet of the discharge, due to the dissipation rate in the River. Because of the uncertainty associated with the increased water temperature in the River, staff proposes a lease provision to monitor River temperatures during the lease term to confirm the modeling.

Each of the intakes would be fitted with stainless steel cylindrical fish screens with wedgewire slotted openings. Each of the fish screens would be 42 inches in diameter with a 60-inch-long cylinder, providing a screen surface area of 55 square feet. Fish screens would be placed in the moon pools at the bow and stern of the barge, with the top of the screens placed a minimum of 12 inches beneath the waterline at initial deployment, and a maximum draft depth of 108 inches at full deployment. The screens would always be submerged by several feet of water (depending on barge draft) and would always be at least 3 feet off the River bottom. Screens would be positioned near the bottom of the barge parallel to the general direction of the river current, allowing for some sweeping flow around the screens while also protecting the screens themselves. River flows are expected to

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be modest. Because of the width of the River and the influence of tidal flows in the action area, any fish in the area are expected to be able to move freely around the intake area. The cylindrical screens would use a brush-cleaned system with both internal and external brushes. The screen would periodically rotate for cleaning, and the cleaning frequency would be controlled by a user-set timer or automatically triggered by differential water pressure sensor readings that exceed set limits. Cleaning cycles can be adjusted from continuous to once per day based on observed site conditions but would initially be set to run automatically every 6 hours. The intake and discharge system would be outfitted with an ultraviolet exposure system to offset the growth of microscopic biological life in the cooling system. This system would use an ultraviolet transmission monitoring device to monitor total suspended solids during operations and adjust ultraviolet exposure levels based on the monitoring data collected. The monitoring device would implement an ultrasonic, chemical-free cleaning system to clean the device on a regulated, cyclical basis.

The Applicant and the Port have executed a 5-year lease for the upland parcel, beginning September 21, 2018, and ending September 20, 2023. Staff recommends the Commission's proposed lease expiration date coincide with the Applicant's lease with the Port for the adjacent upland property. The Port adopted a Mitigation Monitoring Program to substantially reduce or eliminate potentially significant impacts resulting from the project.

The proposed lease includes certain provisions protecting the public use of the proposed lease area by requiring the Applicant to obtain necessary permits for the project. The lease does not alienate the State's fee simple interest, and does not grant the lessee exclusive rights to the lease premises. The lease requires the lessee to insure and indemnify the State for any liability incurred as a result of the lessee's activities thereon. The lease requires the Applicant to conduct all repair and maintenance work safely.

The proposed data center barge is expected to withstand seismic events and to help meet regional needs for data center services, including serving the Port's data needs. This data center barge can also be deployed to other shoreside locations in an emergency.

The proposed data center is expected to help support statewide goals to reduce energy consumption, reduce greenhouse gas emissions and criteria air pollutants, and eliminate use of potable water, wastewater,

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water treatment chemicals, and chemical refrigerants that are potent greenhouse gas and stratospheric ozone-depleting substances.

### **Climate Change:**

Climate change impacts, including sea-level rise, more frequent and intense storm events, and increased flooding and erosion, affect both open coastal areas and inland waterways in California. The subject facilities are located on the River, in a tidally influenced site vulnerable to flooding at current sea levels, and at a higher risk of flood exposure given projected scenarios of sea-level rise. The facilities within the lease premises consist of a barge-mounted, water-cooled data center.

By 2030, California's coast could see up to 1 foot of sea-level rise (from year 2000 levels), 2 feet by 2050, and possibly more than 5 feet by 2100 (National Research Council 2012). This effect could increase the River's inundation levels within the lease area, and this risk of flood exposure is likely to increase with time. In addition, as stated in *Safeguarding California Plan: 2018 Update* (California Natural Resources Agency 2018), climate change is projected to increase the frequency and severity of natural disasters related to flooding, fire, drought, extreme heat, and storms (especially when coupled with sea-level rise). In rivers and tidally influenced waterways, more frequent and powerful storms can result in increased flooding conditions and damage from storm-created debris as well as decreased bank stability and structure. Climate change and sea-level rise will further influence riverine areas by changing erosion and sedimentation rates. Flooding and storm flow, as well as runoff, will likely increase scour and decrease bank stability at a faster rate.

