Section 3.10
Hydrology and Water Quality

3.10.1 Introduction

This section analyzes the proposed project's impacts on hydrology and water quality, including impacts from both construction and operational activities. As part of this analysis, the section describes the general approach and methodology, regulatory framework, environmental setting, and significance criteria used to evaluate the proposed project's effects on hydrology and water quality.

Comments received in response to the NOP included certain comments related to hydrology and water quality. Specifically, the City of San Diego Transportation and Stormwater Department commented that the Draft EIR should address any increase in impervious surfaces and the project's potential effects on the drainage system and water quality, particularly as related to hydraulic capacity within the Airport's watershed drainage area, installation of or modifications to stormwater infrastructure, and SDCRAA's involvement in the regional Municipal Separate Storm Sewer System (MS4) Permit and the San Diego Bay Watershed Management Area (WMA) Water Quality Improvement Plan (WQIP). The regional MS4 Permit is also known as the San Diego Region MS4 Permit, and more specifically as National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0109266. The San Diego Bay WMA WQIP is a required element of the San Diego Region MS4 Permit. As explained below, SDCRAA would expand the SAN Stormwater Capture and Reuse System as part of the proposed project to enable the Airport to retain 100 percent of stormwater associated with a 24-hour 85th percentile rainfall event[1] (equivalent, in the case of the project area, to approximately one-half inch of rain in a 24-hour period) within an approximately 200-acre area that accounts for the proposed project site. The 24-hour 85th percentile rainfall event is a regulatory basis for sizing and designing stormwater best management practices (BMPs) (i.e., recognized in the MS4 Permit for San Diego County), as further described below. This means that during any storm event that is less than or equal to a 24-hour 85th percentile rainfall event, the stormwater runoff amount associated with the proposed project area would not be discharged to a receiving water body (e.g., San Diego Bay). This represents a substantial improvement over existing conditions at the project site and in local receiving waters.

In addition to the City of San Diego, the U.S. Environmental Protection Agency (USEPA) submitted comments on the NOP, which included comments pertaining to water resources and water quality. The USEPA recommended that the Draft EIR identify all possible efforts to avoid and minimize impacts to any water resources and floodplains in the project area, as well as associated habitat. Copies of the NOP comment letters from the City of San Diego and the USEPA are provided in Appendix R-A.

[1] The 85th percentile rainfall event is the event whose precipitation total is greater than or equal to 85 percent of all 24-hour storms on an annual basis. The 85th percentile 24-hour storm measure is based on local precipitation data within the watershed and differs geographically.

3.10.2 General Approach and Methodology

The following hydrology and water quality evaluation relies in part on previous evaluations and reports reflected in the 2008 EIR for the SDIA Airport Master Plan,[2] which provides airport-wide information on hydrology and water quality, and on the following documents:

- The 2015 SDIA Storm Water Management Plan (SWMP) as updated and amended;[3]
- The 2016 San Diego Bay Watershed Management Area Water Quality Improvement Plan – Final Deliverable: Water Quality Improvement Plan as updated and amended, including the associated Annual Reports;[4]
- The 2016 SDIA Water Stewardship Plan;[5]
- The 2017 SDIA Phase II Strategic Stormwater Master Plan;[6] and
- The 2018 Strategic Stormwater Master Plan, Capture and Reuse Project which includes the proposed project improvements.[7]

The hydrology and water quality analysis outlines the current site conditions and how the improvements are designed and operated to meet water quality permitting requirements.

Potential floodplain impacts were evaluated by comparing the location of proposed project elements with floodplain mapping prepared by the Federal Emergency Management Agency (FEMA).

3.10.3 Regulatory Framework

3.10.3.1 Federal

The Clean Water Act

The 1972 Federal Water Pollution Control Act (also known as the Clean Water Act [CWA]) is the principal statute that governs water quality in the United States; it provides the legal framework to several state and local regulations. The statute employs a variety of regulatory and non-regulatory

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[2] San Diego Regional Airport Authority. San Diego International Airport Master Plan Final Environmental Impact Report. SCRRAA #EIR-06-01, State Clearinghouse No. 2005091105. April 2008.

[3] San Diego County Regional Airport Authority. SAN Storm Water Management Plan. June 2015, Amended January 2019. The SWMP is updated regularly as needed to reflect changing conditions and permit requirements. See https://www.san.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=12857&Command=Core_Download&language=en-US&PortalId=0&TabId=183.

[4] San Diego Bay Responsible Parties. San Diego Bay Watershed Management Area Water Quality Improvement Plan – Final Deliverable: Water Quality Improvement Plan. February 2016. The Plan is updated through Annual Reports. See http://www.projectcleanwater.org/san-diego-bay-water-quality-improvement-plan/ for both the plan and annual reports.

[5] San Diego County Regional Airport Authority. Water Stewardship Plan-San Diego International Airport-Protecting Our Water Resources. Prepared by Haley & Aldrich, Inc. May 2016. Available: http://san.org/Portals/0/Documents/Environmental/2016_0509_Water%20Stewardship%20Plan%20Document_F2.pdf.

[6] San Diego County Regional Airport Authority. Phase II Strategic Stormwater Master Plan-San Diego International Airport. Prepared by Michael Baker International. July 2017.

[7] San Diego County Regional Airport Authority. Strategic Stormwater Master Plan, Capture and Reuse Project. Prepared by AECOM. August 2018.

tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The nationwide implementation of the CWA is the responsibility of the USEPA, in conjunction with state and regional water boards that help implement and enforce the CWA at the state and local levels.

Section 402 of the CWA, National Pollutant Discharge Elimination System (NPDES) Program

The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES Program. The CWA makes it illegal to discharge pollutants from a point-source to Waters of the United States. Section 402 of the CWA creates the NPDES regulatory program. To comply with Section 402(p) of the CWA, the USEPA developed a NPDES stormwater program to address stormwater discharges from industrial sources and municipalities, including discharges from large and medium MS4s. MS4s are described as storm drain systems and include streets, gutters, conduits, natural or artificial drains, channels and water courses, or other facilities that are owned, operated, maintained, or controlled by permittees (cities, counties, military facilities, school campuses, and others) for the purpose of collecting, storing, transporting, or disposing stormwater. Provided below is a description of NPDES permit programs applicable to various types of stormwater discharges, including those permit programs specific to SDIA.

Construction-Related Discharges

In conjunction with Section 402 of the CWA, the USEPA specified five categories of industrial activities to be regulated under the NPDES program, including discharges of stormwater to Waters of the U.S. from construction projects that encompass one or more acres.[8] While federal regulations allow two permitting options for stormwater discharges (Individual Permits and General Permits), the California State Water Resources Control Board (SWRCB) chose to adopt only one statewide General Permit that applies to most stormwater discharges associated with construction activity. Under the state Construction General Permit, currently set forth through SWRCB Order No. 2009-0009-DWQ amended by 2010-0014-DWQ and 2012-0006-DWQ, NPDES Permit No. CAS000002, construction activity that results in soil disturbances of at least one acre must obtain coverage through compliance with the requirements of the Construction General Permit. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Compliance involves applying for coverage through a Notice of Intent (NOI) submitted to the SWRCB, along with other required information such as a site-specific Storm Water Pollution Prevention Plan (SWPPP) to minimize pollution from construction activities, and conducting periodic site inspections and reporting. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater, as well as non-stormwater discharges. Implementation of BMPs under the Construction General Permit must meet the

[8] Original threshold of five acres established in 1990 was lowered to one acre in 1999.

standard of best available technology economically achievable (BAT)[9] for toxic pollutants and non-conventional pollutants and best conventional pollutant control technology (BCT)[10] for conventional pollutants.

