

7.11 VISUAL RESOURCES

This section considers the potential for the construction, operation, maintenance, and long-term presence of the Marsh Landing Generating Station (MLGS) project to cause significant impacts to aesthetic values within the visual sphere of influence (VSOI) established for the project area (Figure 7.11-1). The visual resource studies were conducted in conformance with California Energy Commission (CEC) guidelines for the inventory and assessment of visual impacts for preparing an Application for Certification (AFC), as described in Appendix B of Title 20, California Code of Regulations. The CEC guidelines, in turn, comply with California Environmental Quality Act (CEQA) documentation requirements (summarized in Section 7.11.2.1). The study methods used (described in more detail in the inventory and impact assessment sections below) were based upon elements tailored for this project, as established by the U.S. Bureau of Land Management (BLM) *Visual Resource Management Inventory and Contrast Rating System* (BLM, 1986) and *U.S. Forest Service Scenery Management System* (SMS) (U.S. Forest Service, 1995).

7.11.1 Affected Environment

This section describes the inventory of visual resources within the vicinity of the project. A description of the natural and manmade visual elements present in the regional landscape, the anticipated VSOI of the project, and the inventory methods and results are included.

7.11.1.1 Regional Landscape Setting

The MLGS project is located in Contra Costa County on the south side of the San Joaquin River, just west of State Route (SR) 160 adjacent to the City of Antioch and the Antioch Bridge, the principal gateway to the Sacramento/San Joaquin delta from the San Francisco Bay Area (see Figure 7.11-1). Several distinct landscape types exist in this area, including the San Joaquin River; the low, flat terrain along the river; agricultural lands; gently rolling hills; and semi-urban developed lands.

The relatively flat terrain adjacent to the San Joaquin River is often subordinate to the scenic hills and ridgelines of Contra Costa County that rise to the southeast and are a dominant focal feature in this region. The hillside areas are open grassland interspersed with stands of scrub and trees, creeks, and rock outcroppings. The San Joaquin River and associated Sacramento/San Joaquin delta estuary system also form extensive and distinctive focal features within the region and are characterized by open water, islands, extensive marshes, large tracts of reclaimed agricultural land, and wetlands. In undeveloped areas, landscape settings tend to be a mix of agricultural lands, including arable fields and vineyards, especially in Solano County along the northern side of the San Joaquin River. Land uses within the surrounding semi-urban communities and the City of Antioch are varied, ranging from parks and residences to commercial and heavy industrial facilities.

The southern shore of the San Joaquin River contains extensive large-scale heavy industry near the shoreline along two major railroad lines (the Southern Pacific Railroad and the Burlington Northern Santa Fe [BNSF] Railway). Several power plants are located in the area, including the Mirant Delta's Contra Costa Power Plant (CCPP), PG&E's Gateway Generating Station (GGS), Calpine's Los Medanos Energy Center, Calpine's Delta Energy Center, Mirant Delta's Pittsburg Power Plant, and a number of smaller plants. Other heavy industries of note include a sheet rock plant, a gravel plant, and a chemical manufacturing facility. Vapor plumes from the industrial facilities in the region are regularly visible under certain meteorological conditions (i.e., high humidity and low temperatures). In addition to heavy industry, the region is home to light industry, commerce, residential development, agriculture, and recreation, as well as containing pockets of open undeveloped land.

Within the region the typical views are relatively open and expansive, allowing the identification of distant features within the landscape. This is especially true when viewing from along the San Joaquin River or from the ridgeline of the adjacent hills. Occasionally, partial to full screening of views is possible from adjacent hills, vegetation, and development. Prominent features visible throughout the landscape include the hills to the south of Antioch, Mount Diablo, the Antioch Bridge crossing the San Joaquin River, various steel-lattice transmission towers that cross the landscape, a large number of wind-driven turbines to the north, and numerous exhaust stacks.

7.11.1.2 Visual Sphere of Influence

The VSOI is the area where the project has the potential to cause significant effects on the existing setting and potential sensitive viewers. The VSOI for this project was established through a combination of computerized viewshed analysis, field reconnaissance, and consideration of the U.S. Forest Service distance zones, including foreground (observer to 0.5 mile), middleground (0.5 to 4 miles), background (4 miles to infinity), and seldom seen (landscape areas screened by topographic features). In some instances, it may be possible to perceive the project beyond 4 miles; however, the highly industrialized nature of the immediate surroundings and the large existing facilities (i.e., CCPP Units 1 through 7, GGS, mill operations, etc.) create an environment with a high level of visual absorption capability (VAC), the relative ability of a landscape to absorb visual alterations without loss of landscape character or scenic condition. This indicates that a 4-mile-radius VSOI surrounding the project is warranted. Figure 7.11-1 illustrates the VSOI established for the MLGS project.

Potential views beyond the VSOI of the project will lack sufficient spatial scale and scale dominance in a setting shared with the existing CCPP, GGS, and numerous other industrial facilities. This supports the assumption that potential viewing areas beyond the 4-mile-radius VSOI would experience insignificant visual impacts. Regional views beyond 4 miles were not considered in detail, given the distances involved.

7.11.1.3 Visual Inventory Methodology

This section describes the inventory methodology used for this visual assessment. The main components of the visual resource inventory included the existing landscape character/scenic quality of the project site and the surrounding area bounded by the VSOI, identification of sensitive viewers who may experience visual impacts, representative key observation points (KOPs), and applicable laws, ordinances, regulations, and standards (LORS) (described in Section 7.11.5).

Landscape Character

The establishment of a consistent baseline to describe the natural and cultural aesthetic elements of a landscape is a necessary part of a visual analysis. Every geographic area has a “sense of place” or a visual and cultural image that is described as landscape character. Landscape types vary from the natural environment (undeveloped areas) to the built environment (developed areas) and are derived from a combination of the cultural, physical, and biological attributes that make each landscape unique or identifiable.

Several criteria can be used to describe the natural or cultural aesthetic characteristics of a landscape in order to identify the character of that specific landscape. Evaluating the uniqueness and diversity of landform, vegetation, water, and cultural features and the influence of adjacent scenery can determine if a landscape consists of primarily natural characteristics. Landscapes composed of developed or cultural characteristics are often defined by planning concepts such as land uses, building types, density, circulation, and landscape design themes. This evaluation also considered existing visual conditions such

as the presence of overhead transmission lines, vertical man-made elements, and other modifications that may affect the character of the landscape.

For the purposes of meeting CEC requirements (see Appendix B(g)(6)(B) of the Siting Regulations), an inventory and interpretation of the scenic quality associated with the landscape character found in the VSOI has been made and is defined based on the following descriptions:

- **High Quality:** Regionally significant views of high distinctiveness, which exhibit vivid natural or man-made features, undisturbed natural landscape features, and/or high levels of attention to landscape design; an area for which public and agency sentiment may regard noticeable changes as unacceptable.
- **Moderate Quality:** Views of typical landscapes found in the region; an area for which public and agency sentiment for changes occurring may be negotiable.
- **Low Quality:** Views of heavily disturbed or utilitarian landscapes, often characterized by intense visual clutter and evident lack of attention to the appearance of landscape elements (e.g., in heavily industrialized landscapes); an area for which public and agency sentiment for changes occurring are low to indiscernible.

Key Observation Points

KOPs are viewing locations chosen to be representative of the most visually sensitive areas where it can be confidently assumed that viewers may be susceptible to a change in scenic quality resulting in a visual impact caused by the introduction of the MLGS within their viewshed. The inventory of KOPs included three components: (1) identification and photographic documentation of viewing areas and potential KOPs, (2) classification of the visual sensitivity of KOPs, and (3) description of project-site visibility from KOPs.

Viewer sensitivity is a measure of the degree of concern for change in the visual character of a landscape. Viewer sensitivity considers type of use, user attitude, volume of use, adjacent land use, visual quality, and special classifications. Generally, three levels of viewer sensitivity (high, moderate, and low) are used to describe the sensitivity of viewers within the VSOI. High-sensitivity viewpoints identified within the VSOI included residences, recreation areas, and scenic roads/parkways. It should be noted, however, that existing viewing conditions from high-sensitivity residential areas may also be characterized as having low scenic integrity (e.g., presence of overhead power lines) as a result of other modifications to the landscape. Moderate-sensitivity viewpoints identified within the VSOI included commercial areas and major travel routes (arterial roads). Low-sensitivity viewpoints included industrial areas that are considered to be a compatible use with the facility and that do not qualify as KOPs due to an absence of potential for significant visual impacts.

Visibility analysis was conducted to identify areas within the VSOI that would have limited or no potential for viewing the project. The remaining areas were considered for the selection of KOPs. Based on a site visit on February 13, 2008, seven KOPs were identified. The KOPs were selected based on a review of previous studies in the immediate area (CCPP and GGS), land use data, field reconnaissance, and an evaluation of visual resources in the project area. Assessment of potential impacts on KOPs assumed a worst-case scenario wherein all sensitive viewers have views toward the project on a high-visibility day (defined as visibility up to 5 miles and beyond) and that those KOPs would best represent the disparate viewing conditions and viewing opportunities.

The existing views and simulations developed (see Figures 7.11-2 through 7.11-9 and 7.11-10 through 7.11-16, respectively) represent views from KOPs within the VSOI, including both high-sensitivity viewers and moderate-sensitivity viewers.

7.11.1.4 Visual Inventory Results

Landscape Character

This section describes the site character, adjacent setting, and surrounding landscape. Examples of these qualities are provided in the KOP photographs (see Figures 7.11-2 through 7.11-8).

The project site is located on relatively flat, previously disturbed terrain, south of the San Joaquin River, behind and to the west of the existing Units 1 through 7 of the CCPP. Five existing tanks will be demolished to make room for the new facility. The 27-acre site is located in the western portion of the existing CCPP property on the northern side of Wilbur Avenue, in an unincorporated area of Contra Costa County among a diverse mix of industrial land uses adjoining the eastern boundary of the City of Antioch, California.

Located to the immediate north of the project, the San Joaquin River is characterized by open, flowing water between flat, meandering shorelines. On the northern side of the San Joaquin River, the shoreline is composed of an assortment of flat agricultural lands separated from the river by a large earthen levee. The San Joaquin River has several unique features associated with its shoreline and channel, including several islands, wetlands, and wildlife conservation areas (e.g., Sherman Island Waterfowl Management Area on the northern side of the river and the Antioch Dunes National Wildlife Refuge on the southern side).

The shoreline to the south of the river differs in character from the north. The south shoreline has heavy industrial facilities (utilities and manufacturing) and occasional small recreation developments such as marinas and parks. Most of the marinas are associated with local yacht clubs. The heavy industrial areas contrast dramatically with the river and surrounding agricultural landscapes due to the introduction of numerous vertical elements (e.g., stacks, tanks, steel-lattice transmission towers, bridges, and buildings). The marinas are characterized by numerous boat storage areas, maintenance facilities, club houses, docks/piers, and isolated residences (e.g., Bridge Marina Yacht Club, Drift Wood Yacht Club, Sportsman's Yacht Club, and Humphrey's on the Delta). The aforementioned marinas, as well as Antioch Regional Shoreline Park east of the project area, are intensively used and contribute to a positive character along the southern shoreline of the San Joaquin River. The area is visually dominated by the Antioch Bridge as it crosses the river, which serves as a focal point within the landscape setting.

Medium-density residential neighborhoods are located to the south and southeast of the project. These mature neighborhoods consist of homes with various architectural styles and with streets based on a grid system. The character of these neighborhoods is enhanced by the existing vegetation, which consists of numerous mature trees, which also provide heavy screening. Areas farther south of the project (beyond 0.5 mile) have a more diverse land use pattern and display a mixture of commercial, industrial, residential, and agricultural uses. Residential areas can be primarily described as single-family, low- to moderate-density housing built on the flat delta terrain close to the river as well as on the higher elevations of the surrounding hillsides. These residential areas vary in character, ranging from older homes having various architectural styles and large lots (but still situated amid the straight circulation patterns based on the grid), to newer homes in master-planned communities with a uniform architectural style, curvilinear circulation, and associated amenities such as parks and trails. The older residential areas have more mature vegetation, which adds to the character of the area, while the newer master-planned communities have strategically placed, uniform plantings of younger vegetation.

Immediately southeast of the project is primarily open agricultural land (vineyards). Several steel-lattice structure towers and transmission lines cross the agricultural land in this area and connect to the PG&E switchyard adjacent to the project site and the CCPP. Farther to the southeast of the project is a combination of commercial and industrial uses consisting of a sand and gravel operation, concrete manufacturing plant, and several businesses located on the western side of SR 160 (including recently developed “big box” commercial activities such as a Kmart). Commercial areas south of the project consist of small, service-oriented businesses such as a restaurant/lounge, gas station/convenience store, and some retail stores.

