

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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.9.1 Environmental Setting**

3 The Project site is located in the San Joaquin River, which flows northward through the
 4 San Joaquin Valley to the Sacramento-San Joaquin Delta and westward before
 5 discharging into the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

1 (Estuary), which begins a few miles west of the Project site. The Estuary, which
 2 includes San Francisco and San Pablo Bays, is used extensively for both recreational
 3 and commercial purposes and supports a diverse community of plants and animals.

4 Water from about 40 percent of the land in California drains into the San Francisco Bay
 5 and is the source for most of California’s agricultural and urban water supplies (Contra
 6 Costa County 2005). All of Contra Costa County’s water drains either directly or
 7 indirectly into the Bay-Delta system. Water from the western, urbanized portion of the
 8 County drains directly into San Francisco Bay or San Pablo Bay, while that from the
 9 northern and eastern portions drain into Suisun Bay and the delta river channels,
 10 eventually flowing into San Pablo and San Francisco Bays. Annual precipitation in the
 11 Project area averages about 15 inches.

12 The wharf facility extends into the River near its confluence with the Estuary, and is
 13 subject to tidal currents and wave wash from the Estuary, as well as flows down the
 14 River.

15 Water quality and salinity in the Project area vary depending on flows and tides. Existing
 16 wharf facilities and use have a minimal effect on water currents and quality.

17 There is water supplied to the wharf for general cleaning (garden hose), which is fed
 18 from the GP Plant’s water tower. Additionally there is a fire protection system that
 19 consists of sprinkler heads and an emergency fire-protection water pump that can draw
 20 water off of the River in the event of a system pressure drop.

21 **3.9.2 Regulatory Setting**

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

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

U.S.	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"> • <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. • <u>National Pollution Discharge Elimination System (NPDES)</u>. Section 402 (33 USC 1342) establishes conditions and permitting for discharges of pollutants
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		<p>under the NPDES.</p> <ul style="list-style-type: none"> • <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. • <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.
U.S.	Oil Pollution Act (OPA) (33 USC 2712)	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 Office of Spill Prevention and Response (OSPR) to review and regulate oil spill plans and contracts.
U.S.	Rivers and Harbors Act (33 USC 401)	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, and the building of any wharf, pier, jetty, or other structure is prohibited without Congressional approval.
CA	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, such as the National Pollutant Discharge Elimination System (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"> • <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. • 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.

CA	Sections 1601 to 1603 of the Fish and Game Code	Under Sections 1601 to 1603 of the Fish and Game Code, the California Department of Fish and Wildlife (CDFW) must be notified prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. The term “stream” can include perennial, intermittent, and ephemeral streams; rivers; creeks; dry washes; sloughs; and watercourses with subsurface flows. The CDFW has issued a Draft Streambed Alteration Agreement for the GP Antioch wharf project, which would become final after the CEQA MND has been approved.
CA	Other	<ul style="list-style-type: none"> • Under California Code of Regulations, Title 23, the Central Valley Flood Protection Board (CVFPB) regulates specific river, creek, and slough crossings for flood protection: (1) new crossings must maintain hydraulic capacity through such measures as in-line piers, adequate stream bank height (freeboard), and measures to protect against stream bank and channel erosion, and (2) improvements, including crossings, must be constructed in a manner that does not reduce the channel’s capacity or functionality, or that of any Federal flood control project. • California Water Code § 8710 requires that a reclamation board permit be obtained prior to the start of any work, including excavation and construction activities, if projects are located within floodways or levee sections. Structures for human habitation are not permitted within designated floodways.

1 The Project site is within an area of Contra Costa County that was annexed by the city
 2 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 3 applicable to this issue area lie with the City.

4 The following goals and policies relevant to hydrology and water quality are included in
 5 the City of Antioch’s General Plan (2003):

- 6 • Require public and private development projects to be in compliance with
 7 applicable National Pollution Discharge Elimination System (NPDES) permit
 8 requirements, and require the implementation of best management practices to
 9 minimize erosion and sedimentation resulting from new development (Policy
 10 10.7.2(g)).
- 11 • Prohibit all development within the 100-year floodplain, unless mitigation
 12 measures consistent with the National Flood Insurance Program are provided
 13 (Policy 11.4.2(a)).
- 14 • Minimize the encroachment of development adjacent to the floodway in order to
 15 convey flows without property damage and risk to public safety. Require such
 16 development to be capable of withstanding flooding and to minimize use of fill
 17 (Policy 10.7.2(b)).