The Construction General Permit requires that stormwater discharges be sampled at construction sites based on the risk of impacts to receiving waters. There are 3 risk levels (Risk Level 1, Risk Level 2, and Risk Level 3). The project's overall risk is broken up into two elements – (1) project sediment risk (the relative amount of sediment that can be discharged, given the project and location details), and (2) receiving water risk (the risk sediment discharges pose to the receiving waters). The sediment risk associated with a construction site is generally related to average rainfall intensity at the site during the time of year the project will be under construction, the erodibility of exposed soils at the site, and the topography of the site. The receiving water risk is based on whether a project drains to a sediment-sensitive waterbody. A sediment-sensitive waterbody is either on the most recent 303(d) list for waterbodies impaired for sediment; has a USEPA-approved Total Maximum Daily Load implementation plan for sediment; or has the beneficial uses of COLD, SPAWN, and MIGRATORY (see the Section on Total Maximum Daily Load Designations below for additional information on the 303(d) list). Only Risk Levels 2 and 3 are required to collect stormwater discharge samples, although Risk Level 1 sites with a potential to discharge non-visible pollutants must also collect stormwater discharge samples.

Construction site storm discharge monitoring evaluates whether such discharges contain pollutants in excess of established thresholds for pH (measure of how acidic/basic water is) and turbidity. These thresholds are referred to as Numeric Action Levels (NALs). As stated in the Construction General Permit, NALs "are essentially numeric benchmark values for certain parameters that, if exceeded in effluent sampling, trigger the discharger to take actions. Exceedance of an NAL does not itself constitute a violation of the [Construction] General Permit. If the discharger fails to take the corrective action required by the [Construction] General Permit, though, that may constitute a violation." The primary purpose of NALs is to assist dischargers in evaluating the effectiveness of their on-site measures. The Construction General Permit goes on to say that "the discharger shall conduct a construction site and run-on evaluation to determine whether pollutant source(s) associated with the site's construction activity may have caused or contributed to the NAL exceedance and shall immediately implement corrective actions if they are needed."

Industrial Source Discharges

Since 1992, operations at SDIA have also been subject to NPDES Permit No. CAS000001, a statewide General Permit to Discharge Storm Water Associated with Industrial Activity (i.e., Industrial General Permit), established by SWRCB Water Quality Order No. 91-13-DWQ, subsequently

[9] As defined by the USEPA, BAT is a technology-based standard established by the CWA as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory. NPDES Permit No. CAS000002 (SWRCB Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ & 2012-0006-DWQ). Appendix 5, page 2.

[10] As defined by the USEPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease. NPDES Permit No. CAS000002 (SWRCB Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ & 2012-0006-DWQ). Appendix 5, page 2.

renewed as SWRCB Order No. 97-03-DWQ. Certain activities are defined as "industrial activities" subject to NPDES Permit No. CAS000001, and those defined activities include, among others, aircraft maintenance, cleaning, and deicing operations. Thus, certain activities at SDIA require coverage under the permit. The permit requires a Permittee to develop a SWPPP for the facility that identifies and evaluates sources of pollutants arising from industrial activities and that identifies and describes the BMPs implemented to reduce or prevent the discharge of those pollutants. As with the Construction General Permit, implementation of BMPs under the Industrial General Permit must meet the standard of BAT for toxic pollutants and non-conventional pollutants and BCT for conventional pollutants. Compliance with the requirements of the Industrial General Permit for operations at SDIA was previously the responsibility of the Port of San Diego, but transferred to the Authority in 2003 with the change in ownership of SDIA. In March of 2003, the Authority filed a NOI to comply with SWRCB Order No. 97-03-DWQ, and in August of 2003 prepared the SDIA SWMP to comply with the permit. CAS000001 was most recently renewed in 2014 by SWRCB Order No. 2014-0057-DWQ, which became effective on July 1, 2015. In 2015, the SDIA SWMP was updated to fulfill the SWPPP requirements of this permit.

The Industrial General Permit also requires that stormwater discharges be sampled from each drainage basin at the site in which industrial activities occurs to determine whether such discharges contain pollutants in excess of established thresholds. The sampling results must be compared with NALs of the permit to determine whether the limit has been exceeded for any applicable parameter (i.e., a specific pollutant, such as copper or chromium). As stated in the Industrial General Permit, these benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are levels that the SWRCB uses to determine whether stormwater discharges from any given facility merit further monitoring to ensure that the facility has been successful in implementing a SWPPP, or whether NAL exceedances have occurred and Exceedance Response Actions (ERAs) are required, as described below. As such, these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility.

All dischargers have Baseline status for all parameters at the beginning of a discharger's coverage under the Industrial General Permit. If a parameter exceeds a NAL at any one drainage basin, a discharger will move from Baseline to Level 1 status for that basin. There are two types of NAL exceedances. The first is the annual NAL exceedance, and the second is an instantaneous NAL exceedance. A parameter qualifies as having an annual NAL exceedance when the results from all storms at all sampling locations are averaged and this value exceeds the annual NAL concentration value set in the Industrial General Permit. A parameter qualifies as having an instantaneous NAL exceedance once a value exceeds the instantaneous NAL set in the Industrial General Permit two times or more throughout the monitoring season. A discharger may only have an instantaneous NAL exceedance for the following parameters: total suspended solids (TSS), oil and grease (O&G), and pH. If a parameter exceeds an NAL at a site, the discharger must then conduct an evaluation and submit a report describing changes in BMP implementation that will be conducted to reduce the concentration of that parameter.

Once a discharger is in Level 1 status for any parameter, a Level 1 Evaluation must be conducted and an ERA report must be written. Drafting a Level 1 ERA report requires the discharger to evaluate the potential source(s) of the parameter(s) that exceed the NAL, as well as the BMPs being

implemented to address the particular parameter(s), identify any additional BMPs that should be implemented to address the parameter(s), and make changes to the SWPPP as necessary. The discharger then collects stormwater runoff samples for the next 1-year period and again compares the results to the NALs. If all parameters are again below the NALs, the discharger returns to Baseline status. If the parameter(s) for which the discharger entered Level 1 are again above the NALs, the discharger enters Level 2 status.

Once a discharger is in Level 2 status for any parameter, a Level 2 ERA Action Plan must be developed by a professional meeting the qualifications outlined in the Industrial General Permit. The Level 2 ERA Plan identifies which of three types of demonstrations listed in the permit that the discharger has selected to perform. The plan must include a schedule and a detailed description of the tasks required to complete selected demonstration(s). Once the plan is implemented, the discharger's qualified professional must prepare a Level 2 ERA Technical Report detailing the results of plan implementation. Depending upon the type of demonstration(s) selected for implementation and the results of additional stormwater runoff sampling, the discharger may either return to Baseline status (if the results for all parameters are below the NALs) or remain at Level 2. Remaining at Level 2 may or may not require additional Level 2 ERA Plans, depending upon the nature and results of the demonstration selected for implementation.

Dischargers are in compliance with the Industrial General Permit provided they are developing and implementing Level 1 and Level 2 ERAs as necessary and appropriate for parameter(s) at the site which exceed the NALs.