The area immediately west of the MLGS is vacant, having been recently cleared of a heavy industrial facility (i.e., paper mill). Farther west, heavy industry consisting of large buildings, water tanks, storage areas, exhaust/cooling stacks, waste ponds, etc., is still present and active. Immediately east of the MLGS is PG&E’s GGS project. Other industrial uses and a private marina are found to the east.

Overall, the landscape character inventoried within the VSOI is consistent with a moderate and low scenic integrity, with a few areas of high scenic integrity along the foothills to the south and a wildlife preservation area to the northwest. The MLGS site and the adjacent area reflect a low scenic integrity due to the dominant visual elements of the industrial and energy-related facilities. It should be noted that existing scenic integrity will vary within the overall classification based on specific viewing conditions (e.g., orientation of view, duration of view).

7.11.1.5 Description of Key Observation Points and Other Viewing Areas

In the project vicinity, visually sensitive areas and their general viewing conditions can be associated with the landscape character described above and with transportation networks and public access points. Several KOPs representing the most sensitive views have been identified within the vicinity of the project area (see Figure 7.11-1). Seven KOPs were identified and determined to be the most typical or the most critical viewing opportunities. Simulations were then developed to assist with impact analysis. Additionally, photographs were taken depicting existing conditions representative of other viewing areas (OVA), but not selected as KOPs, and were used to evaluate visual conditions and visibility potential.

Key Observation Points

KOP 1 (Figure 7.11-2): KOP 1 looks directly south across the San Joaquin River at the MLGS project site and is primarily representative of sensitive viewers traveling by boat along the San Joaquin River. Although the river landscape is of high visual quality overall, views to the south from boats traveling on the west side of the Antioch Bridge are already degraded by the existing CCPP, PG&E’s GGS, and other prominent industrial facilities near the water. Views of the MLGS project site from the river are considered to have low visual quality, due to existing industrial features. Viewers from the river are considered to have moderate to high sensitivity.

KOP 2 (Figure 7.11-3): Views from KOP 2 represent the views of motorists in southbound lanes of the SR 160 at the approach of the Antioch Bridge. This location is situated at the foreground distance from the project site; motorists would be traveling at speeds of up to 45 miles per hour, which indirectly would result in shorter viewing durations of the project. The existing facilities (i.e., the existing CCPP Units 1 through 7, PG&E’s GGS, etc.) result in a low overall visual quality in this view. Panoramic views of the river and hills are compromised by the prominent, highly industrial character of the existing CCPP in the middle ground, and other industrial facilities to the west as well as industrial and commercial development visible to the south. Due to the bridge railing, which partially blocks views by motorists in sedans and other low vehicles, these views are only completely visible to motorists in tall vehicles such as

sport utility vehicles and trucks. This KOP is considered to have moderate visual quality. Viewers are considered to have high sensitivity.

KOP 3 (Figure 7.11-4): Views from KOP 3 represent viewers from the Sportsmen Yacht Club, which has immediate foreground views across an existing access road of the CCPP and PG&E's GGS, which provide screening of views toward the project site. The club has approximately 170 members with two to three long-term "live-aboard" members and one onsite caretaker residence. The club's historic Sausalito Ferry is dry-docked approximately 50 feet from the CCPP's eastern property line and serves as the principal meeting place for club members. A south-facing balcony on the upper level of the facility is the location of KOP 3, and is an extension of that meeting area. This balcony and a similar north-facing balcony are the principal locations from which open views to the site occur. Trees along portions of the property line intermittently filter existing views from the Sportsmen Yacht Club to the project site. Interior views from the ferry to the project site are very limited and of much less importance. As stated earlier, the CCPP and the GGS are situated in the immediate foreground distance and dominate the viewing area, providing a landscape of reduced visual quality. Panoramic views show the prominent, highly industrial character of the existing area. This KOP is considered to have low visual quality due to the presence of existing heavy industrial features. Viewers are considered to have moderate sensitivity due to the fact that most existing viewers are not permanent residents and due to the existing heavy industrial land uses of the area.

KOP 4 (Figure 7.11-5): Views from KOP 4 represent the closest residential viewers in eastern Antioch, which will have an immediate foreground view of the proposed MLGS across the existing BNSF Railway and next to an existing vineyard. The CCPP and the GGS are situated in the foreground distance and dominate the view. Other vertical, manmade elements such as aboveground storage tanks and existing power poles contribute to this highly industrial view. This KOP is considered to have moderate to low visual quality due to the numerous manmade alterations and elements present in the landscape. Viewers are considered to be of high sensitivity; however, existing mature trees will somewhat screen views of the project for some of the sensitive viewers.

KOP 5 (Figure 7.11-6): Views from KOP 5 represent the recreational viewers of an eastern Antioch driving range and batting cages. This view is south toward the proposed MLGS project site. The CCPP and the GGS are situated in the middle-ground distance zone and can be seen through the net barriers of the driving range. Views are dominated by various vertical elements such as lattice power structures, aboveground storage tanks, and the large wooden poles used to support the netting for the driving range. This KOP is considered to have low visual quality and viewers are considered to have high sensitivity.

KOP 6 (Figure 7.11-7): This KOP looks north toward the project area from the intersection of Oakley Road and Calle de Oro, near SR 160 to represent commuters along Oakley Road. Vineyards, as well as SR 160, are apparent in the foreground along with vertical industrial elements such as steel-lattice transmission structures. Other vertical industrial elements, in the middle-ground distance, include the exhaust stacks from the CCPP and PG&E's GGS as well as large aboveground storage tanks. Views from KOP 6 are considered to demonstrate low visual quality due to level of modification of the landscape character by the existing industrial facilities and other human alterations. Views from this KOP represent high-sensitivity residential viewers as well as moderate-sensitivity commuters along Oakley Road.

KOP 7 (Figure 7.11-8): This KOP looks north towards the project area from approximately 1.75 miles away, south of the Southern Pacific Railroad and SR 160. Views from this KOP, located at the back of a residential development off of a cul de sac along Bluebell Circle, represent residential views along the hills to the south of SR 4. Vineyards and rolling hills are apparent in the foreground of the photograph, as well as scattered patches of trees and houses. Other elements, which are noticeable in the middle ground

and background distance zones, are industrial elements such as the exhaust stacks from the CCPP and the arch of the Antioch Bridge. The large tanks located in the western portion of the CCPP site, which mark the approximate location of the MLGS project site, are hardly visible from this distance and are not apparent to viewers due to the industrial nature surrounding the site and screening provided by trees in the middle ground. Views from this residential area toward the project site are often screened by the expanse of natural elements in the middle ground and tend to be scattered and spotty due to variations in micro-topography and the presence of other homes and landscaping. The area is of moderate visual quality typical of a suburban residential neighborhood and has a high level of visual sensitivity due to its residential use.

Other Viewing Areas within the Visual Sphere of Influence

The other viewing areas within the visual sphere of influence are shown on Figure 7.11-9a.

OVA 1 – East Antioch Foothills (Figure 7.11-9b): OVA 1 is very similar to KOP 7, which looks north towards the project area from approximately 1.75 miles away. OVA 1 is approximately 1.25 miles west of KOP 7, south of the Southern Pacific Railroad and SR 160. Views from this OVA, located just east of Hillcrest Road, represent sensitive residential viewers located along the hills south of SR 4. Commercial development, residential housing, SR 4, and vineyards are apparent in the foreground of the photograph, as well as scattered patches of trees and houses extending into the middleground, distance. Other elements, which are noticeable in the foreground, middleground, and background distance zones, are industrial elements such as the exhaust stacks from the CCPP (which is almost 2 miles away) and PG&E's GGS, the arch of the Antioch Bridge, large aboveground storage tanks, and several large steel lattice transmission structures. The landscape is of low to moderate visual quality.

OVA 2 – State Route 160 (Figure 7.11-9b): This OVA is located just south of the Southern Pacific Railroad along SR 160, looking north toward the Antioch Bridge from approximately 1.6 miles. Views from OVA 2 represent sensitive viewers traveling or commuting along SR 160; duration of views would be short due to traveling speeds as high as 65 miles per hour. The visual components of the interstate, a small number of residences, and the bridge crossing for Oakley Road are apparent in the immediate foreground of the OVA. The existing stacks of the CCPP are visible in the background along with the arch of the Antioch Bridge, several metallic signs associated with the interstate, and several large steel lattice transmission structures. The landscape is of low visual quality.

OVA 3 – Mayberry Slough (Figure 7.11-9c): OVA 3 is located north of the San Joaquin River and west of SR 160 from a low-density residential community close to the Lower Sherman Island boat launching facility approximately 2.5 miles from the MLGS project site. This high-sensitivity residential area consists of mobile homes and campers. This particular OVA shows a typical view experienced north of the San Joaquin River with an expansive assortment of flat agricultural lands separated from the river by a large earthen levee, which is not apparent from this distance. Steel lattice transmission towers are apparent in the foreground and middleground of this OVA as well as the entire Antioch Bridge to the east. The existing stacks of the CCPP are visible in the background but are made subordinate by the dominant transmission structures that span the view. The landscape is of low visual quality.

OVA 4 – Lower Sherman Island (Figure 7.11-9c): Lower Sherman Island is a public access boat launching facility that provides access to and from the adjacent Sherman Lake more than 2.5 miles from the proposed MLGS project site. Views to the south through this area from the main boat ramp and dock toward the MLGS project site reveal open water views with intermittent marsh grasses and islands in the immediate foreground. The only apparent vertical elements are intermittent trees, steel lattice transmission structures, and a distant view of the Antioch Bridge. From this distance, the existing CCPP is largely not visible, with the exception of the stack for CCPP Units 6 and 7, and moderate sensitivity

recreational users have almost uninterrupted foreground views of open water in this area that has high visual quality.

OVA 5 – Antioch Bridge Marina Dock (Figure 7.11-9d): The Antioch Bridge Marina Dock is located just east of the Antioch Bridge approximately 0.7 mile northeast of the proposed MLGS project site. High-sensitivity viewers from the dock have immediate foreground views of the profile of the Antioch Bridge, which frames middleground views of the Sportman’s Yacht Club and the existing CCPP Units 1 through 7, PG&E’s GGS, and other industrial elements. With the existing industrial facilities, this view is considered to have low visual quality.

7.11.2 Environmental Consequences

This section describes the assessment methods and potential significance of impacts to visual resources within the vicinity of the project. Detailed criteria for determining significance are provided in the following section.

7.11.2.1 Significance Criteria

The assessment of significant visual impacts is based primarily on CEQA requirements. Appendix G of the CEQA guidelines defines the criteria and areas of concern regarding a project’s potential impact on visual resources as follows:

- A substantial adverse effect on a scenic vista.
- Substantial damage of scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings.
- Substantial degradation of the existing visual character or quality of the site and its surroundings. In this analysis, substantial degradation is defined as a perceptible, long-term (longer than one year), high level of visual impacts occurring within moderately to highly sensitive public views.
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

In addition, the CEC requires that consideration be given to the following questions:

- Will the project comply with local guidelines or goals related to scenic quality?
- Will the project significantly alter the existing natural viewsheds, including any changes in natural terrain?
- Will the project significantly change the existing scenic quality of the region or eliminate visual resources?
- Will the project significantly increase light and glare in the project vicinity, particularly nighttime glare?
- Will the project result in significant amounts of back-scattered light into the nighttime sky?

- Will the project result in a significant reduction of sunlight, or the introduction of shadows, in areas used extensively by the community?

Table 7.11-1 describes the matrix used to determine visual impact significance for KOPs. The level of impact significance is determined by combining visual impact susceptibility with severity. A brief definition of impact levels is provided below.

- **Significant:** Will likely cause a substantial long-term and adverse effect on landscape character or scenic quality on an existing viewshed due to the contrast between the project and the level of existing scenic integrity.
- **Adverse But Not Significant:** Will create a noticeable but not substantial change in landscape character/scenic quality or will cause a noticeable but not substantial change on a KOP viewshed.
- **Insignificant:** May or may not be perceptible, but is considered minor in the context of existing landscape characteristics and view opportunity.

7.11.2.2 Assessment Methodology

The main component of the assessment of impacts to landscape character is determining whether the project is compatible with the image type within which it occurs, as well as the adjacent image types.

The three main components of the assessment of impacts to sensitive viewers are:

- Determination of visibility potential levels;
- Determination of visual contrast and modification levels; and
- Determination of impact levels.

Image Type Compatibility

The assessment of compatibility between the project and the existing image types included consideration of the level of aesthetic quality of the landscape and the magnitude of change that would occur to the aesthetic quality of the landscape as a result of the project. Typically, the more similar the landscape characteristics (e.g., colors, textures, materials, and architectural styles) of a given image type with the proposed changes, the higher the aesthetic compatibility. For example, elements characteristic of industrial landscapes (such as steel buildings, exhaust stacks, tanks, chain-link fences, and utilitarian structures), are more compatible with the project than residential or open space areas with entirely different landscape characteristics.

