

1 3.9 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 **3.9.1 Environmental Setting**

2 **Surface Water**

3 The Project site lies within the Suisun Bay Basin hydrologic unit of the San Francisco  
4 Bay Area Hydrologic Region. Suisun Bay is a shallow tidal estuary that lies at the  
5 confluence of the Sacramento and San Joaquin Rivers, forming the entrance to the  
6 Sacramento-San Joaquin River Delta. The San Francisco Bay Hydrologic Region  
7 encompasses approximately 4,500 square miles and includes the counties of San  
8 Francisco, Marin, Sonoma, Napa, Solano, San Mateo, Santa Clara, Contra Costa, and  
9 Alameda. The Estuary is the largest estuary on the west coast of the United States and  
10 functions as the drainage outlet for the Central Valley's freshwater systems. The Bay  
11 provides drinking water for more than 70 percent of the California population and  
12 irrigation for approximately 4.5 million acres of farmland. It lies within the fourth largest  
13 metropolitan region of the U.S.

14 The Estuary's dynamic and complex environmental conditions support a high level of  
15 diversity that drives a productive ecosystem. Many plant and animal species' survival  
16 depends on the wide variety of habitats within the Estuary system, which includes  
17 deepwater channels, tidal flats, marshlands, freshwater streams, rivers, and lagoons.  
18 Additionally, the salinities in different portions of the Bay vary among seasons and  
19 years, and this creates a dynamic distribution of fish assemblages, invertebrates, plants,  
20 birds, and animals within them.

21 The rate and timing of the freshwater flows coming from the rivers and streams that flow  
22 into the Estuary system influence its physical, chemical, and biological conditions. Flows  
23 are seasonal, with over 90 percent of the annual runoff occurring between October and  
24 April. However, much of this inflow is trapped upstream by dams, reservoirs, and canals  
25 for water diversion projects, which potentially affects the Bay's characteristics.

26 The SFBRWQCB (2011) identifies several beneficial uses of the Suisun Bay that must  
27 be protected, including: industrial service water supply, commercial and sport fishing,  
28 estuarine habitat, fish migration, preservation of rare and endangered species,  
29 spawning, wildlife habitat, water contact recreation, noncontact water recreation, and  
30 navigation. Pursuant to Section 303(d) of the CWA, states are also required to list  
31 impaired waters based on whether or not they meet state water quality standards. The  
32 SFBRWQCB has listed the entire Bay as an impaired water body. For the Suisun Basin,  
33 pollutants of concern from both point and nonpoint sources that do not meet the State  
34 water quality standards include the following: chlordane; dichlorodiphenyltrichloroethane  
35 (DDT); dieldrin; dioxin compounds, exotic species; furan compounds; mercury; nickel;  
36 polychlorinated biphenyls (PCBs); PCBs – dioxin-like; and selenium (USEPA 2006).

1 **Groundwater**

2 Shallow groundwater aquifers are closely linked to the local surface waters. The San  
 3 Francisco Bay Hydrologic Region has 28 identified groundwater basins comprising  
 4 approximately 1,400 square miles in total, of which five percent is allocated for  
 5 agricultural and urban uses and less than one percent is distributed for groundwater  
 6 uses. The Pittsburg Plain Groundwater Basin is located just to the south and east of the  
 7 Project site. The SFBRWQCB (2011) lists potential beneficial uses in this Groundwater  
 8 Basin as municipal and domestic water supply, industrial service water supply, and  
 9 agricultural water supply.

10 **3.9.2 Regulatory Setting**

11 **Federal and State**

12 Federal and State laws and regulations pertaining to this issue area and relevant to the  
 13 Project are identified in Table 3.9-1.