Municipal Separate Storm Sewer Systems (MS4) Discharges

As noted above, the establishment of the NPDES program under the federal CWA includes regulation of stormwater discharges from MS4 systems owned/operated by municipal agencies and other public entities. MS4 Permit (i.e., Municipal Permit) coverage of SDIA was initially established through NPDES Permit No. CAS0108758, San Diego Regional Water Quality Control Board (RWQCB or Regional Board) Order No. 90-42. RWQCB Order 90-42 was renewed in 2001 by RWQCB Order No. 2001-01. Similar to the above discussion regarding the Industrial Permit, compliance with the requirements of the Municipal Permit for operations at SDIA was previously the responsibility of the Port of San Diego, but transferred to the Authority in 2003 with the change in ownership of SDIA. The Authority subsequently submitted the 2003 SDIA SWMP to document the planning required of the permit. NPDES Permit No. CAS0108758 was renewed again by RWQCB Order No. R9-2007-0001 in 2007, and specifically named the Authority as a Permittee, along with the 18 cities in San Diego County, the County of San Diego, and the Port of San Diego (collectively and individually referred to as the Copermittees and Copermittee, respectively). The Municipal NPDES permit was most recently reissued in 2013 by RWQCB Order No. R9-2013-0001 (NPDES Permit No. CAS0109266), as amended by RWQCB Order Nos. R9-2015-0001 and R9-2015-0100.[11] The Authority is again named as a Copermittee. In 2015, the Authority completed an update to the SDIA SWMP, which also served to fulfill the Jurisdictional Runoff Management

[11] The Regional MS4 Permit expired on June 27, 2018, but remains in effect under an administrative extension until it is reissued by the San Diego Water Board. The San Diego Water Board has begun the development of proposed changes to the Regional MS4 Permit. It is anticipated that the San Diego Water Board will adopt proposed changes to the Regional MS4 Permit in the summer of 2020.

Program (JRMP) requirements of the Municipal Permit for SDIA. Similar to the SWPPP required by the Construction General Permit and the Industrial General Permit, the JRMP outlines the sources of pollutants across the entire airport site that can impact the quality of stormwater discharges. The JRMP also describes the BMPs that are required for use in eliminating or reducing pollutants in stormwater discharges, as well as non-stormwater discharges, resulting from operation of the Airport. In contrast to the Construction General Permit and Industrial General Permit, however, implementation of BMPs must meet the standard of maximum extent practicable (MEP).[12]

The 2013 MS4 Permit established a new, watershed-based approach by which the Copermittees jointly develop and implement a Water Quality Improvement Plan (WQIP) for each of the 10 WMAs identified in the permit, including the San Diego Bay WMA. The WQIP is designed to identify the highest and focused priority water quality conditions in each WMA and specify numeric goals, strategies, and schedules to: (1) achieve water quality standards in receiving waters; (2) protect receiving waters and associated habitats from MS4 discharges; and (3) support beneficial uses in receiving waters. The Authority is one of 10 Responsible Copermittees in the San Diego Bay WMA. The WQIPs focus management efforts on priority water quality conditions in the respective WMAs, while at the same time continuing to implement their JRMPs.

The 2013 MS4 Permit also allows proponents of projects subject to the new development and redevelopment requirements to satisfy specific on-site post-construction structural BMP performance standards by participating in an off-site (that is, off the site being developed)

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[12] MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their runoff management programs. Their total collective and individual activities conducted pursuant to the runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the San Diego RWQCB, the San Diego RWQCB defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

"To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

a. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?

b. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?

c. Public Acceptance: Does the BMP have public support?

d. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?

e. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc.?

The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented." NPDES Permit No. CAS0109266 (RWQCB Order No. R9-2013-0001, as amended by RWQCB Order Nos. R9-2015-0001 and R9-2015-0100). Appendix C, page C-6.

alternative compliance program, provided such a program has been established by the relevant Copermittee having jurisdiction. The Copermittees prepared, and the San Diego RWQCB approved, a Water Quality Equivalency Guidance[13] (WQEG) document that establishes the mechanisms to correlate quantifiable benefits from an off-site alternative compliance project with the actual project impacts. This enables a project proponent to demonstrate that an alternative compliance project provides a greater overall water quality benefit than complying with the on-site stormwater pollutant control requirements set forth in the Permit.

The MS4 Permit also allows the Copermittees to individually or collectively develop and implement alternative compliance programs that establish "credit system(s)." Such a "credit system" allows for the banking, tracking, trading, and selling of water quality credits and debits between owners or responsible parties. Moreover, the MS4 Permit allows and the WQEG defines an "applicant-implemented alternative compliance project," wherein the alternative compliance project is owned by the same party that is constructing a new development or redevelopment project. The "credits" that can be generated by one project (wherein the water quality benefits exceed the project impact) can be applied to offset the impacts of another project being developed by the same owner. Any Copermittee intending to implement an alternative compliance program, must first obtain the approval of the Executive Officer of the San Diego RWQCB.

SDIA Storm Water Management Plan (SWMP)

As described above, the SDCRAA, as the owner and operator of SDIA, is subject to the requirements of the following two NPDES stormwater permits:

- SWRCB Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit).
- San Diego RWQCB Order No. R9-2013-0001, as amended by RWQCB Order Nos. R9-2015-0001 and R9-2015-0100, NPDES Permit No. CAS0109266, NPDES Permit and Waste Discharge Requirements for Discharges from the MS4s Draining the Watersheds Within the San Diego Region (Municipal Permit).

The Authority prepared, and subsequently updated, the SDIA SWMP to serve as the SWPPP for meeting the applicable requirements of the Industrial General Permit, as well as the JRMP for meeting the applicable requirements of the Municipal Permit. The SDIA SWMP complies with the Industrial General Permit requirements of a SWPPP by describing potential pollutant sources, the BMPs implemented to address them, and other Industrial General Permit requirements. It addresses the Municipal Permit requirements of the JRMP document by serving as an informational document that provides a written account of the overall program to be conducted by the Authority to comply with the Municipal Permit.

The various sections of the SDIA SWMP, and the permit requirements that they address, are summarized below. The organization of the sections in the SDIA SWMP is based on a standardized

[13] County of San Diego (on behalf of the San Diego Regional Copermittees), Watershed Protection Program, Final Water Quality Equivalency Guidance Document - Region 9, December 2015, Available: http://www.projectcleanwater.org/images/stories/Docs/WQE/Final%20Water%20Quality%20Equivalency%20Guidance%20for%20Region%209%20-%20December%202015.pdf?1361c1&1361c1.

format developed and agreed upon by the Stormwater San Diego Region MS4 Permit Copermittees (comprised of 18 cities, including the City of San Diego, the County of San Diego, the Port of San Diego, and the SDCRAA), and stormwater management approaches that have been developed as guidance by the Copermittees, the County of San Diego's Project Clean Water, and the USEPA. However, compared with the other Copermittees and MS4 communities, the Authority is unique in that it has no residential uses and controls all of the land under its jurisdiction; therefore, the SDIA SWMP is different with respect to organization and approach. It has also been adapted to reflect reorganization under the 2013 Municipal Permit, and has been updated to incorporate strategies from the WQIP for the San Diego Bay WMA, developed under Provision B of the MS4 Permit.