The combination of these projected conditions could increase the likelihood of damage and affect access to structures within the lease premises beyond the term of this lease. The floating barge-mounted data center is adaptable to variable water levels, allowing it to rise and fall with storms and droughts and increasing its resiliency to some climate change impacts, but may require more frequent maintenance to ensure continued function during and after storm seasons and to avoid dislodgement. Regular maintenance, as required by the terms of the lease, will reduce the likelihood of severe structural degradation or dislodgement. Pursuant to the proposed lease, the Applicant acknowledges that the lease premises and adjacent upland (not under lease) are located in an area that may be subject to effects of climate change, including sea-level rise.

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**Conclusion:**

For the reasons stated above, staff believes issuance of this lease is in the best interests of the State.

**OTHER PERTINENT INFORMATION:**

1. This action is consistent with Strategy 1.1 of the Commission's Strategic Plan to deliver the highest levels of public health and safety in the protection, preservation and responsible economic use of the lands and resources under the Commission's jurisdiction, and Strategy 2.1 to optimize returns for the responsible development and use of State lands and resources, both onshore and offshore.
2. A Mitigated Negative Declaration, State Clearinghouse No. 2016062010, was prepared for this project by the Port and adopted on September 21, 2018. Staff has reviewed this document.

A Mitigation Monitoring and Reporting Plan was adopted by the Port.

3. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code section 6370 et seq., but such activity will not affect those significant lands. Based upon staff's consultation with the persons nominating such lands and through the California Environmental Quality Act (CEQA) review process, it is staff's opinion that the project, as proposed, is consistent with its use classification.

**APPROVALS REQUIRED:**

U.S. Army Corps of Engineers  
U.S. Fish and Wildlife Service  
National Marine Fisheries Service  
California Department of Fish and Wildlife  
Central Valley Regional Water Quality Control Board

**EXHIBITS:**

- A. Land Description
- B. Site and Location Map
- C. Mitigation Monitoring Program

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**RECOMMENDED ACTION:**

It is recommended that the Commission:

**CEQA FINDING:**

Find that a Mitigated Negative Declaration, State Clearinghouse No. 2016062010, and a Mitigation Monitoring and Reporting Plan were prepared for this project by the Port and adopted on September 21, 2018, and that the Commission has reviewed and considered the information contained therein; that in the Commission's independent judgement, the scope of activities to be carried out under the lease to be issued by this authorization have been adequately analyzed; that none of the events specified in Public Resources Code section 21166 or the State CEQA Guidelines section 15162 resulting in any new or substantially more severe significant impact has occurred; and, therefore no additional CEQA analysis is required.

Adopt the Mitigation Monitoring Program, as contained in Exhibit C, attached hereto.

**STATE'S BEST INTERESTS:**

Find that the proposed lease is in the best interests of the State.

**SIGNIFICANT LAND INVENTORY FINDING:**

Find that this activity is consistent with the use classification designated by the Commission for the land pursuant to the Public Resources Code section 6370 et seq.

**AUTHORIZATION:**

Authorize issuance of a General Lease – Industrial Use to the Applicant beginning October 18, 2018, and ending September 20, 2023, for the installation, use, and maintenance of a barge-mounted, water-cooled data center, as described in Exhibit A, Land Description, and as shown on Exhibit B, Site and Location Map (for reference purposes only), attached and by this reference made a part hereof; annual rent in the amount of \$2,164, with an annual Consumer Price Index adjustment; liability insurance in an amount no less than \$2,000,000 per occurrence; and a surety bond in the amount of ~~\$50,000~~ \$20,000.