Sensitive Viewer Impacts

Visibility Potential: Visibility potential refers to how sensitive viewers (i.e., KOPs and OVAs) would perceive the project within the landscape. The two main factors driving visibility potential are viewing distance and screening due to intervening vegetation, buildings, or other structures. Within the VSOI varying levels of potential project visibility have been identified. The highest levels of project visibility typically exist when the viewer is in close proximity to the project and/or there is no screening or when views are elevated (e.g., south of the project site viewing north toward the San Joaquin River). Conversely, the lowest level of visibility typically exists when the viewer is located at greater distances from the project site and/or within partial to fully screened conditions.

Other contributing variables that may affect visibility are the duration of the view, orientation of the viewer, and elevation of the viewer. The duration and orientation of view are important to consider in determining visibility potential (e.g., a long-term, fixed view from a residence may result in higher impact levels versus a short-term, transient view from a roadway like SR 60). Middleground and background views from higher elevations (e.g., residential areas along the foothills south of the MLGS project site) can potentially increase visibility potential.

Additionally, visibility potential with a project of this nature varies under different atmospheric conditions and during nighttime hours. Atmospheric conditions have the most influence during periods of significant rainfall, fog, or visible haze due to the presence of pollution or dust, where views of both local (i.e., neighborhoods) and regional (i.e., distant mountains) are restricted. Viewing conditions are much different from daytime to nighttime, with operational and safety lighting being a critical element contributing to increased visibility potential during nighttime hours.

Visibility potential levels for this project were characterized as high, moderate, and low primarily considering the relationship of viewing distance and screening. The other viewing variables described above contributed to the refinement of the visibility potential of sensitive viewers for this project. Visibility potential levels are shown in Table 7.11-2.

Visual Contrast and Modification Levels: Visual contrast is defined as the perceived visual change in the landscape that would result from the construction and operation of the project. Three components contribute to visual contrast: (1) physical change to landform, (2) removal of vegetation, and (3) the addition of structural elements in the landscape. For this project, the primary components influencing visual contrast are of the four generating units and exhaust stacks that would be added. Landform contrast would be somewhat minimal.

Visual absorption capability (VAC) is defined as the extent to which the complexity of the landscape can absorb new structural elements without changing the overall visual character of the area. For the project, VAC is expected to substantially influence how the project would be perceived throughout the VSOI. For example, the existing CCPP, GGS, and the adjacent industrial development create landscape conditions where VAC would be considered high, which in turn would reduce the level of visual contrast to sensitive viewers.

Visual contrast levels for the project could be characterized as strong, moderate, or weak. Strong visual contrast levels associated with a project of this nature would typically occur in a landscape that was previously undeveloped/undisturbed. Weak visual contrast levels would typically occur in a landscape that was previously developed/disturbed, such as the case with the MLGS site and adjacent landscapes. For the project, isolated cases of moderate visual contrast levels could occur based on localized viewing conditions in proximity to the project site.

Visual modification levels were determined by combining project visibility with visual contrast levels (see Table 7.11-3). Four visual modification levels were used to characterize the anticipated level of visual change associated with the project from sensitive views. The visual modification levels are described below:

Not Noticeable: Changes or contrasts in the landscape may be visible within the viewshed, but generally would be overlooked by all but the most concerned and interested viewers. Changes generally would not be noticed unless pointed out. Such changes are often inconspicuous because of such factors as distance, adjacent screening, weak visual contrast with context, or other landscape features prominent in view, including the adverse impacts of past activities.

Noticeable: Changes or contrasts in the landscape would not be overlooked, but are visually subordinate (noticeable to most without being pointed out); they may attract some attention but do not compete for it with other features in the field of view, including the adverse impacts of past activities. Such changes often are perceived as being in the background or within the confines of previous development.

Co-Dominant: Changes or contrasts in the landscape compete for attention with other landscape features in the view, including adverse impacts of past activities. Such changes would draw attention about as frequently as other features in the landscape.

Dominant: Changes or contrasts in the landscape are the focus of attention and tend to become the dominant feature within the view. Such changes are typically substantial in character and often cause a lasting impression in the affected landscape.

Viewer Impact Levels: Viewer impact levels were determined by combining viewer sensitivity of KOPs and OVAs with visual modification levels (see Table 7.11-4). The three levels of potential impact to sensitive viewers as a result of the project are high, moderate, and low. High impacts could occur when the project would result in a substantial change to views in the landscape. Moderate impacts could occur when the project would result in modest change to views in the landscape. Low impacts could occur when the project would result in a marginal change to views in the landscape.

A high or moderate level of impact could warrant the development and application of mitigation measures to minimize or reduce potential impacts to lower levels, while low levels of impact may not warrant mitigation measures.

Visual Impact Severity: In addition to visual modification levels, other influences on visual impact severity include the following:

- Blockage in views towards key landscape features or within open view corridors (e.g., in views to the San Joaquin River corridor or to prominent hills)
- Loss of distinctive landscape features or overall change in visual character of the area
- Changes in solar access, sunlight glare, or shading
- Night-lighting effects such as glare, level of lighting, and backscatter into the night sky

These effects have been characterized as follows. Very noticeable changes are described as the addition of high levels of visible light when compared with existing nighttime conditions. Noticeable changes are described as the addition of moderate levels of visible light when combined with existing nighttime conditions. Slightly noticeable changes are described as the addition of low levels of visible light when compared with existing nighttime conditions.

The severity of visual impacts is determined primarily by combining visual modification levels with the visual sensitivity of a given KOP, as indicated in Table 7.11-5. However, where there are other key influences on visual impact as described above, these can increase the level of visual impact beyond those indicated.

7.11.2.3 Photo Simulations

The development of photographic simulations assisted with the determination and verification of the impacts determination associated with the selected KOPs. The approach used to develop these photographic simulations is described below.

Photographic/Three-Dimensional Model Composite Simulation

To ensure a high degree of visual accuracy in the simulations, computer-aided design (CAD) equipment and global positioning systems (GPS) were used to create life-sized, computer-generated models of the project. This translates to using real-world scale and coordinates to locate facilities, other site data, and the actual camera locations corresponding to three-dimensional (3D) simulation viewpoints. The degree of accuracy of the CAD equipment is absolute; the accuracy for the GPS location data is to within approximately 1 meter, or 3.3 feet.

Microstation/AutoCad, 3D Computer-Aided Design, and GPS Data Integration

A digital elevation model is used to provide a 3D representation of earth's surface within the project vicinity. and a CAD site map is imported as a background reference. CAD drawings of both existing and proposed facilities are placed on top of the site map to register and orient the correct locations of KOPs. The 3D massing models of both the existing structures and the proposed modifications are generated in real world scale. The GPS camera-positioning information is then referenced to the 3D data set.

Model View Professional/3D Studio Max/Adobe Photoshop

An electronic camera lens matches the camera lens that was actually used in the field. An 8-megapixel camera with a 50-millimeter lens was used consistently throughout the process. This lens selection allows for viewing of the computer-generated model in the same way that the project would be viewed in the field.

Next, the digital photograph is transferred into the 3D database as an environment within which the view of the 3D model is generated. To generate the correct view relative to the actual photograph, the electronic camera is placed in the digital environment at a location corresponding to the real-world location from which the photograph was taken. This is provided by GPS records collected during field study. From here, the 3D wire-frame model is displayed on top of the existing structures, topography, or natural features to ensure proper alignment, scale, angle, and distance. When all lines of the wire-frame model exactly match the photograph, the camera target position is confirmed.

To complete this phase, the sun angle is set, materials and textures are applied, and the composite image is rendered through a computer image process known as ray tracing. Any additional filters required for appropriate atmospheric conditions (such as blur, focus, haze) are applied at this time.

The photographic simulations developed for this project have been designed to be viewed 10 inches from the viewer's eye. This distance will portray the most realistic life-sized image from the location of the KOPs.

7.11.2.4 Visual Project Description

The following description is a summary of those features of the project that are relevant to the visual assessment or those that may result in significant visual impacts.

The site arrangement drawings (plot plans, elevation views, and an oblique aerial view of the proposed power generation facility) are shown in Figures 2.5-1a-d, 2.5-2, 2.5-3, and 2.5-4, respectively.

The most visually prominent features of the project include the following:

- Exhaust stacks (4 stacks, approximately 150 feet tall)
- Air-cooled heat exchangers (2 units, 46 feet tall)
- Siemens combustion turbine units (4 units, 65 to 80 feet tall)
- Generator transformer and dead-end structure (6 units, 100 feet tall)
- Tubular steel transmission towers (11 towers, 100 feet tall).

Appurtenant features would include onsite roads, parking areas, fencing, and lighting.

Mature eucalyptus and one oak tree currently located along the western edge of the project site would remain. The earthen berms surrounding the tanks will be removed as part of the demolition of the five tanks. This area will be re-graded to make room for the project.

Offsite facilities include water supply and water discharge pipelines and connections to the Bridgehead Lift Station operated by the Delta Diablo Sanitation District. These water pipelines are proposed to be constructed underground along Wilbur Avenue. The pipelines would run east from the project site to a point west of SR 160 and east of Bridgehead Road before turning south and entering the Bridgehead Lift Station. Additionally, a number of small buildings and facilities related to water treatment would be built on the Bridgehead Lift Station site. These facilities include an ultraviolet disinfection and effluent pumping station, membrane tanks, aeration tanks, a chemical storage building, a screening and grit removal building, and an operations and maintenance building.

Temporary construction laydown and storage areas are located on site primarily south of the transformer block of the PG&E switchyard and north of the tree line along Wilbur Avenue.

7.11.2.5 Visual Impact Results

This section summarizes the resulting visual impacts in relation to the landscape character and to individual KOPs.

Visual Impacts on Landscape Character/Scenic Quality

As described in Section 7.11.1.4, the image type within the immediate vicinity around the project site is heavily industrialized. The image types adjacent to the project consist of various industrial manufacturing, material processing, and warehouses and distribution centers.

The new facilities associated with the project would be similar in appearance to those at the existing CCPP and PG&E's GGS. The new exhaust stacks would be smaller than the existing stacks and less intrusive in the landscape. Due to the proximity and similarity of structures of the project with the existing structures of the CCPP, the new facilities would be substantially absorbed into the existing landscape character and compatible with this industrial image type. The expected modifications to the image types as a result of the project would be considered not noticeable, and impacts to the landscape character and associated image types found within the study area would be low. Moreover, impacts to this industrial image type would not be significant.

The proposed generation facilities would represent a new facility on a site that is currently heavily developed, and would represent a very moderate change to the existing condition. In the context of the

surrounding industrial modifications to the landscape, the project would not represent a significant impact on landscape character/scenic quality.

The proposed water supply and discharge pipelines are to be buried underneath Wilbur Avenue and represent short-term visual impacts on landscape character due to construction activities would, which would include excavation and the operation of heavy equipment. After installation of the pipelines, Wilbur Avenue will be repaved and these project components will not be visible in the long term, thus no significant impacts are anticipated for the water supply and discharge pipelines. The additional buildings and facilities located on the Bridgehead Lift Station property are considered to be subordinate in the landscape of the Bridgehead Lift Station and to be an insignificant visual impact.

Short-term construction impacts on visual resources would result from the temporary presence of vehicles and heavy equipment, facility components, and workers who would be visible during the demolition of the five tanks which occupy the MLGS site, construction of the actual facilities, site, and rights-of-way cleanup and restoration. Temporary or short-term impacts may also include the scraping or disturbance of soil and possible removal of vegetation in demolition areas, construction laydown areas, or along pipeline routes. As necessary, restoration of disturbed areas will eliminate long-term impacts to the landscape character. Therefore, the visual intrusion of construction equipment, materials, and personnel would constitute an adverse but not significant impact, because it would occur only for a relatively short time and would not result in a long-term landscape change following site restoration for construction areas.

Visual Impacts on KOPs

The visual impacts expected to result from the proposed MLGS project are discussed below and summarized in Table 7.11-5, Visual Impact Summary. The results are representative of typical worst-case conditions. This means that all viewers in a given viewing area may not have the same level of impact. For example, views of the project that are on the edge of a residential neighborhood may be open, resulting in high impacts, while views from the internal areas of the same neighborhood would be screened due to the adjacent development, resulting in low impacts.

The following discussion focuses primarily on the long-term impacts of the operating project. In general, short-term construction impacts are not expected to lead to visual impacts of greater severity than those of project operation, and are not expected to lead to significant impacts due to their temporary nature. Some short-term impacts will result from construction, primarily to the high sensitivity viewers within foreground views. These short-term impacts would be due to activities associated with the construction of the project (e.g., cranes, scaffolding, temporary lighting, etc) and dust.

