

Appendix I. Hydrology and Water Quality Technical Memorandum

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MEMORANDUM

To: Jordan Moore, Senior Planner, City of San Diego
From: Kelsey Hawkins, Project Manager, Harris & Associates
RE: Revised De Anza Cove Amendment to the Mission Bay Park Master Plan – Hydrologic and Water Quality Study
Date: March 6, 2023
Att: Figures; 1, 2019 Hydrology and Water Quality Study

A Hydrology and Water Quality Study for the De Anza Cove Amendment to the Mission Bay Park Master Plan was prepared by Dudek in April 2019. Since preparation of the Hydrology and Water Quality Study, the project has been revised to accommodate additional marshland habitat (De Anza Natural Amendment to the Mission Bay Park Master Plan). The purpose of this memorandum is to compare the components of the Updated Project (Proposed Project) to the Previous 2019 Project (2018 Proposal) to determine whether the Proposed Project would result in any hydrology and water quality impacts that were not addressed for the 2018 Proposal. The 2019 Hydrology and Water Quality Study for the 2018 Proposal is included as Attachment 1 to this memorandum.

Environmental Setting

The Proposed Project area is in the northeastern corner of Mission Bay Park in the City of San Diego (City) (Figure 1, Regional Location). The Proposed Project area is approximately 505.2 acres, including both land and water areas. It includes the Kendall-Frost Marsh Reserve/Northern Wildlife Preserve (KFMR/NWP), Campland on the Bay (Campland), Pacific Beach Tennis Club, athletic fields, Mission Bay Golf Course and Practice Center, and De Anza Cove area, including a vacated mobile home park and supporting infrastructure, Mission Bay RV Resort, public park, public beach, parking, and water areas (Figure 2, Project Location). The Proposed Project area falls within the boundaries of Mission Bay Park, a regional park that serves San Diego residents and visitors.

Description of the Proposed Project

The Proposed Project is an amendment to the Mission Bay Park Master Plan (MBPMP) to update existing language in the MBPMP and add new language and recommendations pertaining to the project area to serve local and regional recreation needs while preserving and enhancing the natural resources of the De Anza Cove area. The Proposed Project expands the Proposed Project area's natural habitat and improves water quality through the creation of additional wetlands while implementing nature-based solutions to protect the City against the risk of climate change, in line with the City's Climate Resilient SD Plan. The Proposed Project would enhance the existing regional parkland by providing a variety of uses, including low-cost visitor guest accommodations (recreational vehicles and other low-cost camping facilities), active and passive recreational opportunities to enhance public use of the area, and improvements to access to recreational uses. Finally, the Proposed Project would recognize the history and ancestral homelands of the Iipay-Tipay Kumeyaay people, providing opportunities to partner and collaborate on the planning and restoration of the area. The Proposed Project would include a combination of habitat restoration, active recreation, low-cost visitor guest accommodations, and open beach and regional parkland and would modify the open water portions of De Anza Cove (Figure 3, Site Plan). The proposed land use designations for the Proposed Project area are summarized in Table 1, Proposed Land Use Acreages.

The Proposed Project would include wetlands enhancement and restoration within the existing KFMR/NWP, the area currently occupied by Campland, the eastern side of Rose Creek, and the areas in De Anza Cove currently

occupied by the vacated mobile home park and open water (Figure 3). The Proposed Project would provide a total of approximately ~~227.4~~ 225.1 acres of wetlands, consisting of approximately 30.7 acres in the area currently occupied by Campland, approximately 86.8 acres of wetlands at the existing KFMR/NWP, and approximately ~~109.8~~ 107.6 acres of other new wetlands. Approximately ~~37.4~~ 36.7 acres of upland habitat, including dune, sage, and buffer area, would also be provided. Two new upland islands would be created: one in the area currently occupied by Campland and the other in the De Anza Cove area at the eastern terminus of the vacated mobile home park. ~~Two possible A~~ A locations for a new Interpretive Nature Center have been identified: ~~one at the northwestern edge of the restoration area along Pacific Beach Drive and another~~ within the regional parkland area just north of the open beach. The nature center and its parking/service areas would be buffered by native vegetation. The open water area of De Anza Cove would be increased to approximately ~~95.9~~ 95.5 acres with the creation of new east and west outfalls that would allow water and sediment flows to proposed wetlands on either side of Rose Creek.

In addition, the Proposed Project would incorporate a range of active recreational uses on approximately ~~60.1~~ 66.5 acres in the northeastern area of the Proposed Project area (Figure 3). A portion of the Mission Bay RV Resort and the vacated mobile home park would be replaced with approximately 48.5 acres of low-cost visitor guest accommodations land use. A new channel connecting Rose Creek to the De Anza Cove water area would be constructed at approximately Lilac Drive, creating a new island that would be accessed via two new bridges. Approximately ~~26.3~~ 23.4 acres of regional parkland would be enhanced with new recreational amenities and opportunities. Three open beach areas totaling approximately 5.5 acres would be provided with access to De Anza Cove. The Proposed Project would also include approximately 2.6 acres for boat facilities and a clubhouse that could potentially be co-located with another user or public use. ~~One~~ Two potential water lease locations would be located in the cove. Water quality design features are proposed along the edges of the active recreational areas. The proposed water quality detention basins would be of differing sizes and would capture and treat stormwater before flowing into Mission Bay. New water quality basins would be located to treat the entire Proposed Project area in accordance with local and state requirements.

Multi-use paths would be throughout areas proposed for active recreation, regional parkland, low-cost visitor guest accommodations, and dune and upland areas and along the beach shorelines. Vehicular access to the Proposed Project area would be provided from Pacific Beach Drive, Grand Avenue, and North Mission Bay Drive. Service roads, vehicular access, and parking would be in areas proposed for low-cost visitor guest accommodation, regional parkland, boating, and active recreation.

Table 1 also provides a comparison of the Proposed Project's proposed land uses to the 2018 Proposal's proposed land uses, summarizing the changes in land use designations and acreages between the Proposed Project and the 2018 Proposal. Overall, the Proposed Project area (approximately 505.2 total acres) is larger compared to the 2018 Proposal area (approximately 457 total acres) because the Proposed Project would provide additional opportunities for habitat enhancement (open water). The Proposed Project includes additional enhancement and restoration opportunities, including approximately ~~177.9~~ 175 acres of expanded marshland and upland habitat, compared to the approximately 131 acres of marshland and upland habitat under the 2018 Proposal. The additional wetland enhancement would occur on either side of the connection to Rose Creek and as part of the redesign of the open water portion of the Proposed Project area, which includes an approximately 40-acre increase in open water compared to the 2018 Proposal. In addition, the Proposed Project reduces the amount of active recreational activities and eliminates the 1-acre restaurant lease space. Overall, the Proposed Project provides more habitat restoration and greater protection of natural resources compared to the 2018 Proposal.

Table 1. Proposed Land Use Acreages

| Land Use | Proposed Project (Acres) | 2018 Proposal (Acres) |
|---|--|-----------------------|
| KFMR/NWP | 86.8 | 90 |
| Expanded Marshland/Habitat | <u>138.3</u> 140.5 ¹ | 124 |
| Upland Habitat (Dune, Sage) and Buffer Area | <u>36.7</u> 37.4 | — |
| Low-Cost Visitor Guest Accommodations | 48.5 | — |
| Guest Housing | — | 50 |
| Regional Parkland | <u>23.4</u> 26.3 | 8 |
| Boat Facilities/Clubhouse | 2.6 | — |
| Interpretive Nature Center (1 Location) ² | — | — |
| Boat Rental Lease – Land | — | 1 |
| Boat Rental Lease – Water | — | 4 |
| Water Leases (2 Locations) ²³ | <u>1</u> 2.1 | — |
| Active Recreation | <u>66.5</u> 60.1 | Not a Part |
| Athletic Fields/Tennis, Golf Course, and Water Quality Design Feature | — | 63 |
| Open Water | <u>95.5</u> 95.9 | 55 |
| Open Beach | 5.5 | 7 |
| Road ³⁴ | <u>1.4</u> 1.6 | 19 |
| Natural Recreation | — | 24 |
| Upland/Developed | — | 7 |
| Coastal Landscape | — | 4 |
| Restaurant Lease | — | 1 |
| Total | 505.2 | 457 |

Notes: KFMR/NWP = Kendall-Frost Marsh Reserve/Northern Wildlife Preserve

¹ Expanded wetlands includes approximately 30.7 acres currently occupied by Campland and approximately 107.6 ~~109.8~~ acres of other new wetlands.

² ~~Area for the Interpretive Nature Center has not been determined, and programming for the center is assumed to occur after adoption of the amendment as part of a future General Development Plan. Two alternative locations are shown, allowing for the final location to be determined in the General Development Plan process.~~

²³ Lease areas overlaps with other land uses; therefore, acreages are not included in the total.

³⁴ Service roads, vehicular access, and parking would be in areas proposed for low-cost visitor guest accommodations, regional parkland, boating, and active recreation, subject to future design and subsequent approvals.

Thresholds of Significance

The 2018 Proposal was analyzed for the following potential impacts based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines:

1. Result in flooding due to an increase in impervious surfaces or changes in absorption rates, drainage patterns, or the rate of surface runoff
2. Result in a substantial increase in pollutant discharges to receiving waters and/or substantial increases in discharges of identified pollutants to an already impaired water body
3. Deplete groundwater supplies, degrade groundwater quality, or interfere with groundwater recharge

Impact 1: Would the project result in flooding due to an increase in impervious surfaces or changes in absorption rates, drainage patterns, or the rate of surface runoff?

Summary of 2018 Proposal Impacts

The 2019 Hydrology and Water Quality Report concluded that while the 2018 Proposal would reduce the overall impervious footprint (thus reducing overall discharge from the 2018 Proposal area), a significant portion of it would be situated within designated Federal Emergency Management Agency (FEMA) floodplains. The 2018 Proposal included 136.3 acres currently designated Zone X by FEMA, susceptible to 500-year floods, and referred to as Moderate Flood Hazard Areas (FEMA 2018). These areas are principally on the De Anza peninsula and in the areas currently occupied by a golf course, tennis courts, and athletic fields. Additionally, 91 acres are on lands susceptible to 100-year floods, which are referred to as Special Flood Hazard Areas, mostly located along the coastlines, the banks of Rose Creek inlet, and much of the low-lying KFMR/NWP. The 2019 Hydrology and Water Quality Report recommended that a low-flow storm drain diversion system be designed and installed in order to divert dry-weather flows from the existing storm drains within the 2018 Proposal area to the existing sanitary sewer system for treatment.

In addition, the 2019 Hydrology and Water Quality Report concluded that the expansion/realignment of the wetlands could alter the existing floodplains. However, it concluded that based on the ReWild Mission Bay: Wetlands Restoration Feasibility Study Report (ReWild Feasibility Study), the 2018 Proposal area would experience lowered flood stage levels and velocities by 2100 compared to the area if left in its current state and would not adversely impact flood levels (ReWild 2018). Based on this modeling analysis, project modification to the existing floodplain would ultimately lead to a reduction in flood stage and velocities in the 2018 Proposal area.

Proposed Project Consistency Evaluation

The Proposed Project's proposed land uses are consistent with what was evaluated for the 2018 Proposal. Similarly, the Proposed Project proposes enhancement and restoration within City-owned portions of the existing KFMR/NWP and the expansion of wetlands in areas currently occupied by Campland and the developed area of De Anza Cove occupied by the former mobile home park, thus reducing the overall impervious footprint at the Proposed Project area by transforming existing developed uses to natural wetland habitat. In addition, compared to the 2018 Proposal, the Proposed Project would include more habitat restoration and enhancement opportunities and would not include as many developed uses.