**Table 3.9-1 Laws, Regulations, and Policies (Hydrology and Water Quality)**

<b>U.S.</b>	Clean Water Act (CWA) (33 USC 1251 et seq.)	<p>The CWA is comprehensive legislation (it generally includes reference to the Federal Water Pollution Control Act of 1972, its supplementation by the CWA of 1977, and amendments in 1981, 1987, and 1993) that seeks to protect the nation’s water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the U.S. These water quality standards are promulgated by the USEPA and enforced in California by the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). CWA sections include:</p> <ul style="list-style-type: none"> <li>• <u>State Water Quality Certification</u>. Section 401 (33 USC 1341) requires certification from the State or interstate water control agencies that a proposed water resources project is in compliance with established effluent limitations and water quality standards. USACE projects, as well as applicants for Federal permits or licenses are required to obtain this certification.</li> <li>• <u>National Pollution Discharge Elimination System (NPDES)</u>. Section 402 (33 USC 1342) establishes conditions and permitting for discharges of pollutants under the NPDES.</li> <li>• <u>Ocean Discharges</u>. Section 403 (33 USC 1343) addresses criteria and permits for discharges into the territorial seas, the contiguous zone, and the oceans.</li> <li>• <u>Permits for Dredged or Fill Material</u>. Section 404 (33 USC 1344) authorizes a separate permit program for disposal of dredged or fill material in U.S. waters.</li> </ul>
<b>U.S.</b>	Oil Pollution Act (OPA) (33 USC 2712)	<p>The OPA requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit plans for responding to worst-case discharges of oil and hazardous substances. The passage of the OPA motivated California to pass a more stringent spill response and recovery regulation and the creation of the OSPR to review and regulate oil spill plans and contracts.</p>
<b>U.S.</b>	Rivers and Harbors Act (33 USC 401)	<p>This Act governs specified activities (e.g., construction of structures and discharge of fill) in “navigable waters” of the U.S. (waters subject to the ebb and flow of the tide or that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). Under section 10, excavation or fill within navigable waters requires approval from the USACE,</p>

**Table 3.9-1 Laws, Regulations, and Policies (Hydrology and Water Quality)**

		and the building of any wharf, pier, jetty, or other structure is prohibited without Congressional approval.
<b>CA</b>	Porter-Cologne Water Quality Control Act (Cal. Water Code § 13000 et seq.) (Porter-Cologne)	<p>Porter-Cologne is the principal law governing water quality in California. The Act established the SWRCB and nine RWQCBs who have primary responsibility for protecting State water quality and the beneficial uses of State waters. Porter-Cologne also implements many provisions of the Federal CWA, NPDES permitting program. Pursuant to the CWA § 401, applicants for a Federal license or permit for activities that may result in any discharge to waters of the U. S. must seek a Water Quality Certification (Certification) from the State in which the discharge originates. Such Certification is based on a finding that the discharge will meet water quality standards and other appropriate requirements of State law. In California, RWQCBs issue or deny certification for discharges within their jurisdiction. The SWRCB has this responsibility where projects or activities affect waters in more than one RWQCB's jurisdiction. If the SWRCB or a RWQCB imposes a condition on its Certification, those conditions must be included in the Federal permit or license.</p> <p>Statewide Water Quality Control Plans include: individual RWQCB Basin Plans; the California Ocean Plan; the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan (Bay-Delta Plan); the Water Quality Control Plan for Enclosed Bays and Estuaries of California; and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). These Plans contain enforceable standards for the various waters they address. For example:</p> <ul style="list-style-type: none"> <li>• <u>Basin Plan</u>. Porter-Cologne (§ 13240) requires each RWQCB to formulate and adopt a Basin Plan for all areas within the Region. Each RWQCB establishes water quality objectives to ensure the reasonable protection of beneficial uses and a program of implementation for achieving water quality objectives within the basin plans. 40 CFR 131 requires each State to adopt water quality standards by designating water uses to be protected and adopting water quality criteria that protect the designated uses. In California, the beneficial uses and water quality objectives are the State's water quality standards.</li> <li>• The <u>California Ocean Plan</u> establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's ocean and coastal waters. For example, the Ocean Plan incorporates the State water quality standards that apply to all NPDES permits for discharges to ocean waters.</li> </ul>
<b>CA</b>	San Francisco Bay Plan (see also Table 1-2)	<p>Pursuant to the Bay Plan, BCDC responsibilities include the following:</p> <p>Regulation of all filling and dredging in the Bay:</p> <ul style="list-style-type: none"> <li>• Administration of the Federal Coastal Zone Management Act within the Bay segment of the California coastal zone;</li> <li>• Regulation of new development within the first 100 feet inland from the Bay to ensure public access to the Bay is provided;</li> <li>• Pursuit of an active planning program to implement studies of Bay issues so that BCDC plans and policies are based on the best available current information;</li> <li>• Participation in the region-wide State and Federal program to establish a Long Term Management Strategy for dredging and dredged material disposal to be conducted in an environmentally sound and economically prudent way.</li> </ul>