The SDIA SWMP, which is incorporated by reference into this SDIA ADP EIR, includes the following elements:

- Executive Summary – In response to the reporting requirements of the Municipal Permit, the SWMP contains an Executive Summary, which clearly and concisely describes the purpose and major elements of the SWMP.
- Signed Certified Statement – The SWMP contains a signed certified statement that addresses the certification requirements of the Industrial General Permit and Municipal Permit.
- Introduction, Section 1.0 – This section briefly describes the Authority and its environmental setting, and provides regional and general vicinity maps and the Authority's legislative background. The section also outlines the component of this SWMP and describes the stormwater drainage system at SDIA.
- Administrative and Legal Procedures, Section 2.0 – This section identifies the departments and staff that conduct urban runoff management activities. The purpose of this section is also to identify and describe relevant legal authorities and enforcement tools.
- Non-Storm Water Discharges/Illicit Discharge Detection and Determination, Section 3.0 – This section addresses Provision E.2 of the Municipal Permit and Section III of the Industrial General Permit, including identifying all potential authorized and unauthorized non-stormwater discharges, BMPs in place to control or eliminate those discharges, reporting of illicit discharges, spill response and prevention measures, dry weather monitoring, and inspection and enforcement.
- Development Component, Section 4.0 – This section addresses the Development Planning Component for New Development and Redevelopment requirements in Provision E.3 of the Municipal Permit. It discusses the Authority's development and environmental review processes and the requirements for the incorporation of post-construction stormwater treatment controls and BMPs into those processes, and enforcement procedures.
- Construction Component, Section 5.0 – This section addresses the Construction Component requirements in Provision E.4 of the Municipal Permit, including the description of approval processes, inventory and prioritization of construction activities, implementation of construction BMPs, and inspection and enforcement.

- Municipal and Commercial Component, Section 6.0 – This section addresses the requirements of the municipal and commercial components in Provision E.5 of the Municipal Permit, including an inventory and prioritization of municipal and commercial activities and areas, characterization of potential pollutant sources from these activities and areas, implementation of BMPs, and inspection and enforcement.
- Industrial Component, Section 7.0 – This section addresses the requirements of the Industrial Components in Provision E.5 of the Municipal Permit and Sections X.D.1, X.D.2, X.F, X.G.1, X.G.2, and X.H.1 through 4 of the Industrial General Permit, including the pollution prevention team, an inventory and prioritization of industrial activities and areas, characterization of potential pollutant sources from these activities and areas, authorized and unauthorized non-stormwater discharges, implementation of BMPs, ERAs, and inspection and enforcement.
- Residential Component, Section 8.0 – There are no residential land uses or activity areas within the Authority's jurisdiction. For this reason, the SWMP contains no discussion of activities conducted by the Authority relative to the Residential Component of the Municipal Permit.
- Public Participation and Education Component, Section 9.0 – This section addresses the training requirements of the Industrial General Permit and the requirements in Provision E.7 of the Municipal Permit. It discusses education for Authority staff, airport tenants, and the public, as well as mechanisms for the public to participate in the implementation of the Authority's SWMP.
- Fiscal Analysis Component, Section 10.0 – This section addresses the requirements of Provision E.8 of the Municipal Permit, including methods to secure funds for stormwater programs, the strategy for developing a Fiscal Analysis, and annual reporting.
- Effectiveness Assessment Component, Section 11.0 – As required by the Municipal Permit, this section discusses a strategy to assess the effectiveness of the Authority's SWMP through water quality assessments, various levels of program assessment, and program review and modification. It also includes assessments of monitoring results required to fulfill the requirements in Section XII of the Industrial General Permit.
- Reporting, Section 12.0 – This section outlines reporting required by the Municipal Permit, including JRMP and WQIP annual reports and updates, and the Industrial General Permit, including Annual and ERA reports.
- Modifications to the SWMP, Section 13.0 – This section provides the modifications made to the previous SWMP to meet the requirements of the new Municipal Permit and the new Industrial General Permit.
- Conclusions and Recommendations, Section 14.0 – This section is included in response to Municipal Permit Attachment B requirements.
- References, Section 15.0 – This section provides a list of documents referred to during the preparation of the SWMP.

- Appendices – The appendices to the SWMP contain supporting information such as Authority regulations, detailed BMP information, the Authority's BMP Design Manual (which replaced the Standard Urban Stormwater Mitigation Plan (SUSMP) in 2016), and monitoring programs. Of specific relevance to permit requirements, Appendix C includes the BMP Design Manual, which outlines the requirements and processes for documenting post-construction stormwater BMPs applicable to new development and redevelopment. Appendix D (Monitoring Programs) addresses the stormwater discharge Monitoring Program requirements of Section X.I of the Industrial General Permit and the dry and wet weather monitoring requirements of the Municipal Permit.

BMP Design Manual

The 2013 MS4 Permit updated and expanded stormwater requirements for control of post-construction urban runoff pollution from new developments and redevelopment projects. The Copermittees were required to prepare a Model BMP Design Manual to replace the Countywide Model SUSMP, dated March 25, 2011, which was based on the requirements of the 2007 MS4 Permit. Each Copermittee was required to update their own jurisdictional BMP Design Manual with jurisdiction-specific information. The BMP Design Manual guides a project proponent through the selection, design, and incorporation of stormwater BMPs or stormwater treatment control/management facilities that must be implemented to obtain approval of project plans. As noted above, the Authority's BMP Design Manual is included as Appendix C of the SDIA SWMP.

The requirements of the MS4 Permit, and the Authority's BMP Design Manual, dictate a hierarchical approach to designing and implementing post-construction stormwater treatment controls from the project site. The approach requires that 100 percent of the pollutants contained in the volume of stormwater runoff produced from a 24-hour 85th percentile storm event be retained on-site. It should be noted that the 24-hour 85th percentile storm event design standard is intended to focus on the majority of storm events that occur within an area, with a particular emphasis on initial storm in the rainy season that produce what is known as the "first flush." As indicated in the MS4 Permit for San Diego County, the "first flush" of a rainy season and the first storm events after long dry periods tend to have the highest pollutant loads. Capturing and retaining "first flush" pollutant loads reduces a significant portion of the pollutants in stormwater discharged. Use of the 24-hour 85th percentile rainfall event as a BMP design standard recognizes that smaller storm events are more treatable than large storm events and that large storm events have higher dilution factors. On-site pollutant retention should be accomplished using stormwater capture and reuse or infiltration. These methods must be found technically infeasible before considering biofiltration and other flow-through stormwater treatment controls.

There are several provisions of the Authority's BMP Design Manual that are jurisdiction-specific. For example, the hydromodification management requirements do not apply to SDIA because the entirety of the Authority's jurisdiction discharges to San Diego Bay through storm drains (as opposed to natural creeks or channels), and therefore, meets the MS4 Permit exemption for hydromodification requirements. Additionally, in regard to infiltration to groundwater, the Model BMP Design Manual notes that requirements relative to the depth to groundwater can be reduced at the discretion of the approval agency if the underlying groundwater basin does not support beneficial uses and the groundwater quality is maintained. The Authority's BMP Design Manual states that groundwater at SDIA does not support beneficial uses (as identified in the Water Quality

Control Plan for the San Diego Basin, 1994/1995 as amended[14] and described further in Section 3.10.3.2 below) and that, as a result, the Authority may approve infiltration BMPs, where the vertical distance from the base of the infiltration BMP to the seasonal high groundwater mark is less than 10 feet, provided groundwater quality is maintained.

Finally, the Authority's BMP Design Manual provides information on a framework for the alternative compliance program that might be applicable to the post-construction stormwater treatment controls of development and redevelopment projects.

Alternative Compliance Program for Development / Water Quality Credit System

As noted above, the 2013 MS4 Permit allows the Authority to request San Diego RWQCB approval to implement an alternative compliance program for development and redevelopment projects to meet the post-construction stormwater runoff treatment control requirements outlined in the BMP Design Manual. Such an alternative compliance program could create a "credit system" which allows for the banking, tracking, trading, and selling of water quality credits and debits between development project owners or responsible parties.