The Proposed Project area is within a highly urbanized area where the majority of stormwater currently flows to drainage inlets along roadways and parking lots. Localized drainage near the shoreline drains directly to Mission Bay. The Proposed Project area is relatively flat with a slight southern slope toward the bay. The Proposed Project would replace the existing Campland area with expanded marshland/habitat area, which would include a combination of mudflats, wetlands, and upland habitats, that could alter the existing drainage patterns in the area. However, since specific design of the wetland enhancements is not currently available, no sizing determinations or calculations have been made to evaluate the sufficiency of existing surface water drainage structures to properly convey stormwater runoff. Future enhancement activities would be required to comply with the National Pollution Discharge Elimination System and Hydromodification Management Plan requirements as described in the City's Stormwater Standards Manual to properly convey stormwater runoff through the Proposed Project area. In addition, the combination and layout of recreation and athletic facilities would be designed during the General Development Plan process and at the time of redevelopment and implementation of project enhancements and would be required to comply with the National Pollution Discharge Elimination System and Hydromodification Management Plan described in the City's Stormwater Standards Manual. The overall development density of the Proposed Project area would be reduced compared to the existing baseline condition, and proposed new development within the Proposed Project area would not result in an increase in runoff volume that would result in flooding. Therefore, impacts associated with flooding due to an increase in impervious surfaces or a change in absorption rates, drainage patterns or the rate of surface runoff would be less than significant.

Flooding

Compared to the 2018 Proposal, the Proposed Project includes 130.5 acres within areas susceptible to 500-year floods and referred to as Moderate Flood Hazard Areas (FEMA 2019). These areas are principally on the De Anza peninsula and in the areas currently occupied by a golf course, tennis courts, and athletic fields. Additionally, 287.8 acres are on land susceptible to 100-year floods, mostly located along the coastlines, the banks of Rose Creek inlet, the low-lying KFMR/NWP, and open water areas of Mission Bay.

The Proposed Project would enhance and create additional wetlands in the Proposed Project area, which could alter the existing floodplains. Restoration activities have the potential to affect regional flooding through changes in ground elevations and flow paths.

Sea level rise projections should also be taken into consideration when analyzing future flooding in this area.

The latest state guidance for sea level rise from the Ocean Protection Council recommends taking a multi-step approach to consider factors such as local sea level rise projection, type of project, project lifespan, and level of risk associated with the project type. Based on the nearest tide gauges to the Proposed Project and project lifespan, a range of sea level rise projections can be determined. From this, the potential impacts to the Proposed Project can be assessed for various scenarios and risk tolerance determined. In general, risk tolerance may be greater for projects with a shorter lifespan, high adaptive capacity, or minimal consequences. Based on the best available science, the low risk aversion projections for San Diego are 3.6 feet by the year 2100, and the medium-high risk projections are 7 feet by the year 2100. When looking out to 2100, there is uncertainty in the projections of sea level rise due to both uncertainty in the modeling and in global greenhouse gas emissions. Consideration of a range of sea level rise enables various outcomes to be considered (California Natural Resources Agency 2018). For this project, both the low-risk and medium-high risk projections are considered. The extreme risk aversion scenario has no associated probabilistic projection associated with it and is more appropriate to consider for projects with an extremely low risk tolerance, such as a wastewater treatment plant, so it is not considered for the Proposed Project. The Proposed Project is a habitat restoration project with recreational amenities. Future planning efforts can consider phasing of adaptation strategies to account for uncertainty around timing and extent of sea level rise. With implementation of the Proposed Project, De Anza Cove is expected to experience lowered levels of inundation and velocities by 2100 compared to if the area is left in its current state, as a result of proposed wetland restoration activities, which would increase resilience to sea level rise and coastal flooding. Please refer to the De Anza Cove Redevelopment Project Sea Level Rise Assessment Technical Report, for further details.

Impact 2: Would the project result in a substantial increase in pollutant discharges to receiving waters and/or substantial increases in discharges of identified pollutants to an already impaired water body?

Summary of 2018 Proposal Impacts

The 2019 Hydrology and Water Quality Report concluded that pollutants generated from the 2018 Proposal during its construction period would be temporary and addressed by a project-specific Stormwater Pollution Prevention Plan (SWPPP). In addition, the potential long-term pollutants associated with the 2018 Proposal must be addressed through implementation of Best Management Practices (BMPs) as defined in the City's 2018 Stormwater Standards Manual. The 2019 Hydrology and Water Quality Report recommended preliminary BMPs to preserve local hydrology and water quality resources.

Proposed Project Consistency Evaluation

The Proposed Project's proposed land uses are consistent with what was evaluated for the 2018 Proposal. Similarly, the Proposed Project proposes construction activities that would require grading and excavation of soils, which would loosen sediment and then have the potential to mix with surface water runoff and degrade water quality. Additionally, construction would require the use of heavy equipment and construction-related chemicals, such as concrete, cement, asphalt, fuels, oils, antifreeze, transmission fluid, grease, solvents, and paints. These potentially harmful materials could be accidentally spilled or improperly disposed of during construction and, if

mixed with surface water runoff, could wash into and pollute receiving waters. Pollutants generated from the Proposed Project during its construction period would be temporary and be addressed through preparation of a project-specific SWPPP in accordance with the City's Stormwater Standards Manual.

Similarly, the Proposed Project would have the potential to result in long-term operational pollutants associated with components of the Proposed Project, such as guest housing, parking areas, and street improvements. However, compared to the 2018 Proposal, the Proposed Project would include more habitat restoration and enhancement opportunities and would not include as many developed uses, thus reducing the potential for long-term operational pollutants. Similar to the 2018 Proposal, the Proposed Project would incorporate post-construction (or permanent) Low Impact Development site design, source control, and treatment control BMPs into the Proposed Project's design. The Proposed Project would be required to prepare a Stormwater Quality Management Plan (SWQMP) in accordance with the City's Stormwater Standards Manual. The SWQMP must accompany the final design of subsequent project activities to ensure that runoff generated by the Proposed Project is adequately captured/treated to applicable federal, state, and local regulation. Upon preparation and implementation of an SWQMP and implementation of BMPs, consistent with regulatory requirements, impacts to water quality would be less than significant.

Impact 3: Would the project deplete groundwater supplies, degrade groundwater quality, or interfere with groundwater recharge?

Summary of 2018 Proposal Impacts

The 2019 Hydrology and Water Quality Report concluded that due to the amount of impermeable surface area, the 2018 Proposal would increase the rate of infiltration of stormwater. Good housekeeping practices should be maintained to clean up contaminant spills as indicated in the construction SWPPP. Therefore, the 2018 Proposal would not deplete groundwater supplies, degrade groundwater quality, or interfere with groundwater recharge, and impacts would be less than significant.

Proposed Project Consistency Evaluation

The Proposed Project's proposed land uses are consistent with what was evaluated for the 2018 Proposal. Similarly, the Proposed Project proposes enhancement and restoration within City-owned portions of the existing KFMR/NWP and the expansion of wetlands in areas currently occupied by Campland and the developed area of De Anza Cove occupied by the former mobile home park, thus reducing the overall impervious footprint in the Proposed Project area by transforming existing developed uses to natural wetland habitat. In addition, compared to the 2018 Proposal, the Proposed Project would include more habitat restoration and enhancement opportunities and would not include as many developed uses. Similarly, the Proposed Project would increase the rate of infiltration of stormwater. Good housekeeping practices should be maintained to clean up contaminant spills as indicated in the construction SWPPP. Therefore the Proposed Project would not deplete groundwater supplies, degrade groundwater quality, or interfere with groundwater recharge, and impacts would be less than significant.

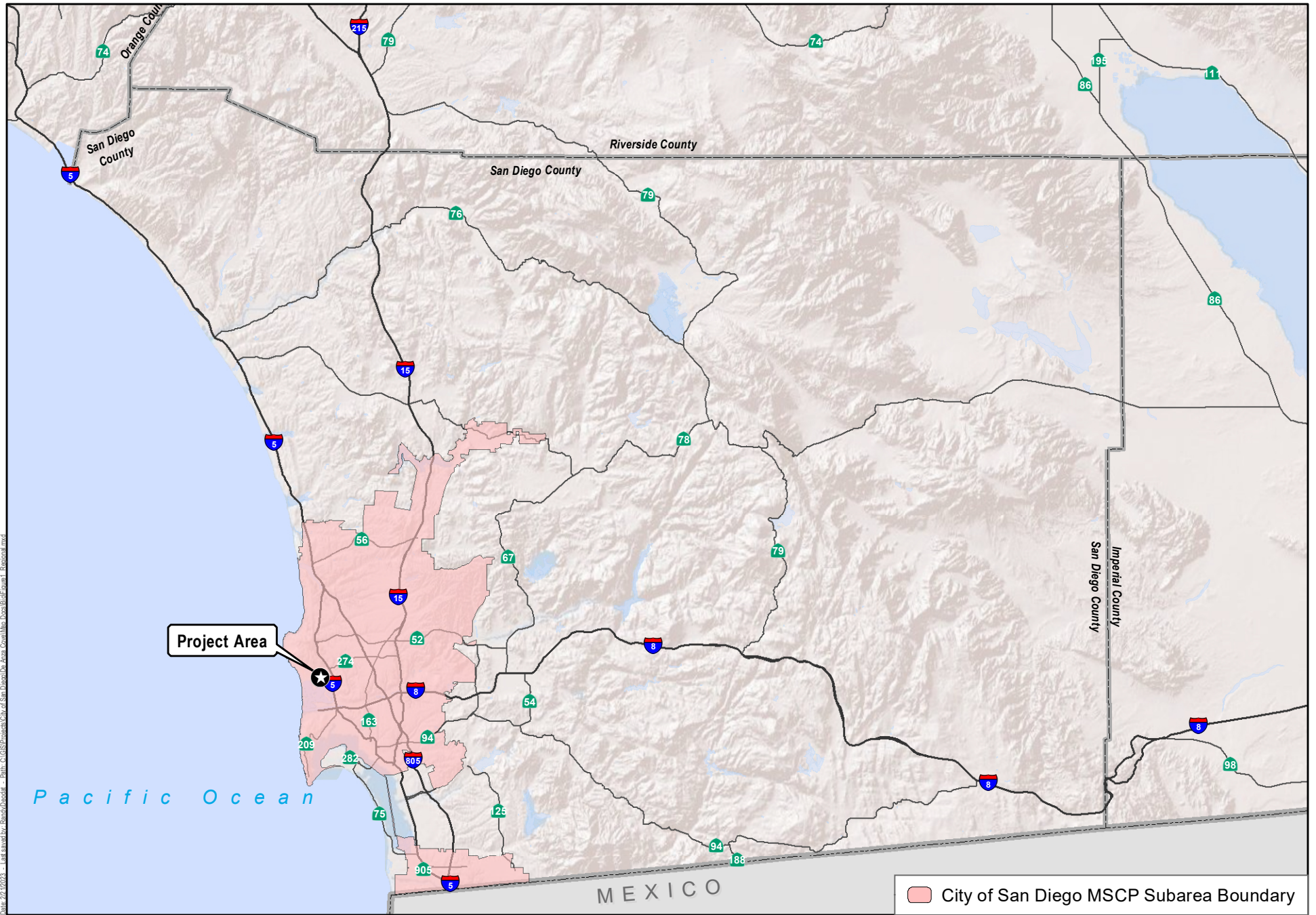
Summary

The Proposed Project would not result in substantial changes to drainage patterns or increase of impervious surfaces. Conversely, the Proposed Project would reduce the amount of impervious surfaces and create additional wetland habitat, which would reduce the risk of flooding. In addition, pollutants generated from the Proposed Project during its construction period would be temporary and be addressed through preparation of a project-specific SWPPP and implementation of construction BMPs. The potential long-term pollutants associated with the Proposed Project would be addressed through the implementation of Proposed Project area and source control BMPs as defined in the City's Stormwater Standards Manual. Finally, the Proposed Project does not require the use of groundwater supplies. No groundwater wells would be drilled to support the Proposed Project. Project components would reduce impervious surfaces and would not impede groundwater recharge. Therefore, consistent with the 2018 Proposal, the Proposed Project would not result in significant impacts related to hydrology or water quality.

References

- CNRA (California Natural Resources Agency). 2018. State of California Sea Level Rise Guidance: 2018 Updated. Accessed March 2023. https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf.
- City of San Diego. 2021. Climate Resilient SD Plan. Adopted by City Council on December 14.
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- ReWild. 2018. ReWild Mission Bay: Wetlands Restoration Feasibility Study Report. February. Accessed March 2023. <https://rewildmissionbay.org/resources>.

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Date: 2/21/2023... Path: C:\GIS\Projects\City of San Diego\De Anza_Cov\Map_Docs\BLof_Sant... Regional.mxd

Source: ESRI 2020.

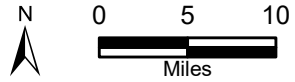


Figure 1
Regional Location



Source: SanGIS Imagery 2019.