KOPs within the Visual Sphere of Influence

KOP 1: Viewers within this area include moderate to high-sensitivity viewers recreating or traveling along the San Joaquin River by boat. The actual photo location is on the north shore of the San Joaquin River, from a levee that is owned by the State of California and has restricted access. KOP 1 would have a high level of project visibility, with open middleground views that would have an increased potential for visual impacts (see Figure 7.11-10). Additionally, the surrounding landscape features (e.g., the CCPP, GGS and other industrial structures) would substantially absorb the project, thereby helping to reduce the visual contrast introduced into the landscape. Viewers would also be transient and would have temporal views of the project with predominantly perpendicular viewing angles, thus reducing visibility potential from co-dominant to noticeable. Visual modification levels are anticipated to be noticeable, with a moderate viewer impact level.

The addition of new lights for the MLGS could potentially increase the visibility of the project during nighttime hours. This could also increase the modification level from co-dominant to dominant. However, the lighting would be similar in terms of color and intensity to the existing lighting in the vicinity of the project site and in consideration of the mitigation detailed in Section 7.11.4, visual impacts from night lighting are anticipated to be less than significant.

Impacts to recreational viewers on the river are expected to be moderate and would adverse, but not significant. Additionally, the inherent project design features (e.g., lower stack heights, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

KOP 2: High-sensitivity commuter and traveler viewers along the Antioch Bridge would have a moderate to low level of project visibility, with middleground views that are partially screened by the CCPP and PG&E's GGS (see Figure 7.11-11). Additionally, those surrounding landscape features would substantially absorb the project views, thus helping to reduce the visual contrast introduced into the landscape. Visual modification levels are anticipated to be not noticeable.

The addition of new lights for the project could potentially increase the visibility of the project during nighttime hours. This could also increase the modification level from not noticeable to noticeable. However, the lighting would be similar in terms of color and intensity to the existing lighting in the vicinity of the project and in consideration of the mitigation detailed in Section 7.11.4, visual impacts from night lighting are anticipated to be less than significant.

Impacts to recreational viewers on the river in this area and the general vicinity are expected to be low and would be insignificant. Additionally, the inherent project design features (e.g., lower stack heights relative to existing structures, no vapor plumes, shielding of night lighting) would minimize and further reduce potential viewer impacts from this area.

KOP 3: Viewers within this area are primarily high-sensitivity members and residents of the Sportsmen Yacht Club. The members and residents would have a low level of project visibility, with foreground views that are screened by the adjacent development (e.g., the CCPP, GGS, and existing industrial structures) and vegetation. The most visible portion of the project would possibly be the upper portion of the new exhaust stacks (see Figure 7.11-12). Additionally, the surrounding landscape features (e.g., low and high-voltage distribution lines, the CCPP, and the GGS) would substantially absorb any view of the project, thus helping to reduce the visual contrast introduced into the landscape. Visual modification levels for viewers in this area are anticipated to be not noticeable.

The addition of new lights as result of the project could potentially increase the visibility of the project during nighttime hours. This could also increase the modification level from not noticeable to noticeable. However, the lighting would be similar in terms of color and intensity to the existing lighting in the vicinity of the project and in consideration of the mitigation detailed in Section 7.11.4, visual impacts from night lighting are anticipated to be less than significant.

Impacts to viewers in this area and the general vicinity are expected to be low. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding of night lighting) would minimize and further reduce potential viewer impacts from this area. These impacts would insignificant.

KOP 4: Viewers within this area are primarily high-sensitivity residential viewers. The residents of these neighborhoods would have a high level of project visibility; with foreground views that are partially screened due to vegetation that would provide partial screening of the project site (see Figure 7.11-13). Additionally, the surrounding landscape features (e.g., high-voltage transmission lines, large water tanks, the CCPP and GGS exhaust stacks, and other vertical structures) would absorb views of the project, thus

helping to reduce the visual contrast introduced into the landscape. The upper portions of the exhaust stacks for the project as well as other industrial features are likely to be visible from this area. Project contrast is expected to be moderate and visual modification levels are anticipated to be co-dominant.

The addition of new lights as result of the project could potentially increase the visibility of the project during nighttime hours. However, with the presence of substantial lighting from existing facilities, and appropriate mitigation measures, the visibility level and associated modification levels are not expected to increase.

Although impacts to viewers in this area and the general vicinity are expected to be high, they would represent adverse, but not significant visual impact levels due to reduced visual impact susceptibility. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

KOP 5: Viewers from KOP 5 are primarily high-sensitivity recreational viewers from an eastern Antioch driving range. The driving range has a foreground view with significant screening from the aboveground storage tanks. Existing development (i.e., the CCPP, GGS, and other industrial structures) are partially screened by the netting associated with the driving range. Existing steel lattice transmission structures span across the foreground view. The project's adjacency to the existing CCPP, GGS, and surrounding industrial features provides moderate to high absorption capability for the project within this viewshed. Visual modification levels for viewers in this area are anticipated to be noticeable (see Figure 7.11-14).

The addition of new lights as a result of the project could potentially increase the visibility of the project during nighttime hours; however, the driving range is a day use facility and would not be affected by night lighting. Lighting would be similar in terms of color and intensity to the existing lighting in the vicinity of the project and in consideration of the mitigation detailed in Section 7.11.4, visual impacts from night lighting are anticipated to be less than significant.

Although impacts to viewers in this area are expected to be moderate, they are anticipated to be adverse but not significant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

KOP 6: Viewers from KOP 6 are primarily high-sensitivity residential viewers from and the intersection of Calle de Oro and Oakley Road. Vineyards are probably the most prominent feature in the immediate foreground. Existing development (i.e., vertical industrial elements such as steel-lattice transmission structures and SR 160) are apparent in the middleground. Other visible vertical industrial elements in the middle-ground distance are the exhaust stacks from the CCPP and PG&E's GGS. The large water tanks that mark the approximate location of the MLGS project site are visible from this distance and elevation but not immediately apparent to viewers due to the industrial nature of the other existing elements adjacent to the project site. The project's adjacency to the existing CCPP, GGS, and surrounding industrial features provide moderate to high absorption capability for the project within this viewshed. Visual modification levels for this area are anticipated to be not noticeable (see Figure 7.11-15).

The addition of new lights as result of the project could potentially increase the visibility of the project during nighttime hours. However, with the presence of substantial lighting from existing facilities, and appropriate mitigation measures, the visibility level and associated modification levels are not expected to increase.

Viewer impact levels in this area are expected to be low and would be insignificant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

KOP 7: Viewers from KOP 7 are primarily high-sensitivity residential viewers in an existing community south of SR 160 and the Southern Pacific Railroad. Vineyards and rolling hills are apparent in the foreground of the photograph, as well as scattered patches of trees and houses. Other elements, which are noticeable in the middle ground and background distance zones, are industrial elements such as the exhaust stacks from the CCPP and PG&E's GGS and the arch of the Antioch Bridge. The large tanks that mark the approximate location of the MLGS project site are not particularly visible from this distance and are not apparent to viewers due to the industrial nature surrounding the site and screening provided by trees in the middle ground. Despite the elevated position of KOP 7, views to the project site tend to be scattered and spotty due to variations in topography and the presence of other homes, resulting in a low level of project visibility. The project's adjacency to the existing CCPP, GGS, and surrounding industrial features provide moderate to high VOC for the project within this viewshed. Project contrast is expected to be weak and visual modification levels in this area are anticipated to be not noticeable (see Figure 7.11-16).

The addition of new lights as result of the project could potentially increase the visibility of the project during nighttime hours. However, from this distance and with the presence of substantial lighting from existing facilities, and appropriate mitigation measures, the visibility level and associated modification levels are not expected to increase.

Viewer impact levels in this area are expected to be low and would not be significant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

OVAs within the Visual Sphere of Influence

OVA 1 – East Antioch Foothills (Residential/Commercial/Recreation): Middleground, moderate and high-sensitivity views of the MLGS project from this area would have a low level of project visibility. This is due in part to partial and fully screened views as well as the commercial retail facilities and SR 160 in the immediate foreground and vertical steel lattice transmission towers forming a border along the western portion of the view. Visual modification levels are expected to be not noticeable.

The addition of new lights as result of the project could potentially increase the visibility of the project during nighttime hours. However, at this distance and with the presence of substantial lighting from existing facilities, the visibility level and associated modification levels are not expected to increase.

Impacts to viewers in the area and the general vicinity are expected to be low and would not be significant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

OVA 2 – State Route 160 (Transportation Corridor): Viewers within the area are primarily moderate and high-sensitivity travelers and commuters. Foreground to middleground views of the project would have a low to moderate level of project visibility due to partial to full screening from adjacent residential housing, Oakley Road and associated bridge, and vegetation. The focus of the viewshed is north towards the Antioch Bridge. Viewers would be traveling at speeds as high as 65 miles per hour, thus shortening the duration of possible views. Overall, modifications levels in this area would not be noticeable.

Impacts to viewers traveling along SR 160 are expected to be low and would be insignificant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

OVA 3 – Mayberry Slough (Low-Density Residential): Middleground views from high-sensitivity residences north of the San Joaquin River would have a low level of visibility toward the proposed MLGS project site. These views are substantially influenced by the distance from views, the presence of dominant vertical steel lattice transmission structures, and in some cases atmospheric conditions (i.e., haze and rain/fog). Visual modification levels in this area would not be noticeable.

Impacts to viewers in the area are expected to be low and would be insignificant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

OVA 4 – Lower Sherman Island (Recreational Boat Launching Facility): Open foreground and middleground recreational views from the Lower Sherman Island boat launching facility would have a very low level of visibility toward the proposed MLGS project site. These viewers are considered moderate to high-sensitivity as they engage in recreational activities on adjacent Sherman Lake. These views, much like OVA 3, are substantially influenced by the distance from views, the presence of vertical steel lattice transmission structures, and in some cases atmospheric conditions (i.e., haze and rain/fog). Visual modification levels in this area would not be noticeable.

Impacts to viewers in this corridor and the general vicinity are expected to be low and would be insignificant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

OVA 5 – Antioch Bridge Marina Dock (Recreation): Middleground views of the proposed MLGS project from this high-sensitivity recreation dock would be partially to fully screened due to the existing CCPP, PG&E's GGS, and other industrial elements, which also create a high level of VAC, and have low to moderate project visibility. These surrounding industrial facilities within the vicinity of the project would absorb the proposed generating facilities, thus helping to reduce the visual contrast introduced into the landscape. Visual modification levels in this area would be not noticeable to noticeable.

The addition of new lights as result of the project could potentially increase the visibility of the project during nighttime hours. However, the presence of substantial lighting from existing facilities, the visibility level, and associated modification levels are not expected to increase.

Impacts to viewers in the area and the general vicinity are expected to be low and would be insignificant. Additionally, the inherent project design features (e.g., lower stack heights, no vapor plumes, shielding and controlling of night lighting) would minimize and further reduce potential viewer impacts from this area.

7.11.3 Cumulative Impacts

The MLGS project would add a noticeable but not significant or dominant change in the surrounding industrial area in this portion of Contra Costa County. The presence of CCPP Units 1 through 7, the GGS, and other industrial features exhibit a co-dominant to more dominant relationship with the proposed MLGS project. Other energy projects in the larger regional area include the Los Medanos, Delta Energy Center, the Pittsburg Power Plant, and a number of smaller plants to the west, and the Shiloh II Wind Plant Project to the north in Solano County. While the overall density of views of an industrial nature

would increase within the immediate area of the project, the MLGS project would result in a minimal degree of cumulative impact as a result of the proximity to these projects.

7.11.4 Mitigation Measures and Design Features to Reduce Impacts

Mitigation measures for the project fall into two categories: (1) generic mitigation measures built into the project description to reduce overall visual impacts, and (2) specific mitigation measures recommended to address individual impacts to visual resources. This section summarizes the mitigation measures that the applicant has identified to reduce potential visual impacts resulting from the MLGS project.

Because no significant visual impacts are expected with the implementation of the project, no mitigation measures are warranted at this time. However, the following design features were incorporated into the project to reduce the potential visual impacts:

VIS-1 Power Plant

- Structures, stacks, buildings, and storage tanks will be painted in accordance with CEC guidelines and colors will be selected to blend in with the existing visual conditions.
- The colors will provide for subtle variations and contrast. The selected color will help the project to blend more naturally with the natural setting.
- Reflectivity of surfaces will be reduced by using nonreflective elements where practical.

