1 **AIR QUALITY AND GREENHOUSE GAS EMISSIONS**

<table>
<thead>
<tr>
<th>AIR QUALITY AND GREENHOUSE GAS EMISSIONS – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Conflict with or obstruct implementation of the applicable air quality plan?</td>
<td>☐</td>
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<tr>
<td>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</td>
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<td>c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</td>
<td>☐</td>
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<tr>
<td>d) Expose sensitive receptors to substantial pollutant concentrations?</td>
<td>☐</td>
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<td>e) Create objectionable odors affecting a substantial number of people?</td>
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<td>f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
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<tr>
<td>g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</td>
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</tbody>
</table>

2 **3.3.1 Environmental Setting**

Criteria air pollutants are a group of pollutants for which Federal or State regulatory agencies have adopted ambient air quality standards. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (both PM₁₀ and PM₂.₅), and lead. Most of the criteria pollutants are directly emitted; ozone is a secondary pollutant that is formed in the atmosphere by chemical reactions between oxides of nitrogen (NOₓ) and reactive organic gases (ROG).

Criteria air pollutants concentrations are classified in each air basin, county, or in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with State and Federal standards. If a pollutant concentration is lower than the standard, the area is classified as “attainment” for that pollutant and if an area exceeds the standard, the area is classified as "non-attainment" for that pollutant. If
there are not enough data available to determine whether the standard is exceeded in an area, the area is designated “unclassified.”

The San Francisco Bay Area Air Basin (Basin) is classified as non-attainment for State PM\textsubscript{10} standards as well as State 1- and 8-hour ozone (BAAQMD 2013) standards. Recent findings (CARB 2012) indicate that the San Francisco Bay Area is currently in attainment for small particulate matter (PM\textsubscript{2.5}). With respect to Federal standards, the Basin is classified as being in non-attainment for the federal PM\textsubscript{2.5} standard, and marginal non-attainment for the 8-hour ozone standard. For all other State and Federal criteria air pollutant standards, the Basin is classified as either unclassified or as attainment (BAAQMD 2013a).

### 3.3.1.1 Sensitive Receptors

For the purposes of air quality and public health analyses, sensitive receptors are generally defined as land uses with population concentrations that would be particularly susceptible to disturbance from dust, air pollutant concentrations, or other disruptions associated with Project construction and/or operation. These receptors generally include schools, day care centers, hospitals, residential areas, and parks. Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The Project’s onshore work area is approximately 250 feet from the closest residences in Rodeo, and within 550 feet of residences in the City’s Subdivision. The boundary of Park is approximately 100 feet east of the onshore work area. Work would therefore occur within 250 to 2,250 feet of the closest residence, and within 100 to 2,100 feet of the closest Park area.

### 3.3.1.1 Greenhouse Gas (GHG) Emissions and Climate Change

Some gases in the atmosphere affect the earth’s heat balance by absorbing infrared radiation. These gases can prevent the escape of heat in much the same way as glass in a greenhouse. This is often referred to as the “greenhouse effect,” and it is responsible for maintaining a habitable climate. On earth the gases believed to be have
the most greenhouse potential are carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Enhancement of the greenhouse effect can occur when concentrations of these gases exceed the natural concentrations in the atmosphere. Of these gases, CO₂ and methane are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas methane results primarily from off-gassing associated with agricultural practices and landfills. Some methane is emitted during fossil fuel combustion. Nitrous oxide (N₂O) is the other GHG that is commonly associated with fossil fuel combustion.

CO₂ is the most common reference gas for climate change. To account for the warming potential of GHGs, GHG emissions are often quantified and reported as CO₂ equivalents (CO₂e). With the warming potential of CO₂ set at a reference value of 1, methane has a warming potential of 21, and N₂O has a warming potential of 310; i.e., 1 ton of methane has the same warming potential as 21 tons of CO₂ (USEPA 2013a,b). There is widespread international scientific consensus that human-caused increases in GHGs have and will continue to contribute to climate change, although there is uncertainty concerning the magnitude and rate of the warming.

Some of the potential resulting effects in California of global warming may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone concentration days, more large forest fires, and more drought years (CARB 2008).

Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of climate change on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC 2001): higher maximum temperatures and more hot days over nearly all land areas; higher minimum temperatures, fewer cold days and frost days over nearly all land areas; reduced diurnal temperature range over most land areas; increase of heat index over land areas; and more intense precipitation events.

Secondary effects that are projected to result from climate change include global rise in sea level, impacts to agriculture, increasing intensity of storms, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and feedback mechanisms involved are not fully understood, and research continues, the potential for substantial environmental, social, and economic consequences over the long term is likely to be great.

The San Francisco Bay Area as a whole emitted an estimated 95.8 million metric tons (MT) of CO₂e in 2007 (BAAQMD 2010), and the estimated emissions in unincorporated Contra Costa County were 1,667,070 MT of CO₂e in 2005 (Contra Costa County 2012). No estimate is available for the City.
3.3.2 Regulatory Setting

Federal and State laws and regulations pertaining to this issue area and relevant to the Project are identified in Table 3-1. Local goals, policies, and/or regulations applicable to this issue area are summarized below.