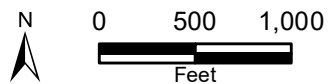


Figure 2
Project Location

De Anza Natural Amendment to the Mission Bay Park Master Plan



Source: City of San Diego 2023.

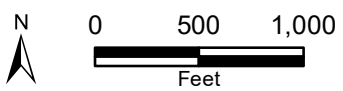


Figure 3
Site Plan

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Attachment 1. 2019 Hydrology and Water Quality Study

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DRAFT

HYDROLOGIC AND WATER QUALITY STUDY
for the
De Anza Cove Amendment –
Mission Bay Park Master Plan
San Diego, California

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APRIL 2019



**Draft Hydrologic and Water Quality Study
De Anza Cove Amendment – Mission Bay Park Master Plan**

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Draft Hydrologic and Water Quality Study

De Anza Cove Amendment – Mission Bay Park Master Plan

1 INTRODUCTION

This Hydrologic and Water Quality Technical Study (study) was prepared at the request of the City of San Diego (City) as a supplement to the Program Environmental Impact Report (PEIR) for the De Anza Cove Amendment – Mission Bay Park Master Plan (proposed project). The purpose of the study is to provide program-level qualitative analysis of the effects of project implementation on the project site's hydrology and water quality.

The project area is located within the Mission Bay Watershed Management Area (WMA), which encompasses almost 64 square miles of urban land and undeveloped open space extending from the Pacific Ocean to east of the Interstate 15 (I-15). The Rose Creek subwatershed is the main drainage input to Mission Bay in the project area, which receives runoff from numerous smaller tributaries and urban drains. Based on current conceptual development plans, storm water runoff generated from impervious surfaces in the project area has the potential to increase flow through natural channels and carry anthropogenic pollutants to receiving waters. Increased flow and pollutant transport can enlarge channels and lead to erosion, sedimentation, and water quality degradation of Rose Creek and Mission Bay.

In 1994, the Mission Bay Park Master Plan (MBPMP) was adopted (amended in 2002) to serve as the Local Coastal Program for the Mission Bay area of the City of San Diego, providing policy framework to guide development in the Bay (City of San Diego 2002). The PEIR will serve as an amendment to the MBPMP, as it relates to the specifics of the project site, incorporating in the project suggestions made in the MBPMP. This study is intended to support the development of the PEIR and evaluation of thresholds, specifically as pertains to water quality and quantity at the site. Dudek has prepared a program-level qualitative analysis of the hydrologic impacts of project implementation, specifically as pertains to changes in runoff, drainage courses and surface imperviousness.

1.1 Project Description and Activity

The City has proposed the project, which is analyzed in the following technical memorandum as an amendment to the MBPMP. The project area is approximately 318 acres of land and includes approximately 139 acres of open water for a total of approximately 457 acres. The proposed project area includes the Kendall-Frost Marsh Reserve/Northern Wildlife Preserve (KFMR/NWP); Campland on the Bay (Campland); the Mission Bay Tennis Center, Athletic Fields, and Golf Course; and the De Anza Cove Area, which was formerly known as the De Anza Special Study Area (SSA) as designated in the MBPMP, including the water area of De Anza Cove.

The 90 acres of KFMR/NWP consists mostly of vegetated wetland, is bordered to the west and north by residential development and roadways, to the east by Campland, and to the south by

Draft Hydrologic and Water Quality Study De Anza Cove Amendment – Mission Bay Park Master Plan

Mission Bay (see **Figure 1**, Vicinity). Campland is approximately 46 acres, including land and water uses, and is located directly east of KFMR/NWP. Campland is located on City-owned land and is currently a leasehold and a privately operated RV and tent camping area with condominiums along the northern and western boundaries. The De Anza Cove Area is approximately 100 acres and is located directly east of Campland and Rose Creek and south of North Mission Bay Drive. The De Anza Cove Area consists of an abandoned mobile home park and supporting infrastructure (e.g., roads, utilities, parking lots, and driveways), Mission Bay RV Resort (an existing campground for 260 RV sites), Mission Bay Regional Park area, and a public beach and parking area. North Mission Bay Drive bisects the De Anza Cove Area and recreational areas to the north. The 63 acres of recreational areas, also included in the project, include the Mission Bay Tennis Center, Athletic Fields, and Golf Course and their respective parking areas.

The proposed project includes recommendations to serve regional recreational needs, including guest housing containing recreational vehicles and other low-cost camping facilities; improvements to the park's water quality including the creation of additional wetlands; facilitation of hydrologic improvements to safeguard the viability of marsh areas; passive recreational features including a waterfront trail and viewing areas to enhance public use of the area; improved access to recreational uses; and improved play areas for recreational needs. The project seeks to implement these recommendations from the adopted MBPMP.

1.1.1 Kendall-Frost Marsh Reserve/Northern Wildlife Preserve Area

The proposed project includes the expansion of the existing KFMR/NWP to incorporate the areas currently occupied by Campland. The proposed project would seek to follow the MBPMP recommendation to replace the existing Campland by the Bay area with natural habitat area, including mudflats, wetlands, and upland habitats. The expanded habitat area would increase the KFMR/NWP to 214 acres from the current total of 90 acres.

1.1.2 Mission Bay Tennis Center, Athletic Fields, and Golf Course

The northern area currently contains active recreational facilities. The proposed project would incorporate a range of recreational uses, which include the existing Mission Bay Golf Course and Practice Center, currently operated and managed by the City; athletic fields, currently used by Mission Bay Little League; and tennis courts and clubhouse, currently used by the Pacific Beach Tennis Club. While existing recreational opportunities would be retained, several facilities would be upgraded and relocated for better functionality and to enhance public accessibility.



SOURCE: City San Diego 2018; SANGIS 2017, 2018

FIGURE 1
Vicinity

**Draft Hydrologic and Water Quality Study
De Anza Cove Amendment – Mission Bay Park Master Plan**

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1.1.3 De Anza Cove Area

The De Anza Cove area, located south of N. Mission Bay Drive and east of Rose Creek, currently consists of Mission Bay RV Resort, an abandoned mobile home park, and De Anza Cove Park which contains a public beach and parking areas. Proposed project uses for this area include guest housing, regional parkland, wetland/marshland/natural recreation area, upland and coastal landscape recreation areas, restaurant/food service leases, a non-motorized boat lease and beach and water quality features.

The proposed project would replace the RV campgrounds and vacated De Anza Mobile Home Park with low-cost guest housing. The low-cost guest housing would allow for up to 590 camping sites for RVs, cabins, or other eco-friendly accommodations and associated open space and facilities consistent with camping accommodations. The existing Regional Parkland would be enhanced by new recreational amenities and opportunities. A supervised swimming beach area would be provided at the west end of De Anza Cove. The swimming area will be protected by buffers/safety measures that would separate the swimmers from the boat users. A boat rental facility/dock area is proposed at the east end of De Anza Cove. In the center, recreational amenities would include a passive, “Open Green” area and an “Adventure Play” area. A restaurant that could include both a sit-down dining component and a snack shack, as well as restrooms, and picnic shelters would be provided to support the recreational activities. Additionally, the beach area is proposed to be expanded.

The wetland/marshland/natural recreation area would be composed of both upland and marshland areas and naturally vegetated recreational areas and would create a natural interface with the cove and enhance water quality in the bay.

The Upland/Developed area and Coastal Landscape Recreation areas would accommodate a proposed multi-use path, mounded landform, and iconic overlook. The mounded landform would feature an elevated, iconic overlook facility. The mounded landform would be accessible from the waterfront trail. Within in this area, passive recreation amenities such as overlooks, pathways, picnic areas, and interpretive signs could be located. This area would serve as a complement to the natural setting of the guest housing and the expanded beach areas on the cove.

Additionally, water quality features are proposed as part of the project. These include water quality detention basins to treat runoff from the proposed project area, site-specific best management practices (BMPs) to enhance water quality, and the revegetation of the edges of Rose Creek and along the De Anza “boot” to limit shoreline erosion and to serve as a biofilter between Mission Bay and developed areas. Parking areas are proposed in conjunction with the athletic areas, within the low-cost guest housing area, and within the regional parkland.

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1.2 Previous Studies

Extensive hydrology, water quality and groundwater studies have previously been conducted for the project site and surrounding Mission Bay. These studies, completed by both public and private entities, were commissioned to understand the complex interactions between surface water, groundwater, and Mission Bay as it relates to erosion, water quality, flooding, and habitat restoration. These studies include the following:

- County of San Diego Department of Environmental Health, Beach & Bay Water Quality Program, <http://www.sdbeachinfo.com/> (County of San Diego 2018)
- San Diego Regional Water Quality Control Board (RWQCB) Basin Plan (RWQCB 2016)
- Maps and data from Project Clean Water (Project Clean Water 2018)
- Published information from San Diego area Watershed Management Area (WMA) Responsible Agencies
- De Anza Existing Conditions, Opportunities, and Constraints Workbook, April 2016 (City of San Diego 2016)
- ReWild Mission Bay Existing Conditions Report, July 2016 (ReWild 2016)
- ReWild Wetlands Restoration Feasibility Study Report, February 2018 (ReWild 2018)
- Mission Bay Park Navigational Safety Dredging, Mitigated Negative Declaration (City of San Diego 2017)
- Rose Creek Bikeway – Coastal Rail Trail technical reports (SANDAG 2016)
- Mission Bay Clean Beaches Initiative Bacterial Source Identification Study (City of San Diego 2004)
- Mission Bay Park Master Plan appendices B-1 through B-3 (City of San Diego 2002)

Beach & Bay Water Quality Program

The website for the County of San Diego Department of Environmental Health Beach & Bay program maintains up to date information on beach closures and water quality-related health advisories for shoreline recreational activities. Additionally, the website lists the location of surface water and storm drain discharges into the beaches and bays of San Diego County.

While there are currently no closed beaches in the project area, nor in the greater Mission Bay, two standing health advisories are listed within the project site due to urban runoff contamination: Campland – Mission Bay and the De Anza Cove swim area. Additionally, Comfort Station at

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Leisure Lagoon located in the back bay of Mission Bay is currently listed for urban runoff and recently has had a health advisory listed for indicator bacteria due to inadequate tidal flushing. Storm drains are listed at De Anza Road, Olney Street, and along E. Mission Bay Drive. Together with the discharge of Rose Creek which runs through the center of the project site, a total of 10 discharges of surface water, potential locations for urban runoff contamination, occur within or immediately adjacent to the proposed project.

San Diego Regional Water Quality Control Board (RWQCB) Basin Plan

The Water Quality Control Plan for the San Diego Basin, also known as the Basin Plan, designated the beneficial uses for water bodies located in the San Diego Region, while also establishing water quality objectives and implementation plans to protect the identified beneficial uses. The designated beneficial uses of water bodies within the region allow for the implementation of water quality objectives to protect and promote the tangible and intangible economic, social and environmental goals for these waters. The beneficial uses of Rose Creek and Mission Bay, as well as the water quality objectives for these bodies and groundwater within the region a detailed later in this Study in section 2.6.2.

Project Clean Water

The web-based portal of Project Clean water provides a centralized point of access to water quality information and resources for the portions of San Diego, Orange and Riverside Counties that fall within the jurisdiction of the San Diego Regional Water Quality Control Board. These resources include Watershed Management Area (WMA) published information such as maps, GIS layers, water quality improvement plans, BMP design manuals, runoff management plans, stakeholder contact information, and a calendar of important events in the WMAs among other resources.

The proposed project falls within the Mission Bay/La Jolla Watershed Management Area, which covers 64 square miles of San Diego County and includes areas of La Jolla, Miramar and Clairemont and the hydrological areas of Scripps, Miramar and Tecolote. This WMA neighbors the Los Peñasquitos WMA to the north and the San Diego River WMAs to the south. The Water Quality Improvement Plan for the Mission Bay/La Jolla WMA proposes a comprehensive watershed-based program to improve surface water quality. This plan implements the Federal Clean Water Act's objectives to protect, preserve, enhance, and restore water quality for beneficial uses. The highest priority water quality conditions in the WMA are here identified as high bacteria levels in creeks, bacteria accumulations at beaches, and erosion and soil transport into the La Jolla Shores area of special biological significance. Suggested strategies to address these conditions include green infrastructure improvements, large-scale multiuse treatment areas such as adapting

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a park to include a detention basin, stream and habitat restoration projects, and creation of new bioretention areas.