**EXHIBIT A**

**W 27181**

**LAND DESCRIPTION**

A parcel of State owned land, situate in the City of Stockton, being a portion of that parcel of land (Parcel 7-B) acquired by the State as part of the Stockton Deep Water Channel (SDWC) Project (San Joaquin River) approved by the California State Legislature in Chapter 517, Statutes of 1927 and described in Book of Official Records, Vol. 251, Page 1, recorded June 27, 1928 San Joaquin County Records, State of California, and more particularly described as follows:

COMMENCING at a point designated as "Boundary Point No. 122" as described in Condemnation Case No. 4963 "Final Judgment as to the Interest of the State of California" filed Jun 16, 1952 in the District Court of the United States in and for the Northern District of California, Northern Division; and also being a point on the north line of the South Levee Right of Way of the SDWC, from which a point designated as "Boundary Point No. 1" per said Condemnation Case bears North 50°53' West 255.24 feet; thence along said line per said Condemnation Case and said Right of Way line South 42°57' East 524.63 feet to the POINT OF BEGINNING; thence leaving said lines North 47°03' East 26.00 feet; thence South 42°57' East 251.00 feet; thence South 47°03' West 26.00 feet to said line per said Condemnation Case and said Right of Way line; thence along said line per said Condemnation Case and said Right of Way line North 42°57' West 251.00 feet to the POINT OF BEGINNING.