In March 2019, the Authority requested that San Diego RWQCB approve an "applicant-implemented alternative compliance program," wherein the only alternative compliance projects in the program are those owned by the Authority. As such, the "credits" that can be generated by one Authority project can be applied to offset the impacts of another Authority project. The alternative compliance program document submitted to the San Diego RWQCB outlines the methods that the Authority will use to bank, track, and trade water quality credits for development projects within the Authority jurisdiction. Based on feedback from San Diego RWQCB staff, the Authority expects the San Diego RWQCB to approve the proposed alternative compliance program by the end of 2019, since the water quality credits are calculated per the San Diego RWQCB-approved 2015 WQEG document for Region 9.

San Diego Bay Watershed Management Area Water Quality Improvement Plan (WQIP)

As noted above, the MS4 Permit established requirements for a new, watershed-based approach to implementing stormwater management programs and the development of WQIPs for the 10 WMAs in the region, including the San Diego Bay WMA. In addition to on-going jurisdictional program implementation, the Copermittees draining into San Diego Bay are required to focus on priority water quality conditions affecting the Bay (see the 2016 San Diego Bay Watershed Management Area WQIP[15]). The Authority has chosen reduction in the concentrations of copper and zinc in wet weather stormwater discharges as its Focused Priority Water Quality Condition, because copper and zinc continue to be the primary pollutants of concern (POCs).[16] The San Diego Bay WQIP lists the goals, schedules, and strategies to be implemented by the Authority throughout the Airport to address this condition.

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[14] California Regional Water Quality Control Board San Diego Region. Water Quality Control Plan for the San Diego Basin. September 8, 1994 as amended. Available: https://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/.

[15] San Diego Bay Responsible Parties. San Diego Bay Watershed Management Area Water Quality Improvement Plan – Final Deliverable: Water Quality Improvement Plan. February 2016. Available: http://www.projectcleanwater.org/san-diego-bay-water-quality-improvement-plan/.

[16] See discussion in Section 3.10.4.5 Water Quality.

Strategies listed in the WQIP intended to help the Authority meet the water quality goals for copper and zinc in wet weather discharges at the Airport, and which are currently being implemented, include the following:

- Increasing areas swept, especially in runway and taxiway areas, and optimizing sweeping locations and frequencies;
- Optimizing catch basin cleaning and inlet protection;
- Identifying and targeting high-priority pollutant-generating areas for enhanced inspections, and BMP implementation and enforcement;
- Continuing to implement green infrastructure and treatment control BMPs, where feasible; and
- Continuing public education and training efforts.

The MS4 Permit and WQIP establish an adaptive management process and identify optional strategies for meeting the WQIP goals. A partial list of the optional strategies identified by the Authority includes:

- Phasing in "advanced BMPs" as defined in the Industrial General Permit;
- Implement pollutant source reduction initiatives as technologies become available;
- Investigate and research emerging BMP technologies; and
- Reduce stormwater runoff volume with capture and reuse.

As required by the MS4 Permit, the San Diego Bay WQIP also lists schedules for meeting both interim and final goals for this Focused Priority Condition. The interim goals for the Authority are based on the stormwater NALs in the Industrial General Permit and the final goals are based on the California Toxic Rule criteria for copper and zinc. The interim goals are expressed as the percentage of wet weather discharge samples with concentrations of copper and zinc that exceed the NALs for those contaminants (33.2 micrograms per liter [µg/L] for copper and 260 µg/L for zinc). The final goals are expressed as the percentage of wet weather discharge samples with concentrations of contaminants that exceed the California Toxic Rule values for copper and zinc in saltwater (4.8 µg/L and 90 µg/L, respectively).

The San Diego Bay WQIP lists 3 time periods during which progress towards interim goals is to be assessed, namely, the fiscal years 2013-2017 time period, the fiscal years 2016-2020 time period, and the fiscal years 2021-2025 time period. The assessment of progress toward the final goal for the Authority's Focused Priority Condition related to copper and zinc is conducted during the fiscal years 2026-2030 time period. The interim numeric goals for the for the fiscal years time period of 2016-2020 was targeted for fiscal year 2017-2018, which has already passed. As such, the Authority is now targeting the interim goals for the 2021-2025 which are paraphrased as follows:

- No more than 20 percent of wet weather stormwater samples will contain concentrations of dissolved copper above the NAL of 33.2 µg/l; and

- No more than 25 percent of wet weather stormwater samples will contain concentrations of dissolved zinc above the NAL of 260 µg/l.

Total Maximum Daily Load Designation

The Total Maximum Daily Load (TMDL) program, established under Section 303(d) of the CWA, identifies and attempts to restore waters that do not meet water quality standards, even though the discharges received may be in compliance with existing pollution controls. The TMDL is the maximum amount of pollutants that a waterbody can accept and still meet water quality standards. Federal regulations require that development of the TMDL consider contributions from point sources (federally permitted discharges) and nonpoint sources. TMDLs are established at the level necessary to implement the applicable water quality standards. Point sources are defined in the CWA, Section 502. Nonpoint sources are not defined in the statute, but are considered to be any source that is not covered under the point source definition. A typical example of a nonpoint source is stormwater. The USEPA has established regulations requiring that NPDES permits be revised to be consistent with any approved TMDL. Under CWA section 303(d), states are required to submit to USEPA a list identifying waters within its boundaries not meeting water quality standards (impaired waters) and the water quality parameter (i.e., pollutant) not being met (referred to as the 303(d) List[17]). States are also required to include a priority ranking of such waters, taking into account the severity of the pollution and the impacted beneficial uses, for the development of TMDLs. As discussed further in Section 3.10.4.5.2 below, San Diego Bay is currently listed under Section 303(d) as "impaired" for impacts due to mercury, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). In addition, portions of San Diego Bay into which stormwater from SDIA discharges are listed under CWA Section 303(d) as "impaired" for impacts due to copper, sediment toxicity, and benthic community effects.

Floodplain Management

Executive Order 11988, Floodplains Management, directs federal agencies to take actions to "reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains." U.S. Department of Transportation's (USDOT's) policies and procedures for implementing this Executive Order, as would pertain to the Federal Aviation Administration's (FAA's) involvement in the proposed project, are contained in USDOT Order 5650.2, Floodplain Management and Protection. The Executive Order and the USDOT order establish a policy to avoid taking an action within a 100-year floodplain, where practicable ("capable of being done within natural, social, and economic constraints"). In accordance with USDOT Order 5650.2 and FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions, every effort must be made to minimize the potential risks to human safety and property damage, and to avoid notable adverse impacts on natural and beneficial floodplain values associated with development within floodplains.

According to USDOT Order 5650.2, if a proposed action is within the limits of a base floodplain, this is considered to be a floodplain encroachment. The USDOT order distinguishes between

[17] California State Water Resources Control Board. 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report). 2018. Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml.

"encroachment" and "significant encroachment." As defined by USDOT Order 5650.2, a significant floodplain encroachment would occur if a proposed action would likely result in one or more of the following conditions:

- A considerable probability of loss of human life.
- Likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility.
- A notable adverse impact on natural and beneficial floodplain values.

USDOT Order 5650.2 defines the natural and beneficial values served by floodplains as "natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry."

3.10.3.2 State

Porter-Cologne Water Quality Control Act

Division 7 of the California Water Code, also known as the Porter-Cologne Water Quality Control Act, contains provisions that cover water quality protection and management for Waters of the State. The Porter-Cologne Water Quality Control Act applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources of pollution. Provisions contained in the act implement the NPDES program, dredge and fill programs, and civil and administrative penalties.