De Anza Existing Conditions, Opportunities and Constraints Workbook

The De Anza Revitalization Plan Existing Conditions, Opportunities and Constrains Workbook provides baseline information for the project area and outlines future considerations for the project site. The focus of this workbook is on the physical context, trends, and critical concerns in the development of the project. The workbook contains information about policy guidance, site uses, natural resources, transportation infrastructure and leaseholds. It is intended to be used as a basis for, among other tasks, establishing the environmental setting for the PEIR for the project. This document establishes the planning and regulatory framework of the proposed project, while detailing the existing characteristics of the project site. Data is presented as related to issues of economics, mobility, natural resources, vegetation, geology, hydrology and historical context of the proposed project area.

ReWild Mission Bay Existing Conditions and Wetlands Restoration Feasibility Study Reports

The ReWild Mission Bay Existing Conditions Report and the ReWild Wetlands Restoration Feasibility Study Report are two reports completed for the San Diego Audubon Society and ReWild Mission Bay, a collaborative effort to protect and restore crucial wetlands in the Bay. The goals of ReWild are to restore estuarine habitats, minimize anthropogenic impacts, and provide new opportunities for public access, education research and recreation related to the restored habitats. The ReWild Mission Bay Study Area is similar to the project area.

The ReWild Wetlands Restoration Feasibility Study was performed to develop, analyze, and evaluate a range of wetlands restoration alternatives for the northeastern corner of Mission Bay via a transparent, public involvement process. This study's objectives were to establish existing site conditions, identify site-specific opportunities and constraints, prepare site-specific restoration goals and objectives, formulate a range of restoration alternatives, conduct biological, ecological, engineering, hydrological and public access analyses of the alternatives, evaluate the restoration alternatives against the goals, and develop and implement a transparent public involvement process. The ReWild Mission Bay Existing Conditions Report exists as both a stand-alone report and a subsection of the Feasibility Study. This report describes the existing conditions of the ReWild Mission Bay Study Area in terms of environmental, geological, cultural, and access characteristics. These two reports are important surveys of the site conditions prior to project development

Mission Bay Park Navigational Safety Dredging, Mitigated Negative Declaration

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The Mitigated Negative Declaration issued for navigational safety dredging of 63 acres in Mission Bay discusses issues of Mission Bay water quality, specifically as related to increases in turbidity and limits as related to local flora and fauna. BMPs are recommended to limit turbidity during dredging and other disturbance activities within Mission Bay. Additionally, notes for the Mitigated Negative Declaration include estimates of sea-level rise for the years 2030, 2050, and 2100.

Rose Creek Bikeway – Coastal Rail Trail Reports

The Rose Creek Bikeway is a proposed portion of the Coastal Rail Trail that will connect existing sections of the Rose Canyon and Rose Creek bike paths in the City of San Diego. Preliminary construction activities began September 2017 and are expected to be completed by 2020 when the Rose Creek Bikeway will fill a two-mile gap in the Regional Bike Network. The Rose Creek Bikeway will begin at the north end of Santa Fe Street and connect to the existing bike path at Damon Street and Mission Bay Drive, just a short distance north of the Mike Gotch Memorial Bridge over Rose Inlet within the proposed project limits.

Reports related to the Rose Creek Bikeway that contain information relevant to the project include *Appendix G – Water Quality Tech Report*, *Appendix H – Preliminary Hydrology Analysis*, and *Appendix I – Location Hydraulic Study*. *Appendix G* proposes a drainage pattern, while listing general BMP categories, as the project is a Priority Development Project. *Appendix H* uses the Rational Method to perform a hydrologic analysis of the impact to Rose Creek flow caused by the bikeway. An increase in imperviousness of 2 acres was determined not to increase the 100-year storm flow by a significant amount. *Appendix I* performs a similar hydrologic analysis, using the HEC-RAS model to determine that the effects of the project on the 100-year floodplain would not be significant (SANDAG 2016).

Mission Bay Clean Beaches Initiative Bacterial Source Identification Study

Mission Bay, located in the City of San Diego, California is used by millions of people each year for a variety of recreational activities. The bay encompasses numerous smaller bays, coves, inlets, and stretches of beach that make it one of the City’s most desirable places for aquatic recreation. Unfortunately, elevated levels of indicator bacteria (total coliform, fecal coliform, and enterococcus) have affected water quality in some areas of Mission Bay. Historically, the bay has had more beach postings and closures as a result of elevated bacterial levels than other beaches in San Diego County. As a result, the entire bay was listed as an impaired water body in 1998 under Section 303(d) of the Clean Water Act for exceedances of indicator bacterial standards (i.e., AB411 criteria). Although high levels of indicator bacteria in the bay have been well-documented, the sources of the bacteria have remained elusive. To address this problem, the City of San Diego obtained a Clean Beaches Initiative Grant (funded under Proposition 13) to conduct the Mission

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Bay Bacteria Source Identification Study. The purpose of the two year study was to identify sources of bacterial contamination in Mission Bay and recommend appropriate actions and activities to eliminate the input of those sources. The study was prepared for the California State Water Resources Control Board by the City of San Diego and MEC-Weston Solutions, Inc. The study determined that the predominant source of bacteria was attributed to birds (City of San Diego 2004).

Mission Bay Master Plan Appendices B-1, B-2, B-3

The MBPMP adopted in 1994 and most recently updated in 2002, was completed to identify the demands of increasing local development and to direct continuing development in the Park to sustain the diversity and quality of recreation while protecting and enhancing the Bay's environment. Three existing hydrology studies are added as appendices to the MBPMP to address specific topics of water quantity and quality resulting from development within the Bay.

Appendix B-1, *Feasibility of a Constructed Wetland at the Mouth of Rose Creek*, was completed in response to the 1990 Natural Resources Management Plan which called for the creation of 110 acres of wetland habitat in Mission Bay. This study provides a check on the feasibility of placing this habitat at the mouth of Rose Creek, addressing whether such a project might increase flood hazards, whether wetlands at this location could survive high velocity flood flows and sediment deposition, and what water quality improvement benefits such a project might provide.

Appendix B-2, *Use of Created Wetlands for Stormwater Treatment in Mission Bay*, directly addresses the ability of created wetlands for water quality improvement through storm water treatment. These natural systems have been shown to reduce pollutant loads including suspended solids, total nitrogen and total phosphorous, and biological oxygen demand. Additionally, created wetlands have been shown to reduce bacterial and viral levels.

Appendix B-3, *Mission Bay Physical Model*, details a study using a physical scale model of Mission Bay to test changes in circulation patterns on the east side of Fiesta Island and De Anza Cove by changing the configuration of causeways, gates, and cuts in the De Anza peninsula. Due to poor water exchange in the eastern Mission Bay, beaches and waters in this area often experience closures or health advisories due to bacterial loading, among other contaminants. Improved circulation would improve water quality through tidal flushing.

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2 PROJECT AREA

This section provides site-specific descriptions of the pertinent project geographic features, local and regional hydrologic characteristics, as well as receiving waterbody beneficial uses and general water quality conditions.

2.1 Project Location

The proposed project area is located in the northeast corner of Mission Bay Park in the City of San Diego, and is composed of approximately 322 acres of land and 135 acres of open water for a total of 457 acres. The project area currently includes KFMR/NWP; Campland; the Mission Bay Tennis Center, Athletic Fields, and Golf Course; and the De Anza Cove Area, which was formerly known as the De Anza Special Study Area (SSA) as designated in the Mission Bay Park Master Plan (MBPMP), including the water area of De Anza Cove (see **Figure 1**, Vicinity Map).

The project area lies immediately to the west of I-5 and Mission Bay Drive, south of Grand Avenue and Pacific Beach Drive, and east of Crown Point Drive. Rose Creek discharges into Fiesta Bay of Mission Bay through the central portion of the site, and De Anza Cove is located on the southeastern portion of the Site.

2.2 Project Hydrologic Setting

The project site falls within the Rose Creek watershed drainage area (~25,000 acres) in the Miramar hydrologic area (HA) located within the Peñasquitos hydrologic unit (HU) in the San Diego Region (**Table 1**). The Region, HU and HA information presented in **Table 1** was obtained from the San Diego Regional Water Quality Control Board Basin Plan (RWQCB 2016).

Table 1
Project Hydrologic Characteristics

| Region | Hydrologic Unit (HU) | Hydrologic Area (HA) |
|---|---|--|
| San Diego (900.00) – 3,846mi ² | Peñasquitos (906.00) – 162mi ² | Miramar (906.40) – 39.4mi ² |

Source: San Diego RWQCB Basin Plan (RWQCB 2016)

Figure 2 shows the location of the proposed project with reference to the Miramar HA and Peñasquitos HU. A comparison of the proposed project area with respect to the acreage of the Miramar HA is presented in **Table 2**. The proposed project area is approximately 1.27% of the area encompassed by the affected HA.

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**Table 2
Project Contribution to Hydrologic Area**

| Hydrologic Area | Area (Acres) | Approximate Proposed Project Area (Acres) | Estimated Project Contribution (Percent) |
|------------------|--------------|---|--|
| Miramar (906.40) | 25,216 | 322 | 1.28% |

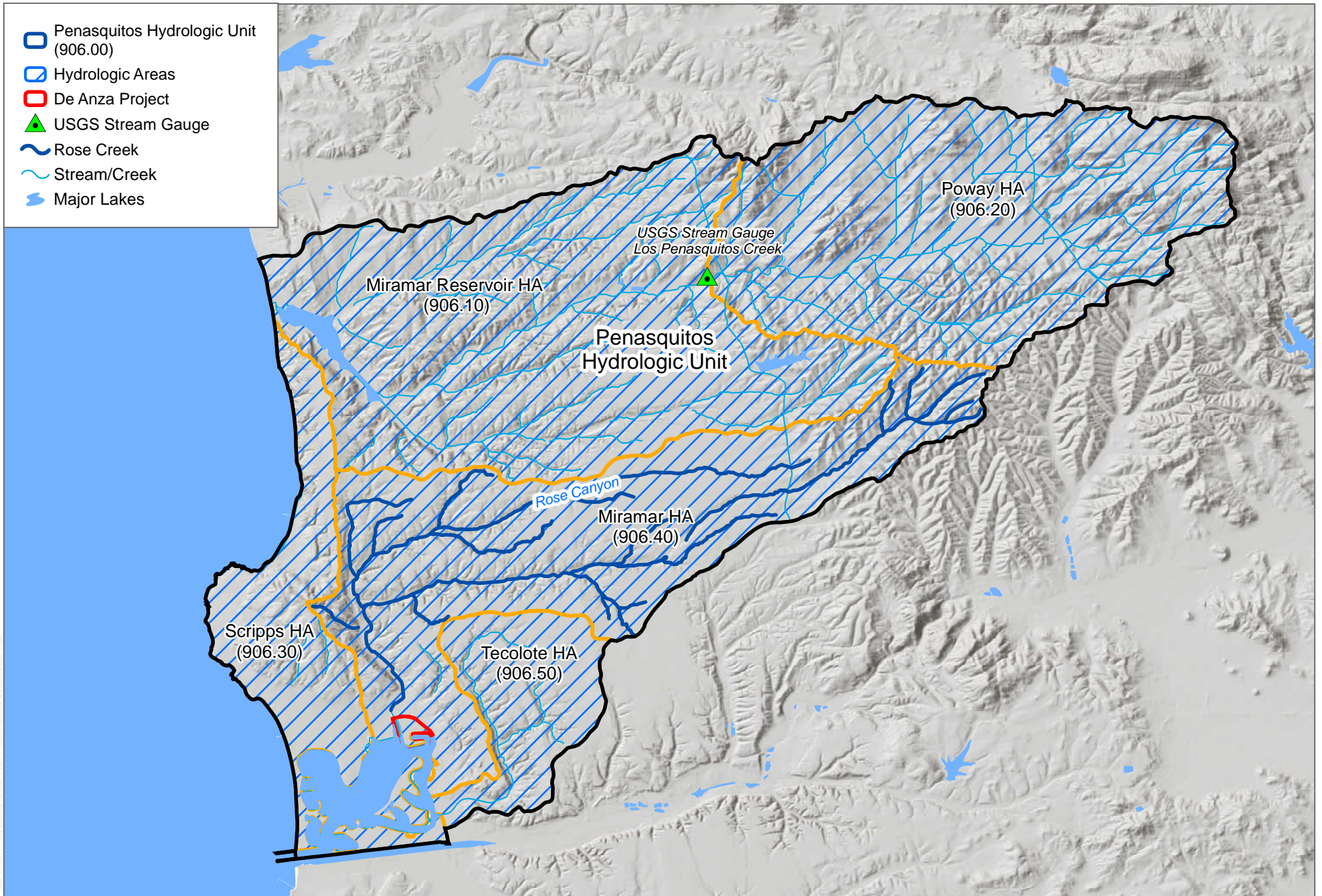
Source: San Diego RWQCB Basin Plan (RWQCB 2016)

The region is characterized by a Mediterranean climate with low average annual rainfall (~11 inches), high rates of evapotranspiration, and oceanward sloping canyons. The immediate project area forms part of the relatively flat alluvial fan formed by the historic discharge of the San Diego River, prior to the engineered channelization of its discharge to the Pacific Ocean. The hydrology of the region is dominated by the few days of medium-intensity rainfall events that typically occur during the winter months. The few annual rainfall events produce runoff at the project site, the discharge of Rose Creek into Mission Bay. Due to the large area covered by Mission Bay and its discharge into the Pacific Ocean, however, runoff does not typically raise the stage height of the Creek enough to significantly affect the project area.