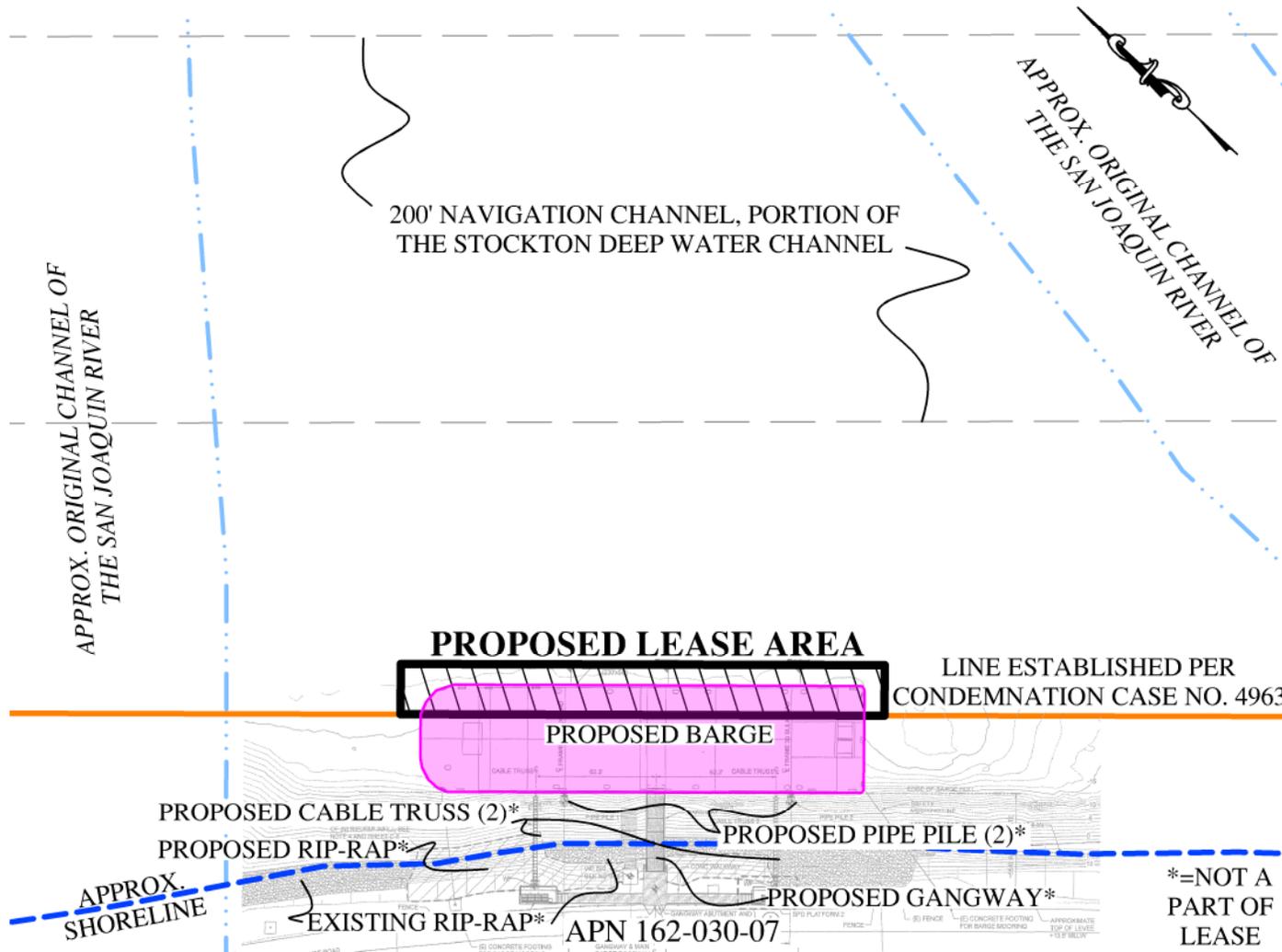
**END OF DESCRIPTION**

PREPARED 10/04/18 BY THE CALIFORNIA STATE LANDS COMMISSION BOUNDARY UNIT



NO SCALE

# SITE



Stockton Deep Water Channel, Rough and Ready Island, Stockton

NO SCALE

# LOCATION



MAP SOURCE: USGS QUAD

This Exhibit is solely for purposes of generally defining the lease premises, is based on unverified information provided by the Lessee or other parties and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.

## Exhibit B

W 27181  
 NAUTILUS DATA  
 TECHNOLOGIES, INC.  
 APN 162-030-07  
 GENERAL LEASE -  
 INDUSTRIAL USE  
 SAN JOAQUIN COUNTY



MJF 10/04/18

**EXHIBIT C**  
**CALIFORNIA STATE LANDS COMMISSION**  
**MITIGATION MONITORING PROGRAM**

Nautilus Data Technologies Data Storage Facility  
(W27181, State Clearinghouse No. 2016062010)

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The California State Lands Commission (Commission) is a responsible agency under the California Environmental Quality Act (CEQA) for the Nautilus Data Technologies Data Storage Facility (Project). The CEQA lead agency for the Project is Port of Stockton.

In conjunction with approval of this Project, the Commission adopts this Mitigation Monitoring Program (MMP) for the implementation of mitigation measures for the portion(s) of the Project located on Commission lands. The purpose of a MMP is to impose feasible measures to avoid or substantially reduce the significant environmental impacts from a project identified in an Environmental Impact Report (EIR) or a Mitigated Negative Declaration (MND). State CEQA Guidelines section 15097, subdivision (a), states in part:<sup>1</sup>

*In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.*

The lead agency adopted an MND, State Clearinghouse No. 2016062010, adopted a Mitigation Monitoring and Reporting Plan (MMRP) for the whole of the Project (see Exhibit C, Attachment C-1), and remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with its plan. The Commission's action and authority as a responsible agency apply only to the mitigation measure listed in Table C-1 below. The full text of the mitigation measure, as set forth in the MMRP prepared by the CEQA lead agency and listed in Table C-1, is incorporated by reference in this Exhibit C.

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<sup>1</sup> The State CEQA Guidelines are found at California Code of Regulations, title 14, section 15000 et seq.

**Table C-1. Project Impacts and Applicable Mitigation Measures**

<b>Potential Impact</b>	<b>Mitigation Measure (MM)<sup>2</sup></b>
Potential impacts to western pond turtle.	<b>BIO-MM-2.</b> Western Pond Turtle.

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<sup>2</sup> See Attachment C-1 for the full text of the MM taken from the MMRP prepared by the CEQA lead agency.