VIS-2 Lighting

- Lighting on the project site will be limited to areas required for safety, will be directed on site to avoid backscatter, and will be shielded from public view to the extent practical.
- All lighting that is not required to be on during nighttime hours will be controlled with sensors or switches operated so that the lighting will be on only when needed.
- High-pressure sodium vapor fixtures will be used. These lights typically produce low-intensity amber light, which will reduce visual contrast with the night sky.
- Stacks and other tall project elements will be lit in accordance with Federal Aviation Administration guidelines.

VIS-2 Gas and Water Pipelines

- After construction, disturbed areas will be restored to be consistent with the surrounding area. Pipeline routes may also follow road rights-of-way and therefore will be placed under pavement or prepared dirt surfaces.

7.11.5 Laws, Ordinances, Regulations, and Standards

The project will be constructed and operated in accordance with all laws, ordinances, regulations, and standards (LORS) applicable to visual resources. This section briefly discusses the identified LORS. Table 7.11-6 provides a summary of the applicable LORS, as described in Sections 7.11.5.1 through 7.11.5.3, and provides the basis for project compliance.

7.11.5.1 Federal

The project is located on private land and is not subject to any federal regulations pertaining to visual resources.

7.11.5.2 State

The California Department of Transportation (Caltrans) maintains a statewide system of designated and eligible scenic highways with the intent of recognizing and protecting the more scenic corridors along the state highway system (Caltrans, 1996). Northeast of the project area, SR 160 is officially designated as a state scenic highway, and SR 4 east of the Antioch Bridge is listed as an eligible state scenic highway.

Protection of scenic qualities along designated scenic highways is the responsibility of the local agency, via an approved scenic corridor protection plan and local ordinances. No specific local ordinances enforcing controls on designated Scenic Highway SR 160 and eligible Scenic Highway SR 4 and applicable to the project were identified except for the protection of scenic corridors identified above. The general intent of the scenic highway program has been reflected in the high visual sensitivity assigned to these viewpoints in the assessment above. Specifically, the analysis of KOPs 2, 6, and 7, and areas east of SR 160, including SR 4, determined that anticipated impacts would be less than significant from these KOPs.

State Route 160 and State Route 4 are considered scenic highways in the Contra Costa County General Plan and scenic corridors in Antioch General Plan. Considering the view distance and the viewing context with the existing transmission lines, and CCPP as well as PG&E's GGS, the project would be subordinate to co-dominant with the existing facilities. The existing visual quality adjacent to the MLGS project site is already low and visual impacts, while potentially adverse, would not be significant. Therefore, the project is consistent with the existing landscape character.

7.11.5.3 Local

County

The site is located within an unincorporated area of Contra Costa County; therefore, the project will be subject to local LORS pertaining to protecting and maintaining visual character and quality for Contra Costa County. Applicable laws, ordinances, regulations, and standards are from the *City of Antioch General Plan* (2003) and the *Contra Costa County General Plan 2005-2020* (2005) and are identified below. These LORS are summarized in Table 7.11-6.

The *Contra Costa County General Plan* (Contra Costa County, 2005) contains the following policies and implementation measures that would apply to the project:

Land Use Element

Policy 3-19: Buffers shall be provided between new industrial developments and residential areas by establishing setbacks, and park-like landscaping or other appropriate mechanisms.

There are no expected significant visual impacts; thus, no mitigation measures are warranted at this time. However, design features will be incorporated into the project to reduce the potential of visual impacts.

Policy 3-42: Industrial development shall be concentrated in select locations adjacent to existing major transportation corridors and facilities.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments.

Policy 3-43: Industrial employment centers shall be designed to be unobtrusive and harmonious with adjacent areas and development.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments. There will be no expected significant visual impacts.

Transportation and Circulation Element – Scenic Routes

Policy 5-35: Scenic corridors shall be maintained with the intent of protecting attractive natural qualities adjacent to various roads throughout the county.

State Route 160 and State Route 4 are considered scenic highways in Contra Costa County. Considering the view distance and the viewing context with the existing transmission lines, and CCPP as well as PG&E's GGS, the project would hardly be noticeable. The existing visual quality adjacent to the MLGS project site is already low and visual impacts, while potentially adverse, would not be significant. Therefore, the project is consistent with the existing landscape character.

Policy 5-37: Scenic views observable from scenic routes shall be conserved, enhanced, and protected to the extent possible.

State Route 160 and State Route 4 are considered scenic highways in Contra Costa County. Considering the view distance and the viewing context with the existing transmission lines, and CCPP as well as PG&E's GGS, the project would hardly be noticeable. The existing visual quality adjacent to the MLGS project site is already low and visual impacts, while potentially adverse, would not be significant. Therefore, the project is consistent with the existing landscape character.

Policy 5-43: Provide special protection for natural topographic features, aesthetic views, vistas, hills and prominent ridgelines at "gateway" sections of scenic routes. Such "gateways" are located at unique transition points in topography and land use, and serve as entrances to regions of the County.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments. There no expected significant visual impacts to natural topographic features, aesthetic views, vistas, hills or prominent ridgelines.

Open Space Element Scenic Resource Policies and Goals

Goal 9-11: To protect major scenic ridges, to the extent practical, from structures, roadways, or other activities which would harm their scenic qualities.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments. There will be no expected significant visual impacts to major scenic ridges.

Goal 9-12: To preserve the scenic qualities of the San Francisco Bay/Delta estuary system and the Sacramento – San Joaquin River/Delta shoreline.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments and compatible uses. There are no significant visual impacts anticipated.

Goal 9-19: New water tanks that would harm the visual quality of a scenic ridge shall be buried, camouflaged or screened to mitigate their impacts.

There are no expected significant visual impacts, thus no mitigation measures are warranted at this time. However, design features will be incorporated into the project to reduce the potential of visual impacts.

Policy 9-20: New power lines shall be located parallel to existing lines in order to minimize their visual impact.

The MLGS project will connect with the adjacent PG&E switchyard; no new offsite power lines are necessary.

Policy 9-26: The involvement of public interest groups shall be encouraged when identifying, acquiring, and maintaining those areas of unique visual quality in the County.

While areas of unique visual quality exist in the region, the project site is not one of these areas and is located on an existing power plant property.

Policy 9-27: The appearance of the County shall be improved by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments. There will be a high rate of VAC and no expected significant visual impacts.

Policy 9-28: Maintenance of the scenic waterways of the County shall be improved by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments. There will be a high rate of VAC and no expected significant visual impacts.

Policy 9-30: Physical and visual public access to established scenic routes shall be protected.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS as well as other industrial developments. There will be a high rate of VAC and no expected significant visual impacts. The project is not immediately adjacent to any scenic corridor.

City of Antioch

Although the project is not within the current boundary of the City of Antioch, the city plans to annex the project area under the city's jurisdiction in the near future; therefore, a review of the general plan was performed to identify any visual resource related policies.

Open Space Policies:

Section 10.3.2.b.: Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the

natural character of Antioch's hillside areas as set forth in the Community Image and Design Element.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS, as well as other industrial developments. Although the site is within close proximity of the San Joaquin River, there will be a high rate of VAC and no expected significant visual impacts.

Section 10.3.2.c.: Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.

The project has been sited in a highly industrialized area adjacent to the CCPP and GGS, as well as other industrial developments. Although the site is close proximity to the San Joaquin River, the site is currently industrial in nature and the MLGS is consistent with this use.

Industrial Development:

Section 5.4.10.a.: The primary design objective for industrial development is the arrangement of structures and functions in an efficient manner. Within the constraints of utility and economic feasibility, manufacturing and industrial buildings shall display architectural statements that are aesthetically pleasing, and shall be designed in accordance with the following design guidelines:

- *Architectural design and details are generally to be oriented toward public views with utilitarian work, maintenance, and storage areas screened from public view.*
- *Architectural design and details should be used to break up the boxlike appearance of the tilt-up construction typically used for industrial buildings.*

Final project design will address visual/architectural components of the project.

Section 5.4.10.d.: Truck docks and trash storage areas are to be closed off by roll-down or another appropriate type of door, and should be arranged in an organized manner, integrated within the overall design of the project.

- *Although no particular "style" is suggested, the use of contemporary, clean, architectural expressions is encouraged.*
- *Blank building elevations plotted parallel to public streets and highways are inappropriate. Variety should be provided in the surface of exterior walls facing public streets or highways with pilasters, deep reveals at construction joints, and staggering of wall components to create projections and recesses in an otherwise flat wall surface.*

The project will comply with required truck dock and outdoor storage provisions and designed in a manner similar to the other existing facilities located on the project site.

Section 5.4.10.e.: Service areas should be simple and efficient, and not interfere visually or physically with other building operations. Service areas should not be visible from public roadways and highways.

The project will comply with required service area provisions.

Section 5.4.10.g.: Signs for multi-tenant uses shall be integrated with building designs and coordinated to create an overall sign theme for the project.

The project will comply with the City of Antioch's signage requirements.

Section 5.4.10.h.: Adequate lighting shall be required to provide adequate lighting for the security and safety of on-site parking, loading, shipping and receiving, and pedestrian and working areas.

Adequate lighting will be required to provide security and safety in the MLGS project area.

Section 4.4.4.2.e.: All manufacturing and industrial uses shall be adequately screened to reduce glare, noise, dust, and vibrations.

The proposed design standards have structures, stacks, buildings, and storage tanks will be painted in accordance with CEC guidelines. Reflectivity of surfaces will be reduced by using nonreflective elements where practical.

Community Image and Design:

Section 5.4.2.c.: Maintain view corridors from public spaces to natural ridgelines and landmarks, such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies.

State Route 160 and State Route 4 are considered scenic highways in the Contra Costa County. Considering the view distance and the viewing context with the existing transmission lines, and CCPP as well as PG&E's GGS, the project would hardly be noticeable. The existing visual quality adjacent to the MLGS project site is already low and visual impacts, while potentially adverse, would not be significant. Therefore, the project is consistent with the existing landscape character. The project is not expecting to visually impact important view corridors within the City of Antioch.

Section 5.4.2.j.: Within multi-family, commercial, office and business parks, and industrial developments, screen enclosures, loading areas, mechanical equipment, and outdoor storage areas from view from public streets, and, as appropriate, from other public views.

The project will comply with the City of Antioch's screening requirements.

Section 5.4.2.o.: Design onsite lighting to improve the visual identification of adjacent structures.

Adequate lighting will be required to provide security and safety in the MLGS project area.

Section 5.4.2.p.: Lighting should accommodate night use of streets and promote security while complying with the provision of a dark night sky. Streetscape areas that are used by pedestrians at night should be well lit. Within rural and open space areas, limit street lighting to intersections and other locations that are needed to maintain safe access (e.g., sharp curves).

Adequate lighting will be required to provide security and safety in the MLGS project area, while complying with the provision of a dark night sky.

Community Image and Design:

Section 5.4.13.c. Limit the size of signs to that necessary to adequately provide identification and direction.

The project will comply with the City of Antioch's signage requirements.

Section 5.4.13.g. Pole signs are not to be permitted. Signs are to be designed to reflect the general low-rise character of the City. Low monument-type signs are appropriate for identifying freestanding commercial uses, shopping centers, and business/office complexes. Where roof signs are permitted, they are to be architecturally integrated with the overall building design.

The project will comply with the City of Antioch's signage requirements.

7.11.6 Involved Agencies and Agency Contacts

Agency information is provided in Table 7.11-7.

7.11.7 Permits Required and Permit Schedule

No specific permits are required for visual resources for this project.

7.11.8 References

BLM (Bureau of Land Management). 1986. Visual Resource Management Inventory and Contrast Rating System.

Caltrans (California Department of Transportation), 1996. Guidelines for the Official Designation of Scenic Highways. Office of Landscape Architecture, Caltrans, Sacramento.

City of Antioch. City of Antioch General Plan 2003. November 2003.

Contra Costa County. 2005. Contra Costa General Plan 2005-2020, January.

U.S. Forest Service, 1995. *Scenery Management System*. U.S. Department of Agriculture.



Table 7.11-1 Visual Impact Significance Matrix			
Visual Impact Severity	Visual Impact Susceptibility		
	High	Moderate	Low
High	Significant ¹	Significant	Adverse But Not Significant
Moderate	Adverse But Not Significant ²	Adverse But Not Significant	Insignificant
Low	Insignificant ³	Insignificant	Insignificant

Notes:

- 1 Significant impacts can be mitigated to a level that is not significant or can be avoided altogether with feasible mitigation. Without mitigation, the impact could exceed environmental thresholds.
- 2 Adverse but Not Significant Impacts are perceived as negative but do not exceed environmental thresholds.
- 3 Insignificant impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.