1 **Local**

2 Contra Costa County General Plan goals and policies relevant to the Project include the  
3 following.

- 4 • Water Resources Goal 8-T: To conserve, enhance, and manage water  
5 resources, protect their quality, and assure an adequate long-term supply of  
6 water for domestic, fishing, industrial, and agricultural use.
- 7 • Water Resources Goal 8-V: To preserve and restore remaining natural  
8 waterways in the county which have been identified as important and  
9 irreplaceable natural resources.
- 10 • General Water Resources Policy 8-75: Preserve and enhance the quality of  
11 surface and groundwater resources.

12 **3.9.3 Impact Analysis**

13 **a) Violate any water quality standards or waste discharge requirements?**

14 **Less than Significant with Mitigation.** The Project has the potential to violate water  
15 quality standards or waste discharge requirements. The Project would temporarily  
16 cause localized turbidity increases within Suisun Bay as the piping is lifted from the Bay  
17 floor. A segment of the piping is buried beneath approximately 6 to 12 inches crushed  
18 rock (2-3-inch-diameter), 12 inches of cover rock (<6 inches), and a range of 3 to 60  
19 inches of mud and soft sediments. Lifting the piping out of the Bay floor would generate  
20 temporary, localized suspension of sediment and rock in the water column. However,  
21 with implementation of **MM BIO-3** and **MM BIO-4**, identified below, potential impacts  
22 would be avoided or reduced to a less than significant level.

23 **MM BIO-3. In Water Turbidity Protections.** A turbidity curtain shall be installed  
24 to protect fish from potential water quality/turbidity effects. The curtain (100 linear  
25 feet) shall be installed and maintained around the shoreline terminus flange of  
26 the pipe to contain muddy water and sediment materials that escape from the  
27 6-inch-diameter outfall pipe during pipe removal. Sawdust generated during  
28 cutting and removal of timber pilings will also be contained in this curtain and/or  
29 skimmed and removed if floating in water (and disposed of in plastic bags). No  
30 activities that would entrain or impinge fish shall be used.

31 **MM BIO-4. Protection from Release of Toxic Substances.** The Applicant shall  
32 implement the following measures to prevent the release of toxic substances.

- 33 • All engine-powered equipment used and operated upon and from the deck of  
34 the barge shall incorporate the use of drip-pans or other means to retain fluids  
35 beneath the equipment.

- 1           • Only approved and certified fuel cans with “no-spill” spring loaded lids shall be  
2 used when fueling up diesel or gas engines. Engines will be turned OFF and  
3 fueling will not be done over the water. A spill kit with absorbent diapers shall  
4 be readily available next to each filling area.
- 5           • A continuous floating oil-absorbent sock shall be deployed and maintained  
6 around the entire barge to contain any accidental leakage of fuel or hydraulic  
7 fluids.

8 ***b) Substantially deplete groundwater supplies or interfere substantially with***  
9 ***groundwater recharge such that there would be a net deficit in aquifer volume or***  
10 ***a lowering of the local groundwater table level (e.g., the production rate of pre-***  
11 ***existing nearby wells would drop to a level which would not support existing land***  
12 ***uses or planned uses for which permits have been granted)? Result in a***  
13 ***potentially significant adverse impact on groundwater quality?***

14 **No Impact.** The Project would not use groundwater or create new impermeable  
15 surfaces that would interfere with groundwater recharge.

16 ***c) Substantially alter the existing drainage pattern of the site or area, including***  
17 ***through the alteration of the course of a stream or river, in a manner which would***  
18 ***result in substantial erosion or siltation on- or off-site?***

19 **Less than Significant with Mitigation.** The Project’s outfall pipe no longer carries  
20 process wastewater. Although the pipe’s removal would not alter the existing drainage  
21 pattern of the site or surrounding area, the Project’s removal of two piles could result in  
22 potential erosion, and increased turbidity near the marsh. Implementation of **MM BIO-3**,  
23 above, will ensure that Project activities do not produce substantial erosion or siltation  
24 by requiring the use of a turbidity curtain to contain sediment and prevent increased  
25 turbidity during removal activities. Implementation of **MM BIO-3** will reduce potential  
26 erosion or siltation impacts to less than significant.