## **ATTACHMENT C-1**

### **Mitigation Monitoring and Reporting Plan Adopted by the Port of Stockton**

# Attachment C-1

## Nautilus Data Technology Data Storage Facility Mitigation Monitoring and Reporting Plan

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<p><b>BIO-MM-1:</b> The following measures, which are modified from the Incidental Take Minimization Measures prescribed for valley elderberry longhorn beetle in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP; San Joaquin County 2000), would be implemented to avoid impacts to valley elderberry longhorn beetle:</p> <ul style="list-style-type: none"> <li>• A setback of 20 feet from the dripline of the elderberry shrub located between the Officer’s Club building and the levee would be established.</li> <li>• Brightly colored flags or fencing would be placed surrounding the elderberry shrub throughout the construction process.</li> </ul> <p>Other measures required through the ESA consultation would also be implemented.</p>	<p>ESA consultation is expected to be completed by the end of 2018.</p> <p>The measures shall be incorporated into contract specifications for all construction work to ensure contractor(s) are aware of these requirements.</p>	Contract Biologist	Port Environmental Manager	
<p><b>BIO-MM-2:</b> Preconstruction surveys for western pond turtle will be performed by a qualified biologist to identify any turtles or active nests within the proposed project area.</p> <p>If nests are found, exclusion zones shall be established (as determined by a qualified biologist in consultation with CDFW) and construction-related activities will be prohibited within the exclusion zones.</p> <p>Any turtles found in the work area shall be relocated to an appropriate area by a qualified biologist prior to the start of construction.</p>	<p>Preconstruction surveys will be performed by a qualified biologist within 30 days of the start of construction. Monitoring of any active nests once per week during construction will be required as long as the nests are active.</p> <p>The monitoring plan and avoidance measures shall be incorporated into contract specifications for</p>	Contract Biologist	Port Environmental Manager	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<p>If required through the CDFW consultation, alternative or additional avoidance measures for western pond turtle would also be implemented</p>	<p>all construction work to ensure contractor(s) are aware of these requirements.</p> <p>The Port shall arrange for the presence of a qualified biologist to perform monitoring during construction activity.</p>			
<p><b>BIO-MM-3</b> If construction activities occur between March 15 and September 1, preconstruction surveys of suitable habitat will be conducted and will generally follow the <i>Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley</i>. At a minimum, two surveys will be conducted. Prior to the start of the surveys, CDFW will be contacted to discuss potential changes to the survey methodology based on site-specific conditions, including establishment of buffer distances. For the SJMSCP, the identified buffer distance is two times the dripline of the tree, measured from the nest.</p> <p>If an active Swainson's hawk nest is found within the construction impact area and buffer zone during the breeding season, then no construction activities will be permitted within these buffers. These buffers may be reduced only by a qualified biologist, who may consult with CDFW to make sure a reduced buffer will not harm the nest. If a buffer is reduced, then a qualified wildlife biologist will be retained to monitor the nest and the behavior of the nesting birds. If the biologist determines that the project has potential to disturb nesting activities, then construction within the buffer will be suspended until the young have fledged, as determined by a qualified</p>	<p>Preconstruction surveys will be performed by a qualified biologist within 30 days of the start of construction.</p> <p>Monitoring of any active nests once per week during construction will be required as long as the nests are active.</p> <p>The monitoring plan and avoidance measures shall be incorporated into contract specifications for all construction work to ensure contractor(s) are aware of these requirements.</p> <p>The Port shall arrange for</p>	<p>Contract Biologist</p>	<p>Port Environmental Manager</p>	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<p>biologist. CDFW will be notified if construction causes a nest to fail.</p> <p>If required through the CDFW consultation process, alternative or additional avoidance measures for Swainson’s hawk would also be implemented.</p>	<p>the presence of a qualified biologist to perform monitoring during construction activity.</p>			
<p><b>BIO-MM-4</b> The following measures, which are modified from the Incidental Take Minimization Measures prescribed for white-tailed kites in the SJMSCP, would be implemented to avoid project impacts to nesting white-tailed kites:</p> <ul style="list-style-type: none"> <li>• Preconstruction surveys will investigate all potential nesting trees on the proposed project site (especially tree tops 15 to 59 feet above the ground in oak, willow, eucalyptus, cottonwood, or other deciduous trees), during the nesting season (February 15 to September 15) whenever white-tailed kites are noted on site or within the vicinity of the site.</li> <li>• A setback of 100 feet from nesting areas (if identified) will be established and maintained for the period encompassing nest building and continuing until fledglings leave nests. Setbacks will be marked by brightly colored temporary fencing.</li> </ul>	<p>Preconstruction surveys will be performed by a qualified biologist within 30 days of the start of construction.</p> <p>Monitoring of any active nests once per week during construction will be required as long as the nests are active.</p> <p>The monitoring plan and avoidance measures shall be incorporated into contract specifications for all construction work to ensure contractor(s) are aware of these requirements.</p> <p>The Port shall arrange for the presence of a qualified biologist to perform monitoring during construction activity.</p>	<p>Contract Biologist</p>	<p>Port Environmental Manager</p>	