The Porter-Cologne Water Quality Control Act establishes the SWRCB and the nine RWQCBs as the principal state agencies responsible for the protection and, where possible, the enhancement of water quality. The SWRCB sets statewide policy and, together with the RWQCBs, implements state and federal laws and regulations pertaining to water quality. Each RWQCB is required to prepare and periodically update a Water Quality Control Plan (Basin Plan)[18] that identifies existing and potential beneficial uses for specific water bodies. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic basis for water quality regulation in each region. All discretionary projects requiring permits from the RWQCB (i.e., waste discharge requirements and NPDES permits) must implement Basin Plan requirements (i.e., water quality standards), taking into consideration the beneficial uses of state waters to be protected.

Beneficial uses of surface water and groundwater have been established for each body of water within the San Diego County region. According to the Basin Plan for San Diego, beneficial uses are defined as the uses of water necessary for the survival or well-being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals of mankind and include drinking, swimming, industrial, and agricultural water supply, as well as the support of fresh and saline aquatic habitats.

Beneficial uses have been designated for specific coastal bodies of water, inland surface waters, and groundwaters. There are no inland surface bodies of water located on SDIA property;

[18] California Regional Water Quality Control Board San Diego Region. Water Quality Control Plan for the San Diego Basin. September 8, 1994 as amended. Available: https://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/.

therefore, contaminated discharges or runoff would not directly degrade or adversely affect beneficial uses of an on-site receiving water. The closest identified inland surface water is the stream referred to as Powerhouse Canyon (also known locally as "Florida Canyon") located in Balboa Park, more than one (1) mile northeast of the project site. Powerhouse Canyon does not drain onto SDIA, nor does SDIA drain into Powerhouse Canyon.

The waters to which stormwater from the Airport discharges are the coastal waters of the San Diego Bay and groundwater of the San Diego Mesa Hydrologic Area. The designated "existing beneficial uses" of the coastal waters of San Diego Bay are:

- Industrial Service Supply (IND) comprises 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, and oil well repressurization.
- 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.
- Noncontact Water Recreation (REC-2) includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water so that ingestion of water is not reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beach combing, camping, boating, tide pool and marine-life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- Wildlife Habitat (WILD) comprises the uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- Commercial and Sport Fishing (COMM) comprises the uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
- Estuarine Habitat (EST) comprises uses of water 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) comprises uses of water 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).
- Spawning, Reproduction, and/or Early Development (SPWN) is assigned in the San Diego Region for uses of water that support high quality habitats suitable for reproduction, early development, and sustenance of marine fish (i.e., used in conjunction with the marine [MAR] designation).

- 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.
- 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 (migrating from salt water to spawn in fresh water) fish.
- 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.
- Preservation of Biological Habitats of Special Significance (BIOL) includes uses of water that support designated areas of habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance where the preservation or enhancement of natural resources requires special protection.
- Navigation (NAV) includes uses of water for shipping, travel, or other transportation by private, commercial, or military vessels.

Groundwater underlying SDIA and the Liberty Station mixed-use development (the former Naval Training Center) to the west is not used for drinking, irrigation, or industrial supply purposes. This is largely because the groundwater is of poor quality due to its high salinity, a condition resulting from the site's close proximity to San Diego Bay. No existing or potential beneficial uses for groundwater are designated for the San Diego Mesa Hydrologic Area. According to the Basin Plan, groundwater within the San Diego Mesa Hydrologic Area has been exempted by the San Diego RWQCB from the municipal use designation under the terms and conditions of State Board Resolution No. 88-63, "Sources of Drinking Water Policy."

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), adopted in 2014, provides a framework for regulating groundwater in California. The intent of the law is to strengthen local groundwater management of basins most critical to the state's water needs. SGMA requires basins to be sustainably managed by local public agencies (e.g., counties, cities, and water agencies) who become groundwater sustainability agencies (GSAs). The primary purpose of the GSAs is to develop and implement a Groundwater Sustainability Plan for basins designated as high and medium priority to achieve long-term groundwater sustainability. The state's SGMA Basin Prioritization Map identifies SDIA as being located in the Mission Valley Basin, which is characterized as having very low priority.[19] Therefore, development of a groundwater sustainability plan for the basin underlying SDIA is not required under the SGMA.

[19] California Department of Water Resources. SGMA Basin Priority Dashboard. Phase 2 (Draft). April 30, 2019. Available: https://gis.water.ca.gov/app/bp-dashboard/p2/.

Coastal Zone Management Act

In 1990, the United States Congress amended the Coastal Zone Management Act by adding the Coastal Zone Act Reauthorization Amendments (CZARA). Section 6217 of CZARA established the Coastal Nonpoint Pollution Control Program, which requires EPA to develop and implement BMPs to control nonpoint source pollution in coastal water. The definition of coastal waters in California was expanded to include the entire state. Pursuant to Section 6217(g) of CZARA, six major categories of nonpoint sources addressed by CZARA include agriculture, forestry, urban areas, marinas, hydromodification projects, and wetlands. In summary, while the NPDES permitting program essentially regulates stormwater and urban runoff, virtually all other nonpoint sources of coastal water pollution are subject to the Coastal Nonpoint Pollution Control Program under CZARA.

As further described in Section 3.11, Land Use and Planning, the delineation of the coastal zone within California is set forth through the California Coastal Act,[20] which was passed by the State legislature in 1976 and became effective January 1, 1977. Section 30231 of the California Coastal Act recognizes the importance of water quality within coastal areas, indicating that "*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams*."

3.10.3.3 Local

The City of San Diego Storm Water Standards

The City of San Diego is required by the Municipal Permit to develop and implement stormwater pollution controls for public and private development projects within the jurisdiction of the City in the form of structural and non-structural BMPs designed to reduce pollutants discharged from a project site, to the extent practicable (see discussion of Municipal Separate Storm Sewer Systems (MS4) Discharges in Section 3.10.3.1 above). Accordingly, the City has developed Storm Water Standards[21] comprised of the following three manuals, which identify the considerations and requirements for controlling discharges of pollutants in stormwater associated with construction and permanent phases of development projects:

- Part 1: BMP Design Manual for Permanent Site Design, Storm Water Treatment, and Hydromodification Management – complies with the Municipal Permit regulating postconstruction stormwater discharges on-site.

[20] Public Resources Code, Section 30000, et. seq.

[21] City of San Diego. Storm Water Standards. October 1, 2018. Available: https://www.sandiego.gov/sites/default/files/storm_water_standards_manual_oct_2018.pdf.

- Part 2: Construction BMP Standards – complies with the Municipal Permit and the Construction General Permit regulating construction-phase stormwater discharges.
- Part 3: Offsite Storm Water Alternative Compliance Program for Water Quality and Hydromodification Control – complies with the Municipal Permit regulating post-construction stormwater discharges offsite.

Although SDIA is not within the jurisdiction of the City of San Diego's Storm Water Standards, a portion of the stormwater enters storm drains and outfalls under the City's jurisdiction that are subject to the City's storm water standards. The storm drains under SDCRAA's jurisdiction are subject to the SDIA's storm water standards (see Section 3.10.3.3 above), which are similar to and consistent with the City's standards, as both are derived from each jurisdiction's requirements for compliance with the Municipal Permit.

3.10.4 Environmental Setting

This section describes the existing hydrology and water quality conditions at SDIA and the vicinity. These conditions include a description of the local topography, regional hydrologic units, groundwater, surface water conditions, water quality characteristics, and floodplains.