27 ***d) Substantially alter the existing drainage pattern of the site or area, including***  
28 ***through the alteration of the course of a stream or river, or substantially increase***  
29 ***the rate or amount of surface runoff in a manner which would result in flooding***  
30 ***on- or off-site, or place structures within a 100-year flood hazard area which***  
31 ***would impede or redirect flood flows?***

32 **No Impact.** Project activities would not alter the drainage pattern of the site, place  
33 structures in the flood plain that might impede or redirect flood waters, or create new  
34 impervious surfaces that might alter the rate of surface runoff. The obsolete outfall pipe  
35 no longer carries process wastewater. The pipe’s removal would not alter the existing  
36 drainage pattern of the site or surrounding area. Site contours would be restored to pre-  
37 Project conditions once the outfall pipe has been removed. Hence the Project would not

1 substantially increase the rate or amount of surface runoff in a manner resulting in  
2 flooding on- or off-site. No impacts are expected.

3 ***e) Create or contribute runoff water which would exceed the capacity of existing***  
4 ***or planned stormwater drainage systems or provide substantial additional***  
5 ***sources of polluted runoff?***

6 **Less than Significant Impact with Mitigation.** Project activities would not create new  
7 discharges of water to a storm water drainage system. However, polluted water could  
8 potentially run off the barge and other marine construction equipment during removal  
9 activities. Implementation of **MM BIO-4**, including the use of a hydrocarbon containment  
10 boom positioned surrounding the barge, and drip pans for equipment on the barge, will  
11 ensure that Project activities do not produce significant additional sources of polluted  
12 runoff during removal activities; therefore, the potential impacts of polluted runoff would  
13 be less than significant.

14 ***f) Otherwise substantially degrade water quality?***

15 **Less than Significant Impact with Mitigation.** As mentioned above, polluted water  
16 could potentially run off the barge and other marine construction equipment during  
17 removal activities. Implementation of **MM BIO-4**, including the use of a hydrocarbon  
18 containment boom positions surrounding the barge, and drip pans for equipment on the  
19 barge will ensure that Project activities do not produce significant sources of polluted  
20 runoff during outfall removal. No other elements of the Project would generate  
21 contaminants that would cause substantial degradation of water quality. Implementation  
22 of **MM BIO-4** will reduce potential impacts to less than significant.

23 ***g) Place housing within a 100-year flood hazard area as mapped on a federal***  
24 ***Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard***  
25 ***delineation map?***

26 **No Impact.** The Project does not include the construction of housing, therefore no  
27 impacts are expected.

28 ***h) Place within a 100-year flood hazard areas structures which would impede or***  
29 ***redirect flood flows?***

30 **No Impact.** The Project does not include the construction of structures within the  
31 100-year flood hazard area. The temporary use of a barge, equipment and materials in  
32 Suisun Bay and within the 100-year flood plain would not impede or redirect flood flows,  
33 therefore no impacts are expected.

34 ***i) Expose people or structures to a significant risk of loss, injury or death***  
35 ***involving flooding, including flooding as a result of the failure of a levee or dam?***

1 **No Impact.** No buildings or other structures would be constructed that would expose  
2 people or structures to a significant risk of loss, injury or death due to flooding, including  
3 flooding as a result of the failure of a levee or dam, therefore no impacts are expected.

4 ***j) Inundation by seiche, tsunami, or mudflow?***

5 **Less than Significant.** The Project site is located within Suisun Bay. Areas that are  
6 susceptible to tsunami inundation tend to be located in low-lying coastal areas and  
7 these waves would be substantially muted as they near Suisun Bay. Due to the large  
8 size of the Estuary, the hazard from seiche waves is low. The flat terrain at the Project  
9 site is not subject to mudflows. Since the Project would occur over a 2-week period, an  
10 impact from a tsunami or seiche is unlikely and impacts would be less than significant.

11 **3.9.4 Mitigation Summary**

12 Implementation of the following mitigation measures would reduce the potential for  
13 Project-related impacts to Hydrology and Water Quality to less than significant:

- 14 • MM BIO-3 In Water Turbidity Protections
- 15 • MM BIO-4 Protection from Release of Toxic Substances