2.3 Hydrologic Influences

The drainage area being considered for this report encompasses approximately 322 acres of land that is currently covered by paved recreational vehicle parks (Campland and Mission Bay RV Resort), a paved boat storage facility (San Diego Mission Bay Boat & Ski Club), four paved parking lots, and approximately 72 acres of unpaved recreational areas (Pacific Beach Tennis Club, Mission Bay Golf Course and Practice Center, and De Anza Cove Park). The project site is relatively flat, rising from sea level to a maximum of approximately 16 feet above mean sea level at the northeast portion of the Golf Course. Land surface slopes generally towards Rose Creek and towards Mission Bay/De Anza Cove.

Project area soils located east of Rose Creek Channel are identified in the National Resources Conservation Service’s Web Soil Survey as “Made Land,” while those areas located west of the Channel are defined as “Tidal Flats” and “Made Land” (USDA 2018) Made land consists of smooth, level areas that have been filled with excavated and transported soil material, paving material, and soil material dredged from lagoons, bays and harbors. Tidal flats soils occur as level areas that are periodically covered with tidal water. They are essentially barren. The higher parts that are seldom covered during high tide support a sparse salt-tolerant vegetation. The texture ranges from clay to very fine sand. Typically, the material has an excess of soluble salts.



SOURCE: RWQCB; SANGIS

FIGURE 2

Basin Plan Hydrologic Areas

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Precipitation in the project area is highly seasonal, as is typical in the coastal areas of the semiarid Mediterranean climate of Southern California. Sporadic but occasionally heavy rainfall occurs primarily between November and April, while average cumulative rainfall between May and October totals to less than one inch. This precipitation influences Rose Creek, which serves as the principal discharge for rainfall within the 40mi² of the Miramar HA. No known precipitation gages exist within the project area; the nearest appropriate precipitation gage is located at the San Diego International Airport, located approximately four miles south of the project. At the San Diego International Airport gage (NOAA Station 047740), monthly average totals precipitation for the period from mid-1939 to early 2016 range from 0.04 to 1.93 inches, with a total annual average of 9.93 inches (WRCC 2016).

Tidal influences also affect the project site hydrology, both along the shoreline and up the Rose Creek Channel. Due to the low gradient of Rose Creek, tidal influences extend upstream to approximately the Garnet Avenue bridge, approximately a quarter-mile upstream from the project northern boundary. Based on tidal observations measured at Scripps Pier in La Jolla (NOAA station 9410230), the Ordinary High Water Mark or Mean High Water Mark is 4.41 feet NAVD88, with the highest water level historically observed being 7.47 feet on January 11, 2005 (NOAA 2011). This historic high water mark would most likely be enough to flood the outer perimeter of the De Anza peninsula, although historic records of this flooding were not encountered.

Due to the confluence of Rose Creek drainage and Mission Bay tidal effects, shoreline stabilization along the southern and western portion of the De Anza peninsula has begun to fail, allowing for erosion. In February 2016, 4,000 linear feet of rip-rap was placed to protect against further erosion in these areas (City of San Diego 2016).

2.4 Existing Floodplain

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) identify flood zones and areas that are susceptible to 100-year (1% annual chance of occurrence) and 500-year floods (0.2% annual chance of occurrence). These areas are referred to as Special Flood Hazard Areas (SFHAs) and Moderate Flood Hazard Areas respectively.

Of the project land acres, 94.7 acres are designated as Zone X due to minimal flood risk (<0.2% annual chance of flooding) (FEMA 2018). These areas lie mostly in the northeastern portion of the project site as well as in the current Campland area. An additional 91 acres including the first few feet of coastline bordering Mission Bay, the banks of Rose Creek Channel, and much of the low-lying KFMR/NWP lay within Zone AE (1% annual chance of occurrence). Structures built within this zone are required to obtain mandatory flood insurance coverage and flood management standards apply. The remaining 136.3 acres of project land fall within Zone X of moderate flood

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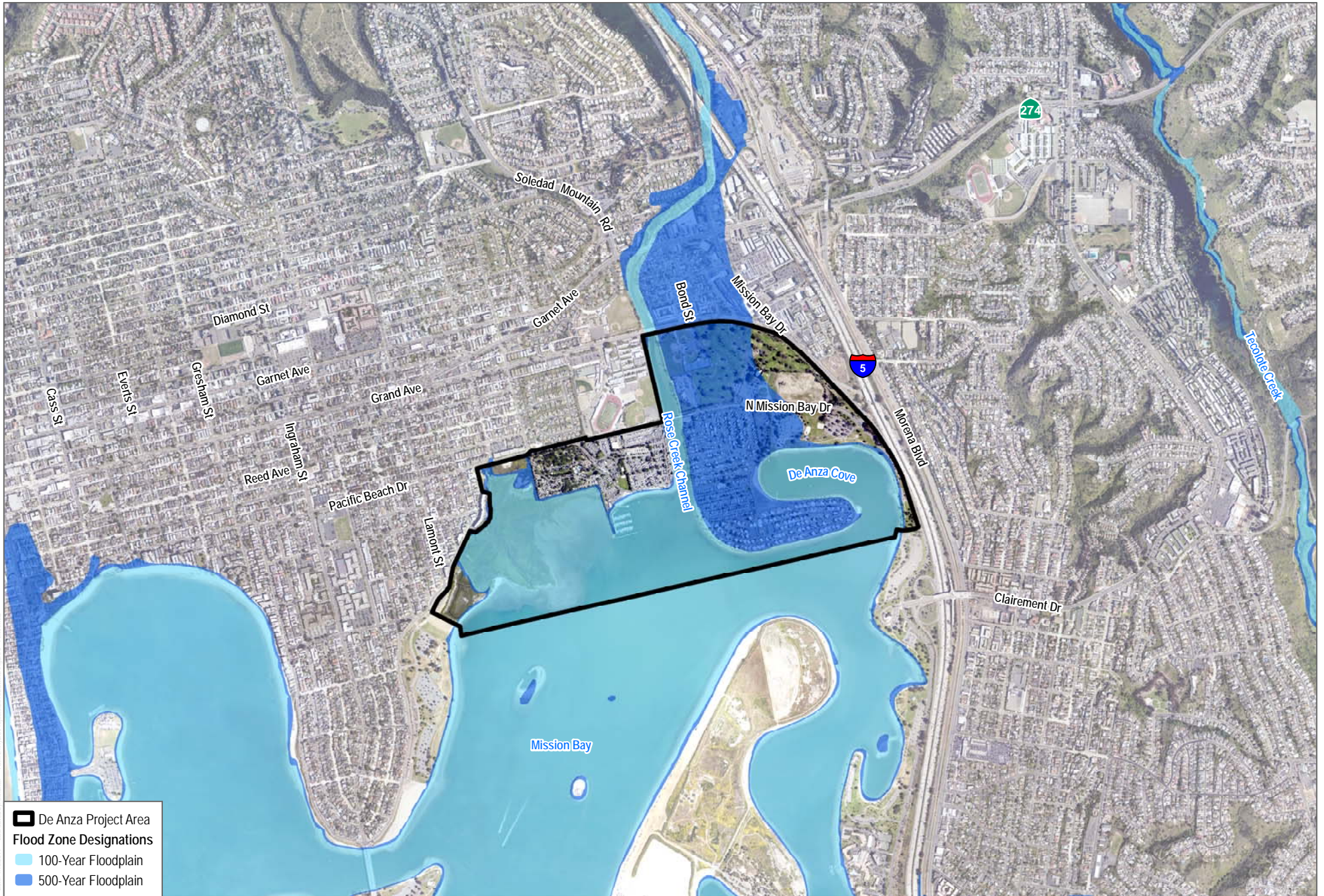
hazard (0.2% annual flood risk). The majority of the Project east of Rose Creek Channel, including the entirety of the De Anza peninsula, falls within this designation (see **Figure 3**). Despite the potential risk of flooding, however, this designation does not carry a mandate for flood insurance. Proposed areas of guest housing fall almost entirely within this zone, consisting of the floodplain formed by the discharge of Rose Creek into the Bay.

The project site is located within a highly urbanized area where the majority of storm water presently flows to drainage inlets along roadways and parking lots. Localized drainage near the shorelines drains directly to Mission Bay. The project site is relatively flat with a slight southern slope towards the Bay

2.5 Groundwater

A groundwater basin is defined by the California Department of Water Resources (DWR) as a hydrogeologic unit containing one large aquifer, or a series of stacked aquifers, with definitive lateral and horizontal boundaries. The geology of San Diego and its proximity to saline ocean waters does not allow for abundant local supplies of groundwater. Although all major drainage basins in the region contain groundwater basins, these tend to be relatively small and shallow. While part of the Mission Valley groundwater basin forms the southern boundary of Mission Bay, the proposed project is not located within a DWR-defined groundwater basin listed in Bulletin 118 (California Department of Water Resources 2016).

Despite the absence of a clearly defined groundwater basin, groundwaters have been observed near the project site. Two LUST cases were identified adjacent to the project site on the Geotracker platform with potential effects on groundwater quality, a former Texaco station located across Grand Avenue from the project and a heating oil leak at Mission Bay Senior High School. Monitoring wells installed at the Texaco site observed groundwater levels at 10 feet below land surface as recent as August 2016 (SWRCB 2018a). While both of these cases have been closed, the Texaco LUST case was closed with residual Total Petroleum Hydrocarbons, Benzene, Toluene, Ethyl-benzene and Total Xylenes identified in the groundwater. Closure was issued dependent, in part, upon the understanding that groundwater in the area not be used for beneficial uses. Were the project to decide to extract groundwater for beneficial use or for the purpose of construction dewatering, special attention should be paid to these potential contaminants.



SOURCE: City San Diego 2018; SANGIS 2017, 2018

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2.6 Water Quality

2.6.1 303(d) Listed Water Bodies

As one of eight major receiving waters within the City of San Diego, several portions of Mission Bay and its shorelines are listed on the 2014/2016 California Integrated Report for impairments (Clean Water Act Section 303(d) List/305(b) Report; SWRCB 2018b). The 303(d) list highlights state water bodies impaired by a specific pollutant and assigns a priority for the development of Total Maximum Daily Loads (TMDLs) based on the severity of the pollution and the sensitivity of the uses of the waters.

Upstream of the project site and to its discharge in Mission Bay, Rose Creek is listed as impaired for benthic community effects, selenium, and toxicity which is linked to selenium exceedances. TMDLs are expected by 2021 for selenium and toxicity and 2025 for the effects on the benthic community. Given the largely upgradient location of Rose Creek in relation to the project, it is unlikely that development at the project site would exacerbate this impairment.