With the exception of very large projects, GHG from individual projects are typically less than significant at the project scale; however, GHG emissions cumulatively have a substantial environmental impact. The revisions to the State CEQA Guidelines adopted December 30, 2009 (§ 15064, subd. (h)(3)) provide the basis for assessing cumulative impacts of GHG emissions. Section 15064 indicates that a “…lead agency may determine that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.” The guidance also encourages lead agencies to quantify GHG emissions where possible.

The Bay Area Air Quality Management District (BAAQMD) has developed CEQA Guidelines to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality, including GHGs. The BAAQMD CEQA Guidelines were updated in June 2010 to include reference to thresholds of significance (“Thresholds”) adopted by the Air District Board on June 2, 2010 and were set aside on March 5, 2012, by the Alameda County Superior Court. BAAQMD has appealed the decision, and an appeal is currently pending.

While the appeal is pending, BAAQMD is no longer recommending that the 2010 Thresholds be used as a generally applicable measure of a project’s significant air quality and GHG impacts. BAAQMD indicates that lead agencies may continue to rely on the BAAQMD’s 1999 Thresholds of Significance (BAAQMD 2013c).

The San Francisco Bay Area as a whole does not have a Climate Action Plan (CAP). BAAQMD adopted a resolution in 2005 establishing a Climate Protection Program and acknowledging the link between climate protection and programs to reduce air pollution in the Bay Area, and formed a standing committee on climate protection to provide direction on BAAQMD’s climate protection activities. BAAQMD focus is to integrate climate protection activities into existing BAAQMD programs (BAAQMD 2013b). A Draft CAP exists for unincorporated County. The City does not have a CAP.
3.3.3 Impact Analysis

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The Project consists of construction activities of about 3 weeks only. There would be no air emissions from the Project following construction. Consistent with the 1999 BAAQMD CEQA Guidelines, applicable basic measures will be incorporated into any construction activities that could generate dust. Consequently, this impact would be less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact. The Project consists of construction activities only. There would be no air emissions from the Project following construction. Consistent with the 1999 BAAQMD CEQA Guidelines, applicable basic measures will be incorporated into any construction activities that could generate dust. Consequently, this impact would be less than significant.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. The Project would not create any new permanent stationary or non-stationary source of air emissions, is not subject to the thresholds of significance that apply to operational impacts created by new permanent sources, and is, therefore, evaluated in the context of construction-related impacts only. The proposed activities would not produce substantial daily amounts of particulate matter, ozone, or ozone precursors such as ROG or NOx. The Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Nevertheless, BAAQMD (2012) recommends that a Project implement certain basic construction control measures to the extent applicable and needed for sites of less than 4 acres (the active onshore work area is expected to be approximately 200 square feet) and sites that are not expected to be particularly dusty. Most basic measures recommended by the BAAQMD are unlikely to be needed, such as applying water to construction areas or sweeping public streets, given the nature of the work, its location on the shore of the Bay, and the extremely small size of the work area subject to ground disturbance. The Project would minimize overall emissions by shuttling the crew from a near-by marina, minimizing the use of tugs and other boats, and ensuring that all equipment used on the Project is kept in good working order.
**d) Expose sensitive receptors to substantial pollutant concentrations?**

**Less than Significant Impact.** The Project would only generate small quantities of emissions during construction, and the duration of any activities in the vicinity of potential sensitive receptors is small (up to 3 weeks). While the Park is located within approximately 100 feet of the onshore work area, and the closest residence located in Rodeo is approximately 250 feet from the onshore work area, the short duration and small amount of emissions associated with the Project render this impact less than significant for these sensitive receptors. The closest school is approximately 0.38 mile from the location of the onshore work, and is therefore unlikely to be affected. Consequently, this potential impact is less than significant.

**e) Create objectionable odors affecting a substantial number of people?**

**Less than Significant Impact.** The Project would uncover a small area of embankment, and possibly excavate a small section of pipe. These activities could disturb oxygen-deficient, organic-rich soils, and result in odors. The Project is not expected to generate odors that are significantly different or stronger than existing odors occurring during low tides and periods of elevated temperature.

**f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**Less than Significant Impact.** The Project consists of construction activities of about 3 weeks only. There would be no air emissions from the Project following construction. The Project would generate an estimated 54.5 MT of CO$_2$e from direct emissions (see Appendix B, Greenhouse Gas Emissions Estimates). This is a very small value compared to the 95.8 million MT released within the Bay Area in 2007 (BAAQMD 2010). The Project would minimize overall emissions by shuttling the crew from a near-by marina, minimizing the use of tugs and other boats, and ensuring that all equipment used on the Project is kept in good working order.

**g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**No Impact.** The Project would be of short duration (3 weeks), require only a small amount of equipment (see Appendix B), and would include a contractual requirement to use equipment that meets applicable emissions standards. The Project would not prevent or conflict with implementation of any applicable plan, policy or regulation adopted for the purpose of reducing GHG emission.

### 3.3.4 Mitigation Summary

The Project would not result in significant impacts; therefore, no mitigation is required.