18 **3.9.3 Impact Analysis**

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

20 **Less than Significant With Mitigation.** During certain portions of the Project (removal
 21 of existing timber dolphin piles) re-suspension of some subsurface sediments is

1 anticipated. There would be an increase in turbidity due to resuspension of fine silt and
2 sand in the upstream and downstream areas of the wharf where 150 14-inch-diameter
3 wooden piles would be pulled out of the mud (this activity is planned for 2 work days in
4 August, one work day in September, and 2 work days in October). In addition, as
5 discussed in Section 3.8, Hazards and Hazardous Materials, no unusual
6 constituents/contamination were encountered at the Project site during sediment
7 sampling. During pile removal activities, turbidity monitoring would be conducted,
8 measurement records maintained, and increased turbidity impacts controlled according
9 to requirements of CVRWQCB's Section 401 Water Quality Certification and the CDFW
10 Streambed Alteration Agreement. There is minimal potential of lasting turbidity impacts
11 due to high background turbidity and the briskly moving current (1.5 to 2 nautical miles
12 per hour [knots]); however, because the Project could result in localized turbidity
13 increases affecting water quality, **MM BIO-6** and **MM BIO-8** would be implemented to
14 ensure impacts remain less than significant.

15 **MM BIO-6: In-Water Turbidity Protections.** During pile removal activities,
16 turbidity monitoring shall be monitored daily during an ebb tide, at 31 meters (100
17 feet) upstream and 92 meters (300 feet) downstream of the work site. If
18 downstream turbidity measures are more than 15 Nephelometric Turbidity Units
19 (NTU) above the upstream level, activities shall cease until turbidity levels drop
20 below 15 NTUs above the upstream measurement. All incidents of exceedance
21 of the turbidity standard shall be reported to the California Department of Fish
22 and Wildlife (CDFW) within 24 hours. A turbidity-monitoring log shall be
23 maintained and provided to the CDFW and the State Lands Commission staffs
24 within 5 days from the completion of work.

25 **MM BIO-8: Toxic Substances Protections.** To ensure toxic substances are not
26 released into the aquatic environment, the following measures shall be followed:

- 27 a) all engine-powered equipment shall be well-maintained and free of leaks of
28 fuel, oil, hydraulic fluid or any other potential contaminant;
- 29 b) all engine-powered equipment used and operated from the decks of barges,
30 boats or the wharf shall be positioned over drip-pans;
- 31 c) a spill prevention and response plan shall be prepared in advance of the
32 commencement of work; a spill kit with appropriate clean-up supplies shall
33 be kept on hand during operations. The kit shall include a floating oil-
34 absorbent sock that could be immediately deployed and maintained around
35 the work barges in the event of a spill or any accidental leakage of fuel or
36 hydraulic fluids;
- 37 d) refueling and maintenance or mobile equipment shall not be performed
38 directly over the waters of the River. Only approved and certified fuel cans
39 with "no-spill" spring-loaded nozzles shall be used; and

1 e) All spill cleanup materials or other liquid or solid wastes shall be securely
2 containerized and labeled in the field during transport by barge to the
3 contractor's yard.

4 ***b) Substantially deplete groundwater supplies or interfere substantially with***
5 ***groundwater recharge such that there would be a net deficit in aquifer volume or***
6 ***a lowering of the local groundwater table level (e.g., the production rate of pre-***
7 ***existing nearby wells would drop to a level which would not support existing land***
8 ***uses or planned uses for which permits have been granted)?***

9 **No Impact.** The Project would not use or otherwise affect groundwater supplies or
10 aquifers. Work would cover a very small footprint (which would be offset by removal of
11 old piles), and would be conducted in the saturated sediments of the alluvial channel
12 bottom. No groundwater withdrawal would occur. No increased use of groundwater from
13 normal facility operations would occur after Project implementation. Therefore no impact
14 would occur.