3.10.4.1 Topography

SDIA is generally flat, with local minor elevation variations due to landscaping. Ground surface elevations across the area range from approximately 10 to 20 feet above mean sea level (msl).

3.10.4.2 Hydrologic Units

The project area is situated within the Pueblo San Diego Hydrologic Unit listed in the San Diego Basin Plan. Data from Lindbergh Field, the San Diego Airport (WSO COOP ID #047740) for the period between 1914 to 2012 shows the mean annual rainfall was 10.13 inches, the maximum annual rainfall was 24.93 inches in 1941, and the minimum annual rainfall was 3.41 inches in 1953.

3.10.4.3 Groundwater

Depths to groundwater range from approximately 7 to 12 feet below ground surface. Flow rate is low due to flat topography and low permeability. Recharge of the groundwater is limited since most of the land surface at SDIA is paved or semi-paved and, therefore, impervious. Groundwater flow is southward toward San Diego Bay.

The general hydrologic regime includes: freshwater underflow from the regional groundwater system toward San Diego Bay; freshwater recharge from water and wastewater distribution, collection, and transmission lines; saline water encroachment from the ocean, and potentially from the larger, deeper storm drains; and brackish to saline native groundwater beneath the artificial fill. The San Diego Formation in the area south of SDIA is the principal aquifer that provides groundwater recharge. Because of SDIA's proximity to San Diego Bay, diurnal changes in sea level caused by lunar tides cause concurrent changes in the level of groundwater elevations in the near-shore groundwater.

3.10.4.4 Surface Water

Surface water in the vicinity of SDIA is dominated by San Diego Bay to the south and a leg of the Bay called the Navy Boat Channel or former Naval Training Center Boat Channel or "the boat channel," which runs north-south along the western boundary of the Airport. Drainage typically flows in a southerly direction toward San Diego Bay and a southwesterly direction toward the boat channel. The largest body of fresh water in proximity to SDIA is the San Diego River approximately one mile to the north, which flows in an east-west direction and drains into the Pacific Ocean.

San Diego Bay is the largest marine and bay estuary in Southern California. Depths range from 20 feet at narrow areas to 40 feet in the northern portion, with an average depth of 15 feet. As a working harbor, San Diego Bay includes recreational boating areas and commercial docks. The boat channel formerly was a portion of the San Diego River Channel, which was diverted to its present location in the 1800s. The boat channel measures approximately 4,922 feet long by 558 feet wide with an average depth of 15 feet. As a result of shoaling (i.e., sediment accumulation/deposition), the boat channel entrance to San Diego Bay may be shallow.

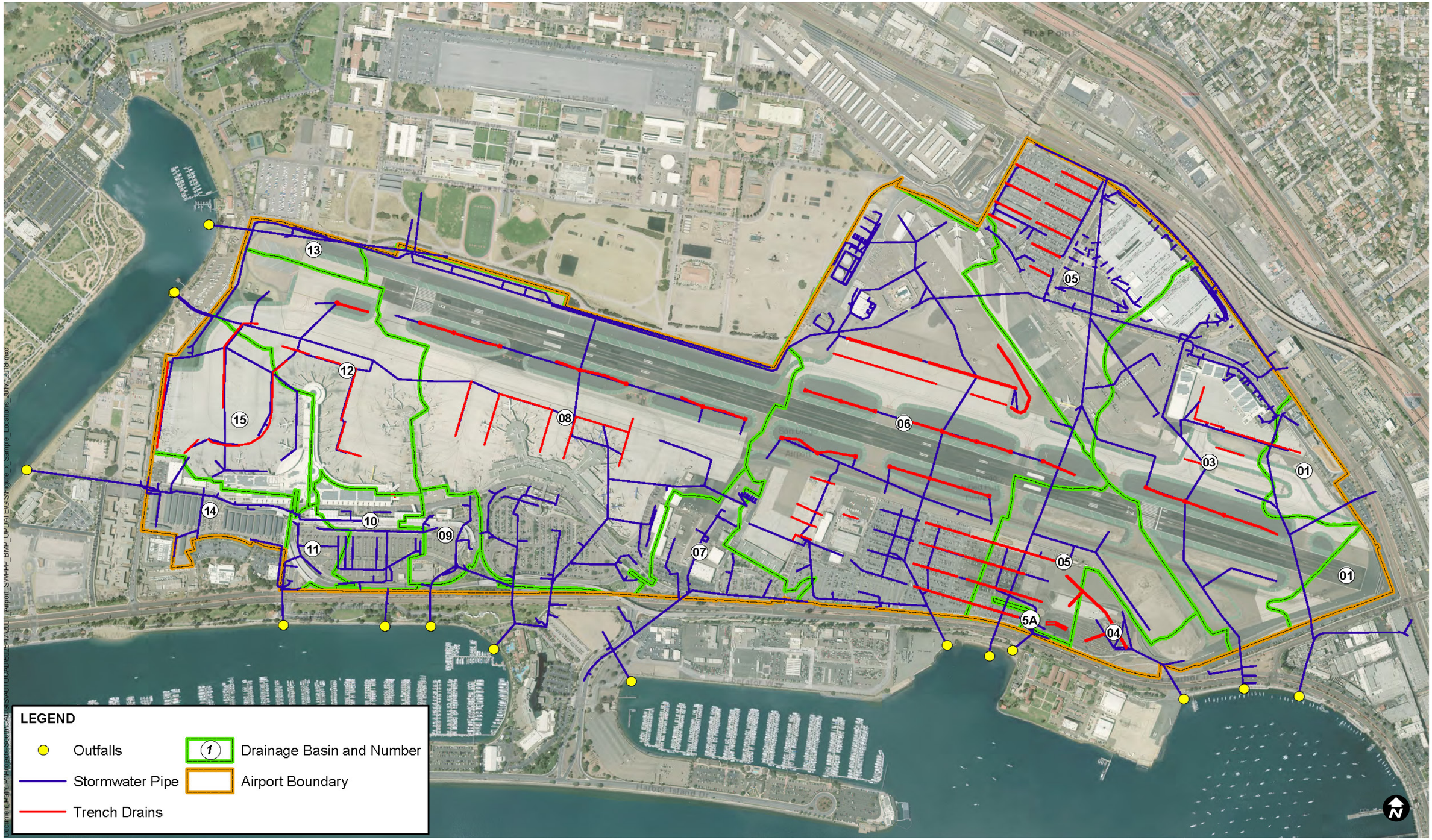
Approximately 90 percent of Airport property is considered impervious area as the surface is covered by buildings and paved surfaces. As noted above, surface runoff at SDIA flows primarily towards the south, to San Diego Bay, and the west-southwest, to the boat channel. Figure 3.10-1 delineates the overall existing stormwater management system at SDIA, including the general locations of existing storm drain lines, flow directions, and outfalls, as well as existing structural BMPs.

Currently the airport discharges its stormwater runoff into the San Diego Bay via sheet flow into gutters and drainage outfalls located around the perimeter of the airport property. Flow in the majority of the storm drain system is intermittent and dependent on the amount of rainfall and subsequent runoff. The Airport currently has 15 outfalls, only two of which discharge stormwater exclusively from the airport and are owned by the Authority; the remaining 13 outfalls discharge runoff that commingles with runoff from other jurisdictions, who also own those outfalls.