Table 7.11-2 Visibility Potential Levels			
Screening	Viewing Distance		
	Foreground	Middleground	Background
Open views	High	Moderate	Low
Partial Screening	Moderate	Moderate/Low	Low
Screened views	Low	Low	Low

Other variables that may potentially reduce project visibility include:

- Duration of viewing opportunities
- Orientation of viewers
- Elevation of viewers
- Atmospheric conditions
- Nighttime lighting

Table 7.11-3 Visual Modification Levels			
Project Contrast	Visibility Potential		
	High	Moderate	Low
Strong	Dominant	Co-Dominant	Noticeable
Moderate	Co-Dominant	Noticeable	Not Noticeable
Weak	Not Noticeable	Not Noticeable	Not Noticeable

Table 7.11-4 Viewer Impact Levels			
Modification Level	Viewer Sensitivity		
	High	Moderate	Low
Not Noticeable	Low	Low	Low
Noticeable	Moderate	Moderate	Low
Co-dominant	High	Moderate	Low
Dominant	High	High	Moderate

**Table 7.11-5
Visual Impact Summary
(Page 1 of 4)**

KOP/OVA and Distance	Representative View Location	Viewer Sensitivity	Mitigation	Viewing Variables	Other Influences	Visual Modification	Initial Impact Levels	Visual Impact
KOP 1 (0.8 mile)	Looking directly south across the San Joaquin River from the north shore (representative of river user views)	Moderate/ High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 		<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Noticeable	Moderate	Adverse but Not Significant
KOP 2 (1.0 mile)	Antioch Bridge (Southbound motorists)	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Not Noticeable	Low	Insignificant
KOP 3 (0.3 mile)	Sportmen's Yacht Club	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Not Noticeable	Low	Insignificant
KOP 4 (0.4 mile)	East Antioch Neighborhood	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	<ul style="list-style-type: none"> • High visibility • Partial Screening 	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Co-dominant	High	Adverse but Not Significant

**Table 7.11-5
Visual Impact Summary
(Page 2 of 4)**

KOP/OVA and Distance	Representative View Location	Viewer Sensitivity	Mitigation	Viewing Variables	Other Influences	Visual Modification	Initial Impact Levels	Visual Impact
KOP 5 (0.7 mile)	Eastern Antioch driving range	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially screened views	<ul style="list-style-type: none"> • Moderate VAC • Potential for increased project visibility during nighttime lighting 	Noticeable	Moderate	Adverse, but Not Significant
KOP 6 (1.4 miles)	Oakley Road residential area	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • Mod to High VAC • Potential for increased project visibility during nighttime lighting 	Not Noticeable	Low	Insignificant
KOP 7 (1.7 miles)	Residential north of SR 160	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Not Noticeable	Low	Insignificant
OVA 1 (2.7 miles)	East Antioch foothills	Moderate to High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Not Noticeable	Low	Insignificant

**Table 7.11-5
Visual Impact Summary
(Page 3 of 4)**

KOP/OVA and Distance	Representative View Location	Viewer Sensitivity	Mitigation	Viewing Variables	Other Influences	Visual Modification	Initial Impact Levels	Visual Impact
OVA 2 (1.6 miles)	SR 160	Moderate to High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting • Short duration views 	Not Noticeable	Low	Insignificant
OVA 3 (2.5 miles)	Mayberry Slough	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of high-intensity lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting • Distance Visibility 	Not Noticeable	Low	Insignificant
OVA 4 (2.8 miles)	Lower Sherman Island	Moderate to High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of High-Intensity Lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting • Distance Visibility 	Not Noticeable	Low	Insignificant

**Table 7.11-5
Visual Impact Summary
(Page 4 of 4)**

KOP/OVA and Distance	Representative View Location	Viewer Sensitivity	Mitigation	Viewing Variables	Other Influences	Visual Modification	Initial Impact Levels	Visual Impact
OVA 5 (0.7 mile)	Antioch Bridge Marina Dock	High	<ul style="list-style-type: none"> • Shielding and controlling of lighting • Minimize use of High-Intensity Lights 	Partially to fully screened views	<ul style="list-style-type: none"> • High VAC • Potential for increased project visibility during nighttime lighting 	Not Noticeable to Noticeable	Low	Insignificant

Notes:

KOP = key observation point
 OVA = other viewing area
 SR = State Route
 VAC = visual absorption capability

Table 7.11-6 Applicable Visual Resources Laws, Ordinances, Regulations, and Standards (Page 1 of 8)			
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
State			
The California Department of Transportation (Caltrans) Designated Scenic Highways	State regulation of scenic qualities related to State Route 160 and 4.	Contra Costa County	Sections 7.11.5.2. Section 7.11.1.5, and 7.11.2.5 discuss KOPs and OVAs adjacent to State Route 160.
County			
Contra Costa County Land Use Element: Policy 3-19	Buffers shall be provided between new industrial developments and residential areas by establishing setbacks, and park-like landscaping or other appropriate mechanisms.	Contra Costa County, Building Department	Section 7.11.5.3. Section 7.11.4
Contra Costa County Land Use Element: Policy 3-42	Industrial development shall be concentrated in select locations adjacent to existing major transportation corridors and facilities.	Contra Costa County, Building Department	Sections 7.11.5.3, 7.11.1.4, and 7.11.2.5
Contra Costa County Land Use Element: Policy 3-43	Industrial employment centers shall be designed to be unobtrusive and harmonious with adjacent areas and development.	Contra Costa County, Building Department	Sections 7.11.5.3, 7.11.1.4, and 7.11.2.5
Contra Costa County Transportation and Circulation Element-Scenic Routes: Policy 5-35	Scenic corridors shall be maintained with the intent of protecting attractive natural qualities adjacent to various roads throughout the county.	Contra Costa County, Transportation Planning Division	Sections 7.11.5.3, 7.11.1.5, and 7.11.2.5
Contra Costa County Transportation and Circulation Element-Scenic Routes: Policy 5-37	Scenic views observable from scenic routes shall be conserved, enhanced, and protected to the extent possible.	Contra Costa County, Transportation Planning Division	Sections 7.11.1.3, 7.11.1.5, and 7.11.2.5

**Table 7.11-6
Applicable Visual Resources Laws, Ordinances, Regulations, and Standards
(Page 2 of 8)**

Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Contra Costa County Transportation and Circulation Element–Scenic Routes: Policy 5-43	Provide special protection for natural topographic features, aesthetic views, vistas, hills and prominent ridgelines at “gateway” sections of scenic routes. Such “gateways” are located at unique transition points in topography and land use, and serve as entrances to regions of the County.	Contra Costa County, Transportation Planning Division	Sections 7.11.5.3, 7.11.1.5, and 7.11.2.5
Contra Costa County Open Space Element–Scenic Routes: Goal 9-11	To protect major scenic ridges, to the extent practical, from structures, roadways, or other activities which would harm their scenic qualities.	Contra Costa County, Transportation Planning Division	Sections 7.11.5.3, 7.11.1.5, and 7.11.2.5
Contra Costa County Open Space Element–Scenic Routes: Goal 9-12	To preserve the scenic qualities of the San Francisco Bay/Delta estuary system and the Sacramento – San Joaquin River/Delta shoreline.	Contra Costa County, Transportation Planning Division	Section 7.11.5.3, 7.11.1.4, 7.11.1.5, and 7.11.2.5
Contra Costa County Open Space Element–Scenic Routes: Policy 9-19	New water tanks that would harm the visual quality of a scenic ridge shall be buried, camouflaged or screened to mitigate their impacts.	Contra Costa County, Transportation Planning Division	Section 7.11.5.3. Section 7.11.4
Contra Costa County Open Space Element–Scenic Routes: Policy 9-20	New power lines shall be located parallel to existing lines in order to minimize their visual impact.	Contra Costa County, Transportation Planning Division	Section 7.11.5.3. Section 7.11.4
Contra Costa County Open Space Element–Scenic Routes: Policy 9-26	The involvement of public interest groups shall be encouraged when identifying, acquiring, and maintaining those areas of unique visual quality in the County.	Contra Costa County, Transportation Planning Division	Section 7.11.5.3. Section 7.11.1.1

**Table 7.11-6
Applicable Visual Resources Laws, Ordinances, Regulations, and Standards
(Page 3 of 8)**

Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Contra Costa County Open Space Element– Scenic Routes: Policy 9-27	The appearance of the County shall be improved by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.	Contra Costa County, Transportation Planning Division	Section 7.11.5.3. Section 7.11.4
Contra Costa County Open Space Element– Scenic Routes: Policy 9-28	Maintenance of the scenic waterways of the County shall be improved by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.	Contra Costa County, Transportation Planning Division	Section 7.11.5.3. Section 7.11.4
Contra Costa County Open Space Element– Scenic Routes: Policy 9-30	Physical and visual public access to established scenic routes shall be protected	Contra Costa County, Transportation Planning Division	Section 7.11.5.3. Section 7.11.4
Local			
City of Antioch Open Space Policies: Section 10.3.2.b	Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the natural character of Antioch’s hillside areas as set forth in the Community Image and Design Element	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3. Section 7.11.4

**Table 7.11-6
Applicable Visual Resources Laws, Ordinances, Regulations, and Standards
(Page 4 of 8)**

Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
City of Antioch Open Space Policies: Section 10.3.2.c	Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3, Section 7.11.4
City of Antioch Industrial Development Policies: Section 5.4.10.a	<p>The primary design objective for industrial development is the arrangement of structures and functions in an efficient manner. Within the constraints of utility and economic feasibility, manufacturing and industrial buildings shall display architectural statements that are aesthetically pleasing, and shall be designed in accordance with the following design guidelines:</p> <ul style="list-style-type: none"> • Architectural design and details are generally to be oriented toward public views with utilitarian work, maintenance, and storage areas screened from public view. • Architectural design and details should be used to break up the boxlike appearance of the tilt-up construction typically used for industrial buildings. 	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3

**Table 7.11-6
Applicable Visual Resources Laws, Ordinances, Regulations, and Standards
(Page 5 of 8)**

Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
City of Antioch Industrial Development Policies: Section 5.4.10.d	<p>Truck docks and trash storage areas are to be closed off by roll-down or another appropriate type of door, and should be arranged in an organized manner, integrated within the overall design of the project.</p> <p>Although no particular “style” is suggested, the use of contemporary, clean, architectural expressions is encouraged.</p> <p>Blank building elevations plotted parallel to public streets and highways are inappropriate. Variety should be provided in the surface of exterior walls facing public streets or highways with pilasters, deep reveals at construction joints, and staggering of wall components to create projections and recesses in an otherwise flat wall surface.</p>	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3
City of Antioch Industrial Development Policies: Section 5.4.10.e	Service areas should be simple and efficient, and not interfere visually or physically with other building operations. Service areas should not be visible from public roadways and highways.	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3
City of Antioch Industrial Development Policies: Section 5.4.10.g	Signs for multi-tenant uses shall be integrated with building designs and coordinated to create an overall sign theme for the project.	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3