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

18 **Less than Significant with Mitigation.** The Project would not alter any drainage
19 patterns, but would slightly alter existing structures in the channel of the San Joaquin
20 River. Both during and after installation of the four new breasting dolphins along the
21 dock line at the wharf, and the three new mooring dolphins between the wharf and the
22 shoreline, the normal tidal currents of the River would flow around these structures
23 without alteration or restraint.

24 Although the Project would not alter the existing drainage pattern of the site or
25 surrounding area, the Project's removal of the old piles could result in potential erosion,
26 and increased turbidity near the shore. Implementation of **MM BIO-6**, above, will ensure
27 that Project activities do not produce substantial erosion or siltation by requiring turbidity
28 monitoring to prevent increased turbidity during pile replacement activities.
29 Implementation of **MM BIO-6** will reduce potential erosion or siltation impacts to less
30 than significant.

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

36 **No Impact.** Project activities would not alter the drainage pattern of the site, place
37 structures in the floodplain that might impede or redirect flood waters, or create new

1 impervious surfaces that might alter the rate of surface runoff. No permanent change
2 from normal, existing, wave wash conditions at the GP Antioch wharf is anticipated as a
3 result of the proposed upgrade Project. Temporary modification of normal, undisturbed
4 wave wash conditions at the wharf facility may result from construction activities,
5 including the presence of barges, but these temporary flow modifications would not
6 impede or substantively change the overall tidal flow and current of the San Joaquin
7 River at this location. No impacts are expected.

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

11 **No Impact.** The Project would occur in the San Joaquin River, and all runoff from the
12 facility would otherwise fall either on the current facility (and drain directly to the River)
13 or fall as rain directly into the River. The wharf itself is not serviced by a stormwater
14 drainage system, nor is such a system included in the Project. Therefore the Project
15 would not alter the quantity or quality of runoff to the River and there would be no
16 impact.

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

18 **Less than Significant with Mitigation.** As mentioned above, polluted water could
19 potentially run off the barge and other marine construction equipment during Project
20 activities. Implementation of **MM BIO-8**, including the availability of a hydrocarbon
21 containment boom and use of drip pans for equipment on the barge will ensure that
22 Project activities do not produce significant sources of polluted runoff during Project
23 activities. No other elements of the Project would generate contaminants that would
24 cause substantial degradation of water quality. Implementation of **MM BIO-8** will reduce
25 potential impacts to less than significant.

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

29 **No Impact.** The Project does not involve the construction of any housing, resulting in no
30 impact.

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

33 **Less than Significant Impact.** The Project would place structures (dolphins and
34 walkways) within the 100-year floodplain of the San Joaquin River, however those
35 structures would be designed to withstand anticipated river currents (Contra Costa

1 County General Plan p. 10-29 (Contra Costa County 2005). The temporary use of a
2 barge, equipment and materials in Suisun Bay and within the 100-year floodplain would
3 not impede or redirect flood flows, therefore no impacts are expected.

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

6 **Less than Significant Impact.** The Project would place structures (dolphins and
7 walkways) within the 100-year floodplain of the San Joaquin River, however those
8 structures would be designed to withstand anticipated river currents (Contra Costa
9 County General Plan p. 10-29 (Contra Costa County 2005). No changes to uses of the
10 wharf are proposed compared to existing conditions, so there would be no increased
11 risk of loss, injury, or death from flooding following Project implementation. Therefore
12 this impact would be less than significant.

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

14 **Less than Significant Impact.** The Project would place structures (dolphins and
15 walkways) within areas of the San Joaquin River that could flood in the event of a major
16 dam failure upstream, however those structures would be designed to withstand
17 anticipated River currents. No significant seiche or mudflow impacts would occur
18 because the site is not in an area that would be subject to either hazard substantial
19 (seiche hazards require confined water bodies, and substantial mudflow hazards require
20 long, steep slopes). Tsunami runup in this area would be within the 100-year flood
21 elevation (Contra Costa County General Plan, Chapter 10, Safety Element, Section
22 10.8, Flood Hazards, and Figure 10.8, 100 Year Flood Plain) (Contra Costa County
23 2005). No changes to uses of the wharf are proposed compared to existing conditions.
24 Therefore this impact would be less than significant.

25 **3.9.4 Mitigation Summary**

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

- 28 • MM BIO-6. In-Water Turbidity Protections.
29 • MM BIO-8. Toxic Substances Protections.