As Rose Creek discharges into Mission Bay, these waters are 303(d) listed for eutrophic conditions and lead contamination. In general Mission Bay is also listed for mercury, Polychlorinated biphenyls (PCBs) and indicator bacteria such as enterococcus, fecal coliform and total coliform (see **Table 3**). TMDLs for these pollutants are expected over the next decade for different segments of the Bay. While PCBs are no longer manufactured in the US, older equipment such as transformers, that are removed during construction should be considered as potential contaminants and disposed of accordingly. The proximity of guest housing and landscaped areas to the Bay have the potential to contribute to eutrophic conditions and the growth of bacterial communities. While the expansion of wetlands and salt marshes will most likely aid in addressing these contaminants, functioning as natural filters, care should be taken to ensure that waste is properly disposed of and that appropriate Best Management Practices (BMPs) are in place to prevent run off of contaminants into the Bay.

Table 3
CWA 303(d) List for Regional Board 9 – San Diego Region

| Water Body Name | Water Body Type | Pollutant(s) | Source |
|-----------------|-----------------|---------------------------|---------|
| Rose Creek | River & Stream | Selenium | Unknown |
| Rose Creek | River & Stream | Benthic Community Effects | Unknown |
| Rose Creek | River & Stream | Toxicity | Unknown |

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**Table 3
CWA 303(d) List for Regional Board 9 – San Diego Region**

| Water Body Name | Water Body Type | Pollutant(s) | Source |
|---|-------------------------|--|---------|
| Mission Bay (areas at mouth of Rose Creek only) | Bay & Harbor | Lead, Eutrophic | Unknown |
| Mission Bay Shoreline, at Bahia point | Coastal & Bay Shoreline | Enterococcus, Fecal Coliform, Total Coliform | Unknown |
| Mission Bay Shoreline, at Bonita Cove | Coastal & Bay Shoreline | Enterococcus, Fecal Coliform, Total Coliform | Unknown |
| Mission Bay Shoreline, at Campland | Coastal & Bay Shoreline | Enterococcus, Fecal Coliform, Total Coliform | Unknown |
| Mission Bay Shoreline, at De Anza Cove | Coastal & Bay Shoreline | Enterococcus, Fecal Coliform, Total Coliform | Unknown |
| Mission Bay Shoreline, at Fanuel Park | Coastal & Bay Shoreline | Enterococcus, Total Coliform | Unknown |
| Mission Bay Shoreline, at Leisure Lagoon | Coastal & Bay Shoreline | Enterococcus, Total Coliform | Unknown |
| Mission Bay Shoreline, at North Crown Point | Coastal & Bay Shoreline | Enterococcus, Total Coliform | Unknown |
| Mission Bay Shoreline, at Tecolote Shores | Coastal & Bay Shoreline | Enterococcus, Total Coliform | Unknown |
| Mission Bay Shoreline, at Visitors Center | Coastal & Bay Shoreline | Enterococcus, Fecal Coliform, Total Coliform | Unknown |

2.6.2 Beneficial Uses and Water Quality Objectives for Surface and Ground Waters

The San Diego RWQCB implements the *Water Quality Control Plan for the San Diego Basin* (Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code Sections 13240–13247). The Basin Plan provides quantitative and narrative criteria for a range of water quality constituents applicable to certain receiving water bodies and groundwater basins within the San Diego Basin. Specific criteria are provided for the larger, designated water bodies within the region, as well as general criteria or guidelines for surface waters and groundwaters. In general, the narrative criteria require that degradation of water quality does not occur due to increases in pollutant loads that will adversely affect the designated beneficial uses of a water body. Surface waters within the Miramar Hydrologic Area (906.40, designated as the Rose Canyon Watershed in the Basin Plan) and in Mission Bay have been assigned the following beneficial uses in the San Diego Basin Plan as show in **Table 4**. Groundwaters within the Miramar HA of the Peñasquitos HU (906.40) do not have assigned beneficial uses for areas located west of

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Interstate 15. Water quality objectives established in the Basin Plan for surface waters and groundwater in the Miramar Hydrologic Area are listed below in **Table 5**.

**Table 4
Beneficial Uses for Surface and Coastal Waters**

| Surface or Coastal Water Body | Hydrologic Unit Basin Number | Beneficial Use | | | | | | | | | | | | | |
|-------------------------------|------------------------------|----------------|------|-----|-----|------|------|-------|-----|------|------|-----|------|------|--|
| | | MUN | COMM | EST | MAR | MIGR | SPWN | SHELL | IND | REC1 | REC2 | WRM | WILD | RARE | |
| Rose Canyon | 906.40 | + | | | | | | | | P | • | • | • | • | |
| Mission Bay | - | | • | • | • | • | • | • | • | • | • | | • | • | |

Source: San Diego Basin Plan

Notes:

• = Existing Beneficial Uses

P = Potential Uses

+ = Exempted from Municipal Use

The beneficial uses identified in **Table 4** for the surface water bodies in the Miramar Hydrologic Area/Rose Canyon Watershed and the coastal waters of Mission Bay are defined below:

- **Municipal and Domestic Supply (MUN)** – Includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Commercial and Sport Fishing (COMM)** – Includes the uses of water for commercial or recreational collection of fish, shellfish, or other organisms intended for human consumption or bait purposes.
- **Estuarine Habitat (EST)** – Includes the use of waters that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).
- **Marine Habitat (MAR)** – Includes the use of waters that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
- **Migration of Aquatic Organisms (MIGR)** – Includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.
- **Spawning, Reproduction, and/or Early Development (SPWN)** – Includes uses of water that support high quality habitats suitable for reproduction, early development and sustenance of marine fish and/or cold freshwater fish.

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- **Shellfish Harvesting (SHELL)** – Includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters and mussels) for human consumption, commercial, or sport purposes.
- **Industrial Service Supply (IND)** – Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
- **Contact Water Recreation (REC-1)** – Includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.
- **Non-contact Water Recreation (REC-2)** – Includes the uses of water for recreational activities involving proximity to water, but not where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- **Warm Freshwater Habitat (WRM)** – Includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates. Includes support for reproduction and early development of warm water fish.
- **Wildlife Habitat (WILD)** – Includes uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Rare, Threatened, or Endangered Species (RARE)** – Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

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**Table 5
Water Quality Objectives for Surface and Groundwater in the Miramar HA**

| Water Type | Hydrologic Unit Basin Number | Beneficial Use | | | | | | | | | | | | |
|------------|------------------------------|----------------|-----|-----------------|-----|-----|-----|------|------|------|-----------------|----------|-------------|-----|
| | | TDS | Cl | SO ₄ | %Na | N&P | Fe | Mn | MBAS | B | NO ₃ | Turb NTU | Color Units | F |
| Surface | 906.40 | 500 | 250 | 250 | 60 | a | 0.3 | 0.05 | 0.5 | 0.75 | -- | 20 | 20 | 1.0 |
| Ground | - | 750 | 300 | 300 | 60 | -- | 0.3 | 0.05 | 0.5 | 0.75 | 45 | 5 | 15 | 1.0 |

Notes: Units in mg/l unless otherwise notes.

- a. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total Phosphorus (P) concentrations shall not exceed 0.05 mg/l in any stream at the point where it enters any standing body of water, nor 0.025 mg/l in any standing body of water. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/l total P. These values are not to be exceeded more than 10% of the time unless studies of the specific body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N:P=10:1 shall be used. Note - Certain exceptions to the above water quality objectives are described in Chapter 4 in the sections titled Discharges to Coastal Lagoons from Pilot Water Reclamation Projects and Discharges to Surface Waters.

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3 REGULATORY SETTING

Part of the requirements of the PEIR is to identify potential significant impacts to hydrologic resources which could negatively affect their uses as identified by federal, state, and local policies. Regulations applicable to surface and groundwater impacts as a result of future work associated with the project are defined in this section.

3.1 Federal Regulations

3.1.1 Clean Water Act

Under the federal Clean Water Act (33 U.S.C. 1251 et seq.) and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code, Section 13000 et seq.), the City of San Diego is required to maintain the beneficial uses and water quality objectives of the surface water and groundwater impacted by the project. While the U.S. Environmental Protection Agency (EPA) is responsible for enforcing the CWA, California's State Water Resources Control Board (SWRCB) has been designated the lead agency for implementing the majority of the CWA laws pertinent to the project. The San Diego Regional Water Quality Control Board (RWQCB) is the regional branch of the SWRCB which oversees implementation of CWA permitting and develops water quality standards and beneficial uses for the water bodies in San Diego County (per CWA Section 303).

CWA Section 303(d)

Water bodies with specific water quality impairments that cannot be addressed through the implementation of point and non-point source pollution controls (to the maximum extent practicable) are identified under Section 303(d) of the CWA. The project is required to identify all water bodies that may be impacted per water quality standards under CWA Section. Potential impacts as a result of the proposed project must fall within specific numeric endpoints and/or total maximum daily loads (TMDLs) established within the state's 303(d) impaired water bodies list, or the San Diego RWQCB's Basin Plan, to meet the water quality objectives and preserve the Beneficial Uses for all receiving water bodies.

CWA Sections 401 and 404

Under CWA Section 404, projects must obtain a permit from the ACOE if discharging dredged or fill material into waters of the United States (unless discharge is exempted). Section 401 of the CWA requires that an applicant for any federal permit (including the Section 404 permit) obtain certification from the state that the discharge would comply with other provisions of the CWA and

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with state water quality standards. For the project area, the San Diego RWQCB must provide the water quality certification required under Section 401 of the CWA.

CWA Section 402 and the Construction General Permit (CGP)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit (Section 402). The proposed project will be subject to the state's Municipal Separate Storm Sewer System Permit (MS4 Permit - Order No. R9-2013-0001) and the Construction General Permit (GP - Order #2009-0009-DWQ). The MS4 permit covers storm water discharge generated on a site, while the GP covers any construction or demolition activity that causes the disturbance of more than one acre. Requirements under both permits are discussed in greater detail under Sections 3.2.2 and 3.2.3.

3.1.2 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires that regulated activities conducted below the Ordinary High Water (OHW) elevation of navigable water of the U.S. be approved and permitted by the U.S. Army Corps of Engineers. These activities include the placement or removal of structures, work involving dredging or disposal of dredged material, filling, excavation, or any other disturbance of soils and sediments. Navigable waters of the U.S. are those which are subject to the ebb and flow of the tide shoreward to the mean high water mark. These include associated tributaries and backwater areas below the OHW.

3.1.3 Federal Emergency Management Agency (FEMA)

In order to participate in the National Flood Insurance Program (NFIP), a flood-insurance subsidization program, San Diego County is required by FEMA to develop a plan identifying existing issues, goals/objectives and policies addressing flooding in the region. San Diego County's 2007 Flood Management Plan (FMP) provides a comprehensive risk assessment for the region. In addition to the standard flood hazard prevention strategies highlighted in the NFIP (e.g., zoning, building codes, preserve flood plain capacity), additional strategies are proposed in the 2007 FMP including a modified flood elevation freeboard for proposed structures within the 100-year flood zone and the siting/location of critical facilities which may be impacted during flood stage. These mitigation strategies should be incorporated into existing land use planning and building codes, including the County's Flood Damage Protection requirements (Title 9 Land Use Ordinance, Division 16), and Section IV-E of the County's General Plan (Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvement, Drainage and Grading Plans within Imperial County).

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3.2 State Regulations

3.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) established the principal California legal and regulatory framework for water quality control. The Porter-Cologne Act is embodied in the California Water Code, which authorizes the SWRCB to implement the provisions of the federal CWA (see Section 3.1.1). The San Diego RWQCB implements and enforces provisions of the California Water Code and CWA. The Porter-Cologne Act also provides for the development and periodic review of basin-specific water quality control plans (Basin Plans) that designate beneficial uses of California's major rivers and groundwater basins and establish water quality objectives for those waters (see Section 3.5.1).

3.2.2 NPDES MS4 Permit

The most current MS4 Permit for Region 9, Order No. R9-2013-0001, was adopted on May 8, 2013 by the San Diego RWQCB and became effective on June 27, 2013. This Order was amended by adoption of Order No. R9-2015-0001 on February 11, 2015, and adoption of Order No. R9-2015-0100 on November 18, 2015. This is an update to the 2007 MS4 Permit, Order No. R9-2007-0001. Updated City of San Diego Storm Water Standards (based on the Copermitees' Model BMP Design Manual) were adopted on February 16, 2016. The proposed project would be subject to the most current MS4 Permit requirements which may require the incorporation of storm water BMPs, low-impact developments (LIDs), and storm water management plans (SWMP).