**Table 7.11-6
Applicable Visual Resources Laws, Ordinances, Regulations, and Standards
(Page 6 of 8)**

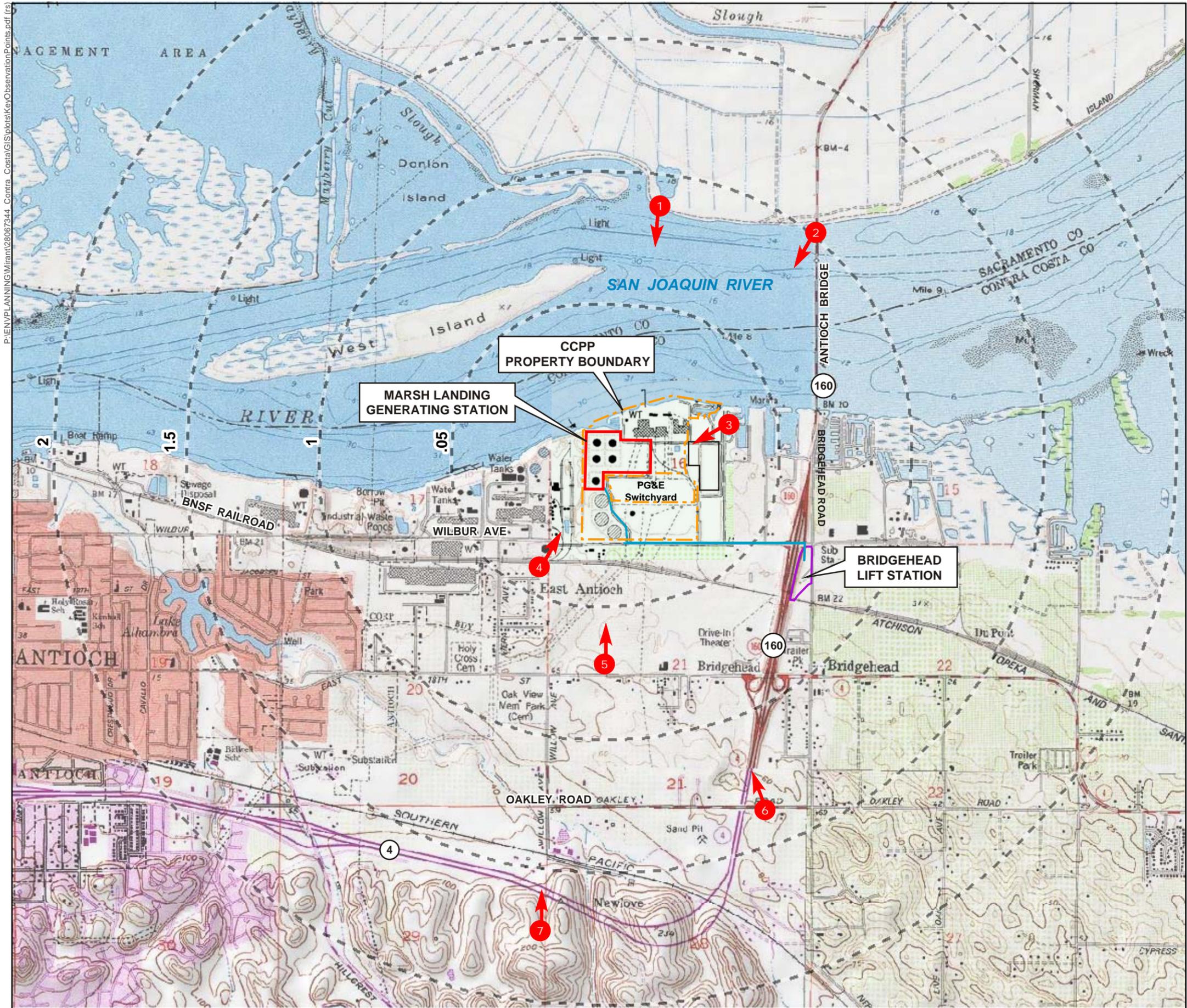
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
City of Antioch Industrial Development Policies: Section 5.4.10.h	Adequate lighting shall be required to provide adequate lighting for the security and safety of onsite parking, loading, shipping and receiving, and pedestrian and working areas.	City of Antioch, Engineering and Development Services Division and Building Division	Sections 7.11.5.3 and 7.11.4
City of Antioch Industrial Development Policies: Section 4.4.4.2.e	All manufacturing and industrial uses shall be adequately screened to reduce glare, noise, dust, and vibrations.	City of Antioch, Engineering and Development Services Division and Building Division	Sections 7.11.5.3 and 7.11.4
City of Antioch Community Image and Design Policies: Section 5.4.2.c	<p>Maintain view corridors from public spaces to natural ridgelines and landmarks, such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies.</p> <ul style="list-style-type: none"> • Important view corridors to be protected include Somersville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road. 	City of Antioch, Engineering and Development Services Division and Building Division	Sections 7.11.5.3, 7.11.1.5, and 7.11.2.5
City of Antioch Community Image and Design Policies: Section 5.4.2.e	<ul style="list-style-type: none"> • Restore the San Joaquin Riverfront as a linear park and multi-use trail from the westerly City limits to Rodger's Point/Fulton Shipyard. • Views along utility corridors should be retained and enhanced through the use of planting materials to frame and focus views and to provide a sense of orientation. 	City of Antioch, Engineering and Development Services Division and Building Division	Sections 7.11.5.3, 7.11.1.5, and 7.11.2.5

**Table 7.11-6
Applicable Visual Resources Laws, Ordinances, Regulations, and Standards
(Page 7 of 8)**

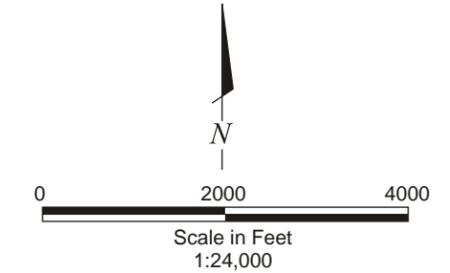
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
City of Antioch Community Image and Design Policies: Section 5.4.2.j	Within multi-family, commercial, office and business parks, and industrial developments, screen enclosures, loading areas, mechanical equipment, and outdoor storage areas from view from public streets, and, as appropriate, from other public views.	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3
City of Antioch Community Image and Design Policies: Section 5.4.2.o	Design onsite lighting to improve the visual identification of adjacent structures.	City of Antioch, Engineering and Development Services Division and Building Division	Sections 7.11.5.3 and 7.11.4
City of Antioch Community Image and Design Policies: Section 5.4.2.p	Lighting should accommodate night use of streets and promote security while complying with the provision of a dark night sky. Streetscape areas that are used by pedestrians at night should be well lit. Within rural and open space areas, limit street lighting to intersections and other locations that are needed to maintain safe access (e.g., sharp curves).	City of Antioch, Engineering and Development Services Division and Building Division	Sections 7.11.5.3 and 7.11.4
City of Antioch Community Image and Design Policies: Section 5.4.13.c	Limit the size of signs to that necessary to adequately provide identification and direction.	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3

Table 7.11-6 Applicable Visual Resources Laws, Ordinances, Regulations, and Standards (Page 8 of 8)			
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
City of Antioch Community Image and Design Policies: Section 5.4.13.g	Pole signs are not to be permitted. Signs are to be designed to reflect the general low-rise character of the City. Low monument-type signs are appropriate for identifying freestanding commercial uses, shopping centers, and business/office complexes. Where roof signs are permitted, they are to be architecturally integrated with the overall building design.	City of Antioch, Engineering and Development Services Division and Building Division	Section 7.11.5.3
<p>Notes:</p> <p>CBC = California Buildings Standards Code CEC = California Energy Commission RWQCB = Regional Water Quality Control Board U.S. EPA = U.S. Environmental Protection Agency</p>			

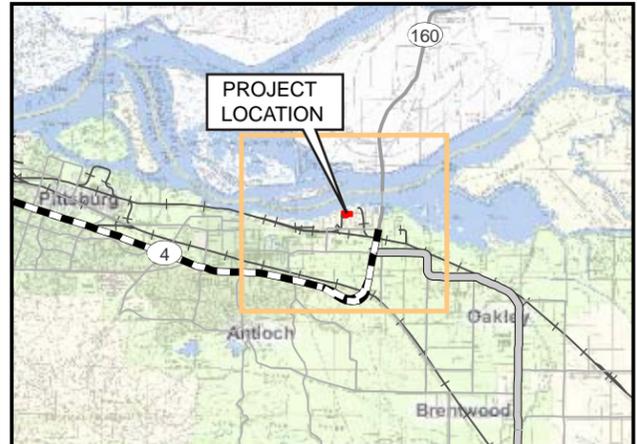
Table 7.11-7 Involved Agencies and Agency Contacts			
Issue	Agency/Address	Contact/Title	Telephone
Selection of representative KOPs within VSOI	California Energy Commission Energy Facilities Siting Division 1516 9th Street, MS 40 Sacramento, California 95814-5512	David Flores, Planner	(916) 654-3861



- LEGEND**
- 1/2 Mile Distance Markers
 - Key Observation Point and View Direction
 - Marsh Landing Generating Station Proposed Project Boundary
 - Contra Costa Power Plant Property Boundary
 - Bridgehead Lift Station
 - Water Supply and Discharge Pipelines
 - PG&E Gateway Generating Station



Source:
 URS 2008
 Map created with TOPO!™ (c)2002 National Geographic Holdings (www.topo.com)



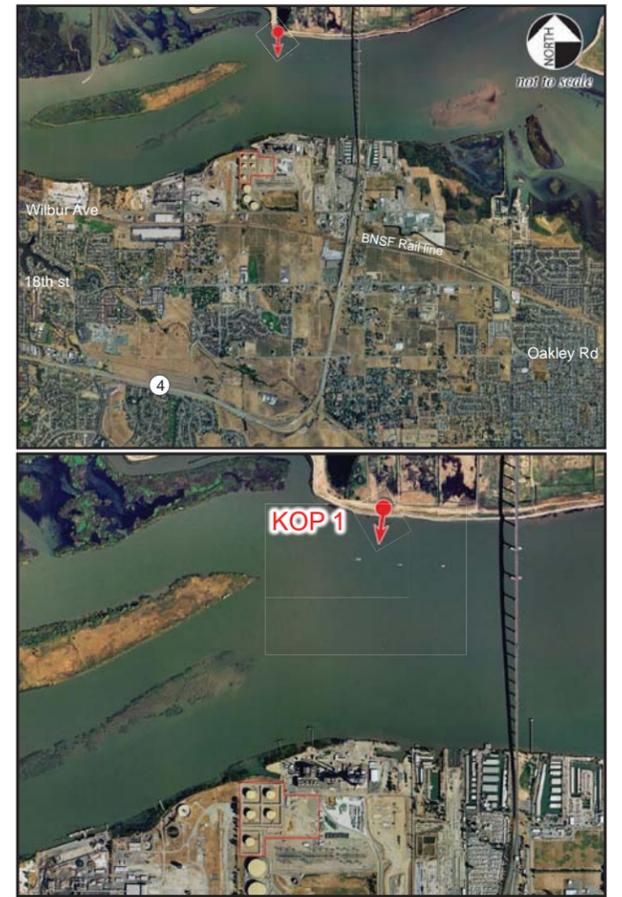
VISUAL SPHERE OF INFLUENCE AND KEY OBSERVATION POINTS

Marsh Landing Generating Station
 Mirant Marsh Landing, LLC
 May 2008
 28067344
 Contra Costa County, California



FIGURE 7.11-1

P:\ENV\PLANNING\Mirant\28067344_Contra_Costa\SIMS\In_design_files\Marsh_landing_simulations.indd



Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	4:20 PM
Date of photograph:	Feb 21, 2008
Distance to project:	0.88 miles
Weather condition:	Clear
Viewing direction:	South
Latitude:	38°1'49.93"N
Longitude:	116°34'6.60"W

For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



**KOP 1:
VIEW FROM NORTH SIDE OF SAN JOAQUIN RIVER
- EXISTING CONDITIONS**

May 2008
28067344
Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

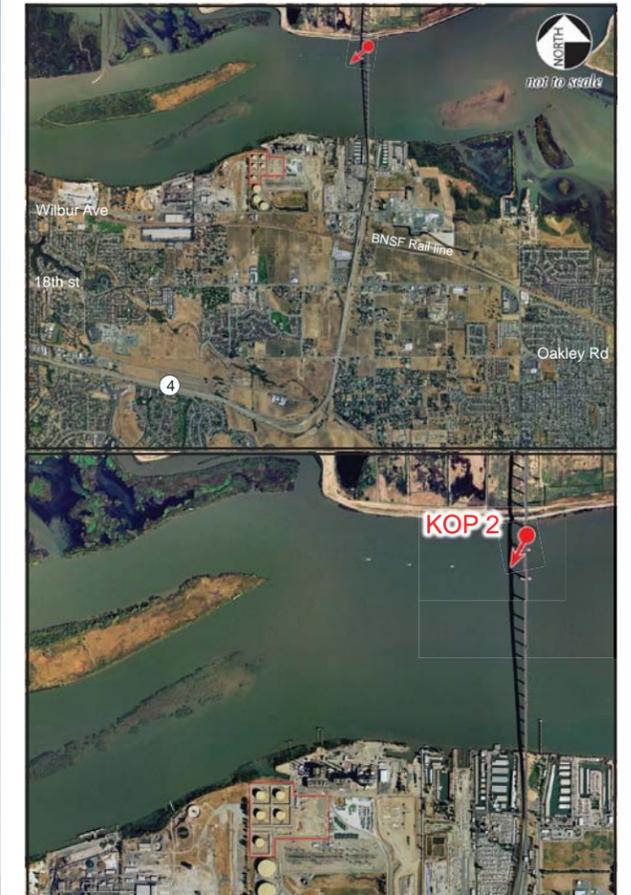


FIGURE 7.11-2

P:\ENV\PLANNING\Mirant\28067344_Contra_Costa\SIMS\In_design_files\Marsh_landing_simulations.indd



For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes.



Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph:	2:23 PM
Date of photograph:	Feb 12, 2008
Distance to project:	1.0 miles
Weather condition:	Clear
Viewing direction:	Southwest
Latitude:	38° 1'44.90"N
Longitude:	121°45'5.38"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of existing conditions.

**KOP 2:
VIEW FROM ANTIOCH BRIDGE
– EXISTING CONDITIONS**

May 2008	Marsh Landing Generating Station
28067344	Mirant Marsh Landing, LLC
	Contra Costa County, California



FIGURE 7.11-3

P:\ENV\PLANNING\Mirant\28067344_Contra_Costa\SIMS\In_design_files\Marsh_Landing_simulations.indd



For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



5/08/08 vsa ..T:\Mirant Contra Costa_Marsh Landing\Graphics\7.11 Visual\7.11-4_kop 03 existing.ai



Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	3:13 PM
Date of photograph:	Feb 21, 2008
Distance to project:	0.35 miles
Weather condition:	Clear
Viewing direction:	Northeast
Latitude:	33°55'50.75"N
Longitude:	116°34'48.99"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of existing conditions.