3.10.4.5 Water Quality

Pollutants typically found in SDIA runoff include sediment, nutrients (e.g., fertilizers), oxygen-demanding substances (e.g., decaying vegetation), bacteria (including coliform bacteria), heavy metals (aluminum, cadmium, chromium, copper, iron, lead, nickel, silver, and zinc), synthetic organics (e.g., fuels, oils, solvents, lubricants), pesticides, and other toxic substances.

Rainfall on the runways and taxiways, as well as industrial and commercial sites, picks up a multitude of pollutants. These pollutants dissolve in the runoff or adsorb onto soil particles and are transported by gravity flow through the network of concrete channels and underground pipes that comprise the SDIA storm drain conveyance systems. Figure 3.10-1, noted above, identifies areas at SDIA, where substantial amounts of materials storage occur, posing the potential for releases of pollutants that can become entrained (pulled or drawn along) in stormwater runoff; however, operations at SDIA are subject to the requirements of the SDIA SWMP, described above in Section 3.10.3.1. The SWMP includes current inventories and characterizations of materials and



Source: Wood PLC Environment and Infrastructure Solutions, August 2019.

Figure 3.10-1

SDIA STORM DRAIN NETWORK AND DRAINAGE BASINS

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activities that could adversely impact stormwater quality, and delineates BMPs (in addition to the BMPs shown in Figure 3.10-1) and management practices to avoid such impacts, and also sets forth a program for inspection and enforcement of such BMPs and practices.

Although implemented as a unified program, the components of the SDIA SWMP are discussed below in regard to construction-related discharges, industrial-related discharges, and municipal (MS4)-related discharges to coincide with the description of the NPDES permits for those 3 types of stormwater discharges identified in Section 3.10.3.1 above. Stormwater discharge sample collection and laboratory analysis are the principle means of evaluating the impact on the condition of receiving waters (such as San Diego Bay) caused by discharges from these 3 sources/activities. Each of the 3 NPDES permits applicable to the airport include requirements for stormwater discharge monitoring.

Construction-related Discharges

As noted in Section 3.10.3.1 above, the Construction General Permit, NPDES Permit No. CAS000002, requires stormwater discharge monitoring for construction sites based on the risk of impacts to receiving waters. Only Risk Levels 2 and 3 are required to collect stormwater discharges, although Risk Level 1 sites with a potential to discharge non-visible pollutants must also collect stormwater discharge samples. The relatively flat topographic relief of the airport site and the absence of "sediment-sensitive waterbody" designation for San Diego Bay results in most construction projects as SDIA being considered Risk Level 1. Those project sites were also managed during development in a manner that precluded the need for any stormwater discharge sampling. To date, only one project at SDIA was considered Risk Level 2 and therefore required to conduct stormwater discharge sampling, namely the landside components of the Green Build Terminal Expansion Project constructed between 2010-2013. During November and December of 2011, stormwater discharge monitoring showed concentrations of pH and turbidity which exceeded their respective NALs (numeric action levels). The BMPs being implemented on site at the time were modified to improve effectiveness and no further exceedances of NALS occurred during the remainder of the project.

Industrial- and Municipal-related Discharge Monitoring

In 2005, shortly after the Authority began operation of SDIA, the Authority reviewed the previous 10 years of stormwater runoff quality sampling data collected at the airport to identify the primary pollutants of concern (POCs). The results of the review were detailed in the 2005 Site Audit Report[22] and identified 13 POCs that exceeded certain benchmark values that were derived from the California Toxic Rule,[23] the USEPA Multi-Sector Permit,[24] and USEPA Recommended Ambient

[22] MACTEC. Site Audit Report for Storm Drainage System BMP Program at San Diego International Airport. June 2005.

[23] Numeric Criteria for Priority Toxic Pollutants for the State of California; California Toxic Rule (40 CFR 131.38), USEPA, 65 Federal Register (FR) 31682-31719. May 18, 2000. Available: https://www.gpo.gov/fdsys/pkg/FR-2000-05-18/pdf/00-11106.pdf.

[24] National Pollutant Discharge Elimination System (NPDES) Storm Water Multi-Sector General Permit for Industrial Activities, USEPA, 65 Federal Register (FR) 64746, Final Reissuance. October 30, 2000. Available: https://www.epa.gov/sites/production/files/2015-10/documents/msgp2000-final.pdf.

Water Quality Criteria,[25] as applicable. Total and dissolved copper and total and dissolved zinc were identified as the priority/primary POCs, because they exceeded the benchmark values more than 50 percent of the time. Annual stormwater runoff sampling conducted since 2005 continues to show that total and dissolved copper and zinc remain the primary POCs. Thus, the Authority has chosen the reduction of concentrations of copper and zinc in wet weather stormwater discharges as its Focused Priority Water Quality Condition in the San Diego Bay Watershed WQIP as discussed in Section 3.10.3.1 above.

In 2008, a subsequent study evaluated and identified the largest sources of copper and zinc and the BMPs that might best be able to prevent or reduce their impacts to receiving waters. As noted in the 2007-2008 Storm Water Sampling Summary Report,[26] the sources for copper on a scale of highest to lowest were runway/airfield ramps, roofs, parking lots, and airport operation areas. As for zinc, the highest to lowest sources were roofs, runway/airfield ramps, parking lots, and airport operations areas. As such, the source identification sampling found that the runway/airfield ramp areas and roofs should be considered as the priority areas for treatment control BMPs to be implemented to reduce copper and zinc loads in stormwater discharges.

Since the 2006-2007 wet-season (or wet-weather or rainy season), the NPDES Permits-required stormwater sampling/monitoring program at SDIA has been conducted annually in accordance with the Stormwater Monitoring Programs outlined in Appendix D of the SWMP. Sample locations have been modified over time in response to various operational changes and construction projects. With the latest MS4 Permit having taken effect on June 27, 2013, and the latest Industrial General Permit having taken effect on July 1, 2015, the sampling plans in Appendix D of the SWMP were updated to guide future monitoring and sampling activities. Additions to the program included analyses to address changes in the Permits, the 303(d) listings, investigative orders issued by the San Diego Water Board pertinent to the Authority, the incorporation of the BMP Design Manual into the SWMP, and various changes in the nature and location of airport activities. There are two main stormwater sampling programs in Appendix D that monitor wet-season stormwater discharges from SDIA, namely: (1) the Industrial Monitoring Implementation Plan; and the (2) the Municipal Wet Weather Monitoring Program. The Stormwater Monitoring Programs are updated frequently in response to changing site conditions, changing permit requirements, and other relevant factors. The Stormwater Monitoring Programs, as updated in January 2019, have the following objectives:

- Identify and characterize sources of POCs.
- Measure BMP implementation and pollutant removal effectiveness to assess compliance with BAT, BCT, and MEP standards, as applicable, and track water quality over time as current BMPs are implemented and as new BMPs (or modifications to existing BMPs) are introduced.

[25] U.S. Environmental Protection Agency. National Recommended Ambient Water Quality Criteria – Saltwater or Freshwater Aquatic Life Protection. various dates prior to 2005. Available: https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

[26] MACTEC. 2007-2008 Storm Water Sampling Summary Report. September 2008.

- Compare POCs levels in stormwater runoff (stormwater quality) with the NAL requirements set by the Industrial General Permit, or other relevant benchmarks.
- Track and review progress toward meeting the goals in the WQIP and assess the effectiveness of pollutant control strategies being implemented. The first three interim goals of the WQIP are to ensure that the majority of stormwater runoff quality meets the NALs for copper and zinc.
- Gather information for investigative orders, CWA Section 303(d) list of water quality impaired segments (303(d) list), and pending TMDLs that may impact areas under SDCRAA jurisdiction.