The MS4 Permit implements a regional strategy for water quality and related concerns, and mandates a watershed-based approach that often encompasses multiple jurisdictions. MS4 Permit conformance entails considerations such as receiving water limitations, waste load allocations, and numeric water quality based effluent limitations. Specific efforts to provide permit conformance and reduce runoff and pollutant discharges to the maximum extent practicable involve methods such as (1) using jurisdictional planning efforts (e.g., discretionary general plan approvals) to provide water quality protection; (2) requiring coordination between individual jurisdictions to provide watershed-based water quality protection; (3) implementing appropriate BMPs, including Low Impact Development (LID) measures, to avoid, minimize, and/or mitigate effects such as increased erosion and off-site sediment transport (sedimentation), hydromodification and the discharge of pollutants in urban runoff; and (4) using appropriate monitoring/assessment, reporting, and enforcement efforts to ensure proper implementation, documentation, and (as appropriate) modification of permit requirements. The City has implemented a number of regulations to ensure conformance with these requirements, as outlined below under local standards (Sections 3.5).

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3.2.3 NPDES CG Permit

SWRCB Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002 WDRs for Discharges of Storm Water Runoff Associated with Construction Activity (CG Permit) was adopted September 2, 2009, and amended by Order No. 2010-0014-DWQ and Order No. 2012-0006- DWQ. The CG Permit is due to be reissued, which will likely occur several times during the life of the proposed project. Construction activities exceeding one acre (or meeting other applicable criteria) are subject to pertinent requirements under the CG Permit. Specific conformance requirements include implementing a SWPPP, an associated Construction Site Monitoring Program, employee training, and minimum BMPs, as well as a Rain Event Action Plan for applicable projects (e.g., those in Risk Categories 2 or 3).

Under the CG Permit, project sites are designated as Risk Level 1 through 3 based on site-specific criteria (e.g., sediment erosion and receiving water risk), with Risk Level 3 sites requiring the most stringent controls. Based on the site-specific risk level designation, the SWPPP and related plans/efforts identify detailed measures to prevent and control the off-site discharge of pollutants in storm water runoff. Depending on the risk level, these may include efforts such as minimizing/stabilizing disturbed areas, mandatory use of technology-based action levels, effluent and receiving water monitoring/reporting, and advanced treatment systems. Specific pollution control measures require the use of best available technology economically achievable and/or best conventional pollutant control technology levels of treatment, with these requirements implemented through applicable BMPs.

Site-specific measures would vary with conditions such as risk level, proposed grading, and slope/soil characteristics, and detailed guidance for construction-related BMPs is provided in the permit and in related City standards, as well as in additional sources including the EPA National Menu of Best Management Practices for Storm Water Phase II – Construction (EPA 2016) and the California Stormwater Quality Association (CASQA) Storm Water Best Management Practices Handbooks (CASQA 2009). Project-specific requirements for the proposed project under this permit would be determined during SWPPP development, after completion of specific project plans and application submittal to the SWRCB.

3.2.4 NPDES Groundwater Permit

If construction activities entail the discharge of extracted groundwater into receiving waters, the applicant would be required to obtain coverage under the Groundwater Permit (Order No. R9-2008-0002, NPDES No. CAG919002). Conformance with this permit is generally applicable to all temporary and certain permanent groundwater discharges to surface waters, estuaries, and the Pacific Ocean, with some exceptions as noted in the permit fact sheet. Specific requirements for

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permit conformance include: (1) submittal of appropriate application materials and fees; (2) implementation of pertinent (depending on site-specific conditions) monitoring/testing, disposal alternative, and treatment programs; (3) provision of applicable notification to the associated local agency prior to discharging to a municipal storm drain system; (4) conformance with appropriate effluent standards (as outlined in the permit); and (5) submittal of applicable documentation (e.g., monitoring reports).

3.2.5 California Coastal Act

Pursuant to Sections 30231 and 30233 of the California Coastal Act of 1976 (CCA), the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and must be avoided unless there “is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated.”

The CCA Section 30121 defines the term “wetland” as: “[L]ands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.” Further, the CCC’s Wetlands Briefing Background Information Handout 3 regulations (14 CCR 13577) establish a “one parameter definition” that only requires evidence of a single parameter to establish wetland conditions:

Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats.

The CCC’s one-parameter definition states that wetlands must have one or more of the following three attributes: “(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.”

The CCC provides further guidance on analyzing wetlands and wetland impacts in the Procedural Guidance for the Review of Wetland Projects in California’s Coastal Zone (CCC 1994).

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3.2.6 California Department of Fish and Wildlife (CDFW)

Under the California Fish and Game Code (Division 2, Chapter 5, section 1600-1616), projects which may impact a body of water by diversion, channel modification, and/or pollution, must procure a Section 1602 Lake or Streambed Alteration Agreement from CDFW. This requirement is a statewide measure to conserve, protect, and manage California’s biological resources, and applies to all drainage features that have historically conveyed surface flows (circa 1800 to present) with identifiable physical or biological indicators. This regulation does apply to ephemeral streams such as those within the project site.

3.3 Local Regulations

3.3.1 Water Quality Control Plan for the San Diego Basin

The San Diego Basin encompasses approximately 3,900 square miles, including most of San Diego County and portions of southwestern Riverside and Orange counties. The basin is composed of 11 major Hydrologic Units, 54 Hydrologic Areas, and 147 Hydrologic Subareas, extending from Laguna Beach southerly to the U.S.–Mexico border. Drainage from higher elevations in the east flows to the west, and ultimately into the Pacific Ocean. The San Diego RWQCB prepared the Water Quality Control Plan (Basin Plan) for the region, which defines existing and potential beneficial uses and water quality objectives (WQOs) for coastal waters, groundwater, surface waters, imported surface waters, and reclaimed waters in the basin. Water quality objectives seek to protect the most sensitive of the beneficial uses designated for a specific water body. All proposed activity with the project will need to ensure that all applicable WQOs are met and beneficial uses are preserved.

3.3.2 City of San Diego Jurisdictional Runoff Management Plan

The City’s Jurisdictional Runoff Management Plan (JRMP) a total account of how the City plans to protect and improve the water quality of rivers, bays, and the Pacific Ocean within the region in compliance with the water board permit referenced above. The document describes how the City incorporates storm water BMPs into land use planning, development review and permitting, City capital improvement program project planning and design, and the execution of construction contracts.

3.3.3 City of San Diego Drainage Design Manual

Pursuant to the Municipal Code Chapter 14 Article 2 Division 2, Storm Water Runoff and Drainage Regulations, drainage regulations apply to all development in the City, whether or not a permit or other approval is required. Drainage design policies and procedures for the City are given in the City’s Drainage Design Manual, updated in January 2017. The Drainage Design Manual provides

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a guide for designing drainage and drainage-related facilities for developments within the City. Potential project related development will be required to adhere to the design criteria established in this manual. In addition, the City will be responsible for reviewing hydrologic and hydraulic studies and design features for conformance to criteria given in the Drainage Design Manual.

3.3.4 City of San Diego Storm Water Standards Manual

The City updated its Storm Water Standards (SWS) in October 2018 to comply with the 2013 MS4 Permit and its 2015 amendments (City of San Diego 2018). The SWS provide direction for associated regulatory compliance, including identification of construction and post-construction storm water requirements for Standard Projects and Priority Development Projects (PDPs). Specifically, the standards identify regulatory requirements and provide detailed performance standards and monitoring/maintenance efforts for (1) construction BMPs; (2) overall storm water management design; (3) site design (LID) and source control BMPs applicable to all projects; (4) pollutant (or treatment) control and hydromodification management BMPs applicable to PDPs; (5) operation and maintenance requirements for applicable BMPs; and (6) specific direction and guidance to provide conformance with City and related NPDES storm water standards. The proposed project will classify as a PDP (redevelopment project replacing at least 5,000 square feet of impervious surfaces), and will be subject to the source control and site design measures, and structural pollutant controls. The project is exempt from structural hydromodification management criteria due to its location (Mission Bay and lower reach of Rose Creek are exempt).

The updated SWS Manual requires that PDPs design/implement LID BMPs that retain (i.e., intercept, store, infiltrate, evaporate, and evapotranspire) a specific design volume for pollutant and control (see Appendix A of the City’s 2018 SWS Manual). If retention BMPs are determined infeasible, then biofiltration BMPs may be allowed. Furthermore, if biofiltration BMPs are determined infeasible, then PDPs may be allowed to use flow-thru treatment control BMPs, provided that an off-site alternative compliance project is available.

LID BMPs will be important to site planning because these features require on-site areas to retain storm water for infiltration, reuse, or evaporation. Although the footprint of the LID BMPs can often be fit into planned landscaping features, this requires early planning to ensure that the features are located in places where they can intercept the drainage and safely store the water without adverse effects to adjacent slopes, structures, roadways, or other features. The project must complete a Storm Water Quality Management Plan (SWQMP) per the City’s 2018 SWS Manual in order to demonstrate sufficient capture and treatment of storm water generated on the Site.

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3.3.5 City of San Diego General Plan

The City's General Plan, adopted in 2008, provides a number of goals and policies related to hydrology and water quality concerns in the Public Facilities, Services, and Safety Element; and in the Conservation Element, as summarized below (City of San Diego 2008):

- Public Facilities, Services, and Safety Element: This element includes a number of goals and policies related to the provision of adequate public facilities and services for existing and proposed development (City of San Diego 2015g). For storm water, these involve efforts to provide appropriately designed and sized infrastructure and ensure adequate conveyance capacity, protect water quality, and provide conformance with applicable regulatory standards (such as the NPDES).
- Conservation Element: This element provides a number of goals and policies related to preserving and protecting watersheds and natural drainage features, minimizing runoff and related pollutant generation during and after construction activities, and protecting drinking water resources (City of San Diego 2008).

3.3.6 City of San Diego Grading Ordinance

The City Grading Ordinance (Municipal Code Section 142.0101 et seq.) incorporates a number of requirements related to hydrology and water quality, including BMPs necessary to control storm water pollution from sources such as erosion/sedimentation and construction materials during project construction and operation. Specifically, these include elements related to slope design, erosion/sediment control, revegetation requirements, and material handling/control.

3.3.7 Conditional Waivers of Waste Discharge Requirements

Conditional Waivers of Waste Discharge Requirements for Low-Threat Discharges in the San Diego Region (San Diego RWQCB Order No. R92014-0041) may also apply to the project. This order authorizes several categories of discharges within the San Diego region that have a low threat to water quality, provided certain conditions are met to ensure compliance with water quality standards and Basin Plan objectives (Section 3.5.1). Included among waiver categories are short-term construction dewatering operations (Waiver No. 3). Construction dewatering is generally authorized so long as the discharge is made to land and not directly (or indirectly) to a receiving water body, including an MS4, and it does not adversely affect the quality or the beneficial uses of the waters of the state. If the construction dewatering discharge would exceed 5,000 gallons per day for any continuous 180-day period, or if it is in or near an area with soil and/or groundwater contamination or an investigation or corrective action in effect, the discharger must submit to the

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San Diego RWQCB a Notice of Intent, applicable fees, monitoring data, and BMPs, as required, to demonstrate that adequate measures will be taken to prevent adverse effects on water quality.

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4 POTENTIAL IMPACTS AND PROPOSED ACTIONS

As the project proposes to restore coastal wetlands and improve the structure/management of high-density recreation in the area, the overall impact of the project to local hydrology and water quality will be positive. Based on preliminary design, the project should improve infiltration by decreasing the overall impermeable footprint, increase biofiltration by expanding wetlands, decrease source contamination by removing the Campland RV park and removing housing from the current flood zones. This section discusses the project's potential significant impacts to hydrology and water quality resources (Section 4.1), and provides applicable mitigation measures for operation and management of project conditions (Section 4.2).

4.1 Potential Significant Impacts

Despite the obvious benefits of the proposed project, potential adverse impacts to local hydrology and water quality resources are associated with specific components that need be addressed in the design stage. Potential significant impacts related to local flooding, water quality, and groundwater resources are discussed below. The criteria for determining significance of impacts have been established under the California Environmental Quality Act (CEQA).

4.1.1 Potential Impacts to Floodplains

One potential significant impact identified in CEQA is the alteration of local hydrology such that it would result in flooding on or off site. Project components that lead to increased local flooding typically involve increasing impervious surface area (generating more runoff), exceeding downstream storm water conveyance capacity, or grading in such a manner that alters the existing floodplain. While the project is reducing the overall impervious footprint (thus reducing overall discharge from the site), a significant portion of it is situated within designated FEMA floodplains.