**KOP 3:
VIEW FROM SPORTSMEN YACHT CLUB
- EXISTING CONDITIONS**

May 2008
28067344
Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California



FIGURE 7.11-4

P:\ENV\PLANNING\Mirant\28067344_Contra_Costa\SIMS\In_design_files\Marsh_Landing_simulations.indd



For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph:	11:57 AM
Date of photograph:	Feb 12, 2008
Distance to project:	0.41 miles
Weather condition:	Clear
Viewing direction:	Northeast
Latitude:	38° 0'38.61"N
Longitude:	121°46'10.85"W

**KOP 4:
VIEW FROM CLOSEST RESIDENTIAL AREA
- EXISTING CONDITIONS**

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

May 2008
28067344



FIGURE 7.11-5

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For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph: 11:19 PM
 Date of photograph: Feb 12, 2008
 Distance to project: 0.72 miles
 Weather condition: Clear
 Viewing direction: North
 Latitude: 38° 0'19.64"N
 Longitude: 121°45'54.36"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of existing conditions.

**KOP 5:
 VIEW FROM LOCAL DRIVING RANGE
 – EXISTING CONDITIONS**

May 2008
 28067344
 Marsh Landing Generating Station
 Mirant Marsh Landing, LLC
 Contra Costa County, California



FIGURE 7.11-6

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	11:03 AM
Date of photograph:	Feb 12, 2008
Distance to project:	1.39 miles
Weather condition:	Clear
Viewing direction:	Northwest
Latitude:	37°59'51.43"N
Longitude:	121°45'13.84"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of existing conditions.

**KOP 6:
VIEW FROM OAKLEY ROAD AND CALLE DE ORO
NEAR SR 160 – EXISTING CONDITIONS**

May 2008
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Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California



FIGURE 7.11-7

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Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph: 10:17 AM
 Date of photograph: Feb 12, 2008
 Distance to project: 1.73 miles
 Weather condition: Clear
 Viewing direction: North
 Latitude: 37°59'27.08"N
 Longitude: 121°46'9.39"W

For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



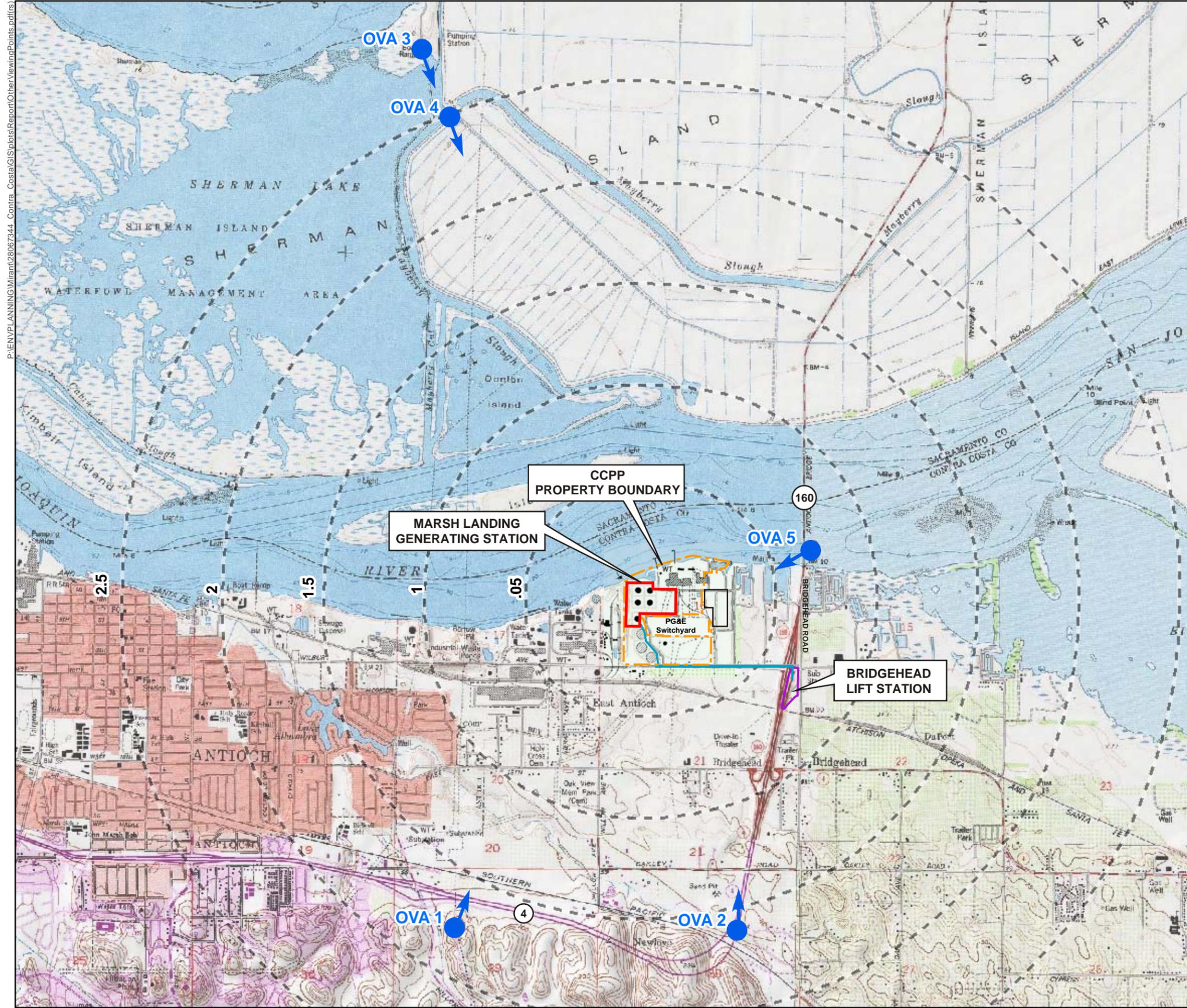
Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of existing conditions.

**KOP 7:
 VIEW FROM HILLSIDE RESIDENCE
 – EXISTING CONDITIONS**

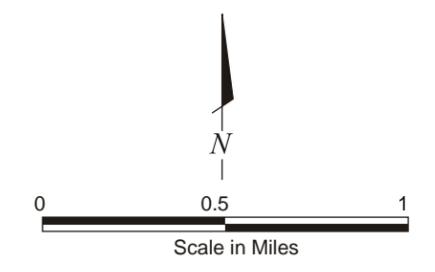
May 2008
 28067344
 Marsh Landing Generating Station
 Mirant Marsh Landing, LLC
 Contra Costa County, California



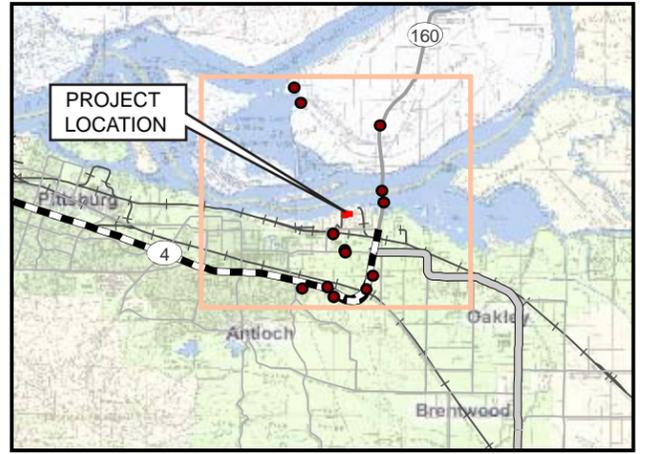
FIGURE 7.11-8



- LEGEND**
- 1/2 Mile Distance Markers
 - Other Viewing Areas
 - Marsh Landing Generating Station Proposed Project Boundary
 - Contra Costa Power Plant Property Boundary
 - Bridgehead Lift Station
 - Water Supply and Discharge Pipelines
 - PG&E Gateway Generating Station



Source:
 URS 2008
 Map created with TOPO!™ (c)2002 National Geographic Holdings (www.topo.com)



**OTHER VIEWING AREAS
 WITHIN VISUAL SPHERE OF INFLUENCE**

Marsh Landing Generating Station
 Mirant Marsh Landing, LLC
 Contra Costa County, California



FIGURE 7.11-9a



OVA 1:
East Antioch Foothills (viewing north)



OVA 2:
State Route 160 just south of the Southern Pacific Railroad along SR 160 (viewing north)

OTHER VIEWING AREAS (OVAs)

May 2008
28067344



Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

FIGURE 7.11-9b



OVA 3:
Mayberry Slough (viewing south)



OVA 4:
Lower Sherman Island, a public access boat launching facility (viewing south)

OTHER VIEWING AREAS (OVAs)

May 2008
28067344

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California



FIGURE 7.11-9c



OVA 5:
Antioch Bridge Marina dock (viewing west)

OTHER VIEWING AREAS (OVAs)

May 2008
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Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California



FIGURE 7.11-9d

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Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph:	4:20 PM
Date of photograph:	Feb 21, 2008
Distance to project:	0.88 miles
Weather condition:	Clear
Viewing direction:	South
Latitude:	38°1'49.93"N
Longitude:	116°34'6.60"W

For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



**KOP 1:
VIEW FROM NORTH SIDE OF SAN JOAQUIN RIVER
– SIMULATION SHOWING PROJECT**

May 2008	Marsh Landing Generating Station
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	Contra Costa County, California



FIGURE 7.11-10

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For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes.



Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph:	2:23 PM
Date of photograph:	Feb 12, 2008
Distance to project:	1.0 miles
Weather condition:	Clear
Viewing direction:	Southwest
Latitude:	38° 1'44.90"N
Longitude:	121°45'5.38"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

**KOP 2:
VIEW FROM ANTIOCH BRIDGE
– SIMULATION SHOWING PROJECT**

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	Contra Costa County, California



FIGURE 7.11-11

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	3:13 PM
Date of photograph:	Feb 21, 2008
Distance to project:	0.35 miles
Weather condition:	Clear
Viewing direction:	Northeast
Latitude:	33°55'50.75"N
Longitude:	116°34'48.99"W

For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

**KOP 3:
VIEW FROM SPORTSMEN YACHT CLUB
- SIMULATION SHOWING PROJECT**

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
28067344 Contra Costa County, California



FIGURE 7.11-12

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Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph: 11:57 AM
 Date of photograph: Feb 12, 2008
 Distance to project: 0.41 miles
 Weather condition: Clear
 Viewing direction: Northeast
 Latitude: 38° 0'38.61"N
 Longitude: 121°46'10.85"W

For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



**KOP 4:
 VIEW FROM CLOSEST RESIDENTIAL AREA
 – SIMULATION SHOWING PROJECT**

May 2008
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 Contra Costa County, California



FIGURE 7.11-13

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For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph: 11:19 PM
 Date of photograph: Feb 12, 2008
 Distance to project: 0.72 miles
 Weather condition: Clear
 Viewing direction: North
 Latitude: 38° 0'19.64"N
 Longitude: 121°45'54.36"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

**KOP 5:
 VIEW FROM LOCAL DRIVING RANGE
 – SIMULATION SHOWING PROJECT**

May 2008
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 Contra Costa County, California



FIGURE 7.11-14

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph: 11:03 AM
 Date of photograph: Feb 12, 2008
 Distance to project: 1.39 miles
 Weather condition: Clear
 Viewing direction: Northwest
 Latitude: 37°59'51.43"N
 Longitude: 121°45'13.84"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

**KOP 6:
 VIEW FROM OAKLEY ROAD AND
 CALLE DE ORO NEAR SR 160
 – SIMULATION SHOWING PROJECT**

May 2008
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 Marsh Landing Generating Station
 Mirant Marsh Landing, LLC
 Contra Costa County, California



FIGURE 7.11-15

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For life size scale, sheet should be printed on 11 x 17 paper and positioned 10 inches from viewer's eyes. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



Viewpoint Location Maps

Legend

 Property Site Boundary

Photograph Information

Time of photograph: 10:17 AM
 Date of photograph: Feb 12, 2008
 Distance to project: 1.73 miles
 Weather condition: Clear
 Viewing direction: North
 Latitude: 37°59'27.08"N
 Longitude: 121°46'9.39"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

**KOP 7:
 VIEW FROM HILLSIDE RESIDENCE
 – SIMULATION SHOWING PROJECT**

May 2008
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 Marsh Landing Generating Station
 Mirant Marsh Landing, LLC
 Contra Costa County, California



FIGURE 7.11-16