As previously stated, 136.3 acres of the project is located on lands that are currently designated Zone X by FEMA, susceptible to 500-year floods, and referred to as Moderate Flood Hazard Areas (FEMA 2018). These areas lie principally on the De Anza peninsula as well as in the areas currently occupied by the golf course, tennis courts and athletic fields. An additional 91 acres are located on lands susceptible to 100-year floods which are referred to as Special Flood Hazard Areas, mostly located along the coastlines, the banks of Rose Creek Channel, and much of the low-lying KFMR/NWP. The project site is located within a highly urbanized area where the majority of storm water presently flows to drainage inlets along roadways and parking lots. Localized drainage near the shorelines drains directly to Mission Bay. The project site is relatively flat with a slight southern slope towards the Bay. Due to the qualitative nature of this Study, no sizing determinations nor calculations have been made to evaluate the sufficiency of existing

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surface water drainage structures to properly convey storm water runoff, nor have surveys been conducted of the drainage outlets to determine the risk of backflows during high tides. A low-flow storm drain diversion system would be designed and installed in order to divert dry-weather flows from the existing storm drains within the project site to the existing sanitary sewer system for treatment.

Due to the reduction of guest housing acreage, removing a large portion of the mobile home park from the De Anza peninsula and completely replacing Campland on the Bay with expanded marshland habitat, fewer structures will be located in zone of moderate flood risk. However, as the entirety of the area planned for guest housing falls within the 500-year flood zone, project options may be considered to limit potential risk. For example, guest housing lands may be built up by using soil and debris removed from Campland to raise structure above flood risk levels. Additionally, the proposed multi-use path running along Rose Creek could be built up to serve as a levee and limit potential flooding.

Lastly, the expansion/realignment of the wetlands could alter the existing floodplains. As part of the ReWild Feasibility Analysis (ReWild 2018), modeling was conducted to assess potential impacts to tidal and fluvial hydraulics. The analyses included an assessment of projected flood levels/velocities assuming a specific sea-level rise by the year 2100. Based on results from the modeling effort, the project area will experience lowered flood stage levels and velocities by 2100 compared to the site if left in its current state. In addition, results from the fluvial flood model demonstrated that the project will not adversely impact flood levels (ReWild 2018). Based on this modeling analysis, project modification to the existing floodplain will ultimately lead to a reduction in flood stage and velocities at the site.

4.1.2 Potential Impacts to Water Quality

Violations of existing water quality standards (such as those defined in the Basin Plan to achieve specific Beneficial Uses) are considered significant impacts under CEQA. Pollutants generated from the proposed project during its construction period are temporary and will be addressed by a project specific SWPPP (see Section 3.2.3), but may also require additional monitoring if work is proposed within the waters of Mission Bay (e.g., turbidity monitoring up-gradient/within/down-gradient from construction activities). The potential long-term pollutants associated with the project must be addressed through implementation of BMPs as defined in the City's 2018 SWS. General pollutants associated with components of the proposed project are identified in Table 6 below (Table B.6-1 from the City's 2018 SWS Manual). It should be noted that the project categories associated with the proposed project in Table 6 are the same that currently exist on the project site.

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**Table 6
PDP Potential Pollutants**

| General Pollutant Categories | | | | | | | | | |
|----------------------------------|------------------|------------------|---------------------|--------------------------|---------------------------|------------------------------------|-------------------------|-------------------------------|-------------------|
| <i>Project Category</i> | <i>Sediments</i> | <i>Nutrients</i> | <i>Heavy Metals</i> | <i>Organic Compounds</i> | <i>Trash & Debris</i> | <i>Oxygen Demanding Substances</i> | <i>Oil & Grease</i> | <i>Bacteria & Viruses</i> | <i>Pesticides</i> |
| Detached Residential Development | X | X | | | X | X | X | X | X |
| Restaurants | | | | | X | X | X | X | P ⁽¹⁾ |
| Parking Lots | P ⁽¹⁾ | P ⁽¹⁾ | X | | X | P ⁽¹⁾ | X | | P ⁽¹⁾ |
| Streets, Highways & Freeways | X | P ⁽¹⁾ | X | P ⁽²⁾ | X | P ⁽³⁾ | X | X | P ⁽¹⁾ |

X = anticipated

P = potential

(1) A potential pollutant if landscaping exists on-site.

(2) Including petroleum hydrocarbons

(3) Including solvents

Project Categories potentially associated with the proposed project include, but may not be limited to, detached residential development (approximation for guest housing), restaurant, parking lots, and streets. Associated with all of the categories are the following pollutants: sediments, nutrients, trash and debris, oxygen demanding substances, oil and grease, and pesticides. Heavy metals are anticipated with parking lots and streets, while bacteria and viruses are anticipated for detached residential, restaurants, and streets. Due to the project’s location, the immediate pollutants of concern are those that contribute to the eutrophic conditions at the mouth of Rose Creek (nutrients), and the high coliform counts along the bay shore (see Section 2.6).

In addition to the above Project Categories, the expansion and regrading of the wetlands could lead to increased erosion (ReWild 2018). Modeling conducted during the project’s feasibility study (ReWild 2018) identified increased erosion at the intertidal/subtidal transition zone during periods with high tide velocities. The potential for Rose Creek to migrate through the restored wetland could also lead to local scouring and increased sediment loading to Mission Bay.

4.1.3 Potential Impacts to Groundwater Resources

The project site is located on low-lying land and estuary formed by the historic meandering of the San Diego River prior to the engineering of its current outlet into the Pacific Ocean in the mid-1800s. The Pacific Beach area, located northwest of the project site, and Mission Bay rest on low

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alluvial deposits, where the highest elevation on the site is 16 feet above mean sea level. Due to these low elevations and the proximity of the site to the saline waters of Mission Bay, soils under the project are not available for extensive fresh groundwater resources. In addition, groundwater levels in near-ocean alluvial deposits are often influenced more by tidal fluctuation than by freshwater recharge.

Currently plans for the project indicate a decrease in the amount of impermeable surface area, thus increasing the rate of infiltration of storm water. Good housekeeping practices should be maintained to clean up contaminant spills as would be indicated in the construction SWPPP or Water Pollution Control Plan following the completion of the project. Nevertheless, such contamination would be more likely to affect surface waters in De Anza Cove and Mission Bay through unmitigated runoff than would affect groundwater through infiltration.

4.2 Best Management Practices

To preserve local hydrology and water quality resources, preliminary BMPs are recommended in Table 7 to address the potential impacts identified in Section 4.1. The BMPs recommended in this study serve as preliminary recommendations which may be used to support final project designs and monitoring programs (e.g., CG SWPPP, long-term BMP O & M). Only Site Design and Source Control BMPs are provided in this Study. Storm Water Pollutant Control BMPs (as required for all PDPs under the City's 2018 SWS Manual), such as rainwater harvesting or biofiltration, are not included as they are intended to capture and treat excess runoff from project specific Drainage Management Areas (DMAs) that are not already managed through Site Design and Source Control. A SWQMP must accompany the final design of the project to ensure that runoff generated from all DMAs is adequately captured/treated.

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**Table 7
Recommended Best Management Practices**

| Type of BMP | Design Concept | Description Applicable to Project |
|---|--|--|
| Construction BMPs | Temporary Soil Stabilization | Soil stabilizing BMPs designed to mitigate soil erosion during construction activities. |
| | Temporary Sediment Control | Water quality BMPs designed to remove sediment loads from runoff generated within the construction site. |
| | Wind Erosion Control | BMPs designed to minimize soil loss from wind erosion and to reduce air pollution generated from construction activities. |
| | Tracking Control | BMPs for reducing the transport of sediment on tires off, and within, site boundaries. |
| | Non-Storm Water Management | 'Good Housekeeping' BMPs ranging from water conservation to vehicle fueling to concrete curing. |
| | Waste Management and Materials Pollution Control | BMPs designed for storage, use and disposal of wastes generated on site. |
| | Turbidity Monitoring Program | Establish monitoring program to accompany work adjacent to or over water to ensure impacts to Mission Bay remain within compliance. |
| Site Design and Source Control Measures | Efficient Irrigation Systems and Landscape Design | Implement rain shutoff devices to prevent irrigation during and after precipitation events in accordance with the City of San Diego's Landscape Standards. Reduce irrigation contribution to dry weather runoff by avoiding spray irrigation patterns where overspray to paved surfaces or drain inlets will occur. Design irrigation systems to each landscape area's specific water requirements to avoid overwatering and potential irrigation runoff. Implement flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines. Avoid locating drain inlets in lawn areas. |
| | Trash Storage Areas/Pet Waste | Provide covered trash receptacles and routine pick-up. Along walkways, include signage requesting pet owners pick up their pet's waste and pet waste bag dispensers. |
| | Material Storage Areas | Establish outdoor/indoor areas for suitably storing hazardous and non-hazardous materials. Develop Hazardous Materials Management Plan for any hazardous materials stored on site. |
| | Drain to permeable surfaces | Direct surface flows from impermeable surfaces (streets, parking lots, sidewalks) into adjacent permeable areas. |
| | Storm Water Conveyance System Stamping and Signage | Proposed inlets and catch basins will have a stamping/stencil stating that the runoff discharge to the ocean. Post signs and prohibitive language which prohibits illegal dumping |
| | Non-Toxic Roofing Materials | Avoid all toxic materials, including the use of galvanized steel or copper for roofs, gutter and downspouts. |

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**Table 7
Recommended Best Management Practices**

| Type of BMP | Design Concept | Description Applicable to Project |
|-------------|--|--|
| | Employ Integrated Pest Management Principles | Employ integrated pest management focusing on long-term prevention of pests or their damage through a combination of biological control, habitat manipulation and use of resistant plant varieties. Pesticides are used only after monitoring indicates they needed according to established guidelines. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and surrounding environment. For more information on pesticide application, visit the following website: http://www.ipm.ucdavis.edu/WATER/U/index.html Use plant pest-resistant or well-adapted plant varieties and discourage pests by modifying the site and landscaping design to eliminate or reduce the need to pesticide use. Use barriers, screens and caulking to keep pests out of buildings and landscaping. Use physical pest elimination techniques, such as weeding, washing or trapping pests. |
| | Additional wetland/channel design | Additional analyses are recommended to ensure erosion does not become an issue with high tidal velocities. |
| | Additional Considerations | Stabilize the site, vegetate disturbed soils and slopes with drought tolerant vegetation and stabilize permanent channel crossings. Convey runoff safely away from the top of slopes and install energy dissipaters at the outlets of new storm drains that discharge to unlined channels in accordance with the applicable specifications to reduce potential for erosion and minimize impacts to receiving waters. |

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5 CONCLUSION

The proposed project is an effort to improve upon existing recreation uses and restore wetland habitat, implementing recommendations from the adopted Mission Bay Park Master Plan. The purpose of the study is to provide program-level qualitative analysis of the effects of project implementation on site hydrology and water quality.

As the project proposes to restore coastal wetlands and improve the structure/management of high-density recreation in the area, potential significant impacts related to local flooding, water quality, and groundwater resources have been identified. These general impact categories were selected as they pertain to thresholds identified for hydrology and water quality under CEQA. The overall impact to the local hydrology and water quality resources is projected to be positive. The decrease of impermeable surfaces coinciding with the expansion of wetland habitats including the existing KFMR/NWP will lead to a reduction in storm water pollutant discharge to Rose Creek/Mission Bay, and an increased biofiltration capacity of KFMR/WMP. These improvements will also reduce the number of structures currently located in FEMA flood zones and provide opportunity to raise De Anza peninsula ground levels to above flood stage.

Construction and design related components of the project, however, have the capability of generating pollutants which could exacerbate current water quality impairments (e.g., eutrophication, lead, coliform). Additional construction and design measures will be required to ensure that temporary (construction) and long-term (design) impacts are minimized. A project specific SWPPP must be completed to address the generation of waste (asphalt, concrete), management of fill, and work on/adjacent to the waters of Mission Bay. In addition, a SWQMP will be required to demonstrate that Project Source Control and Site Design measures are able to capture and treat a specified water quality volume, and that, if necessary, storm water pollutant control BMPs are implemented (including long-term O & M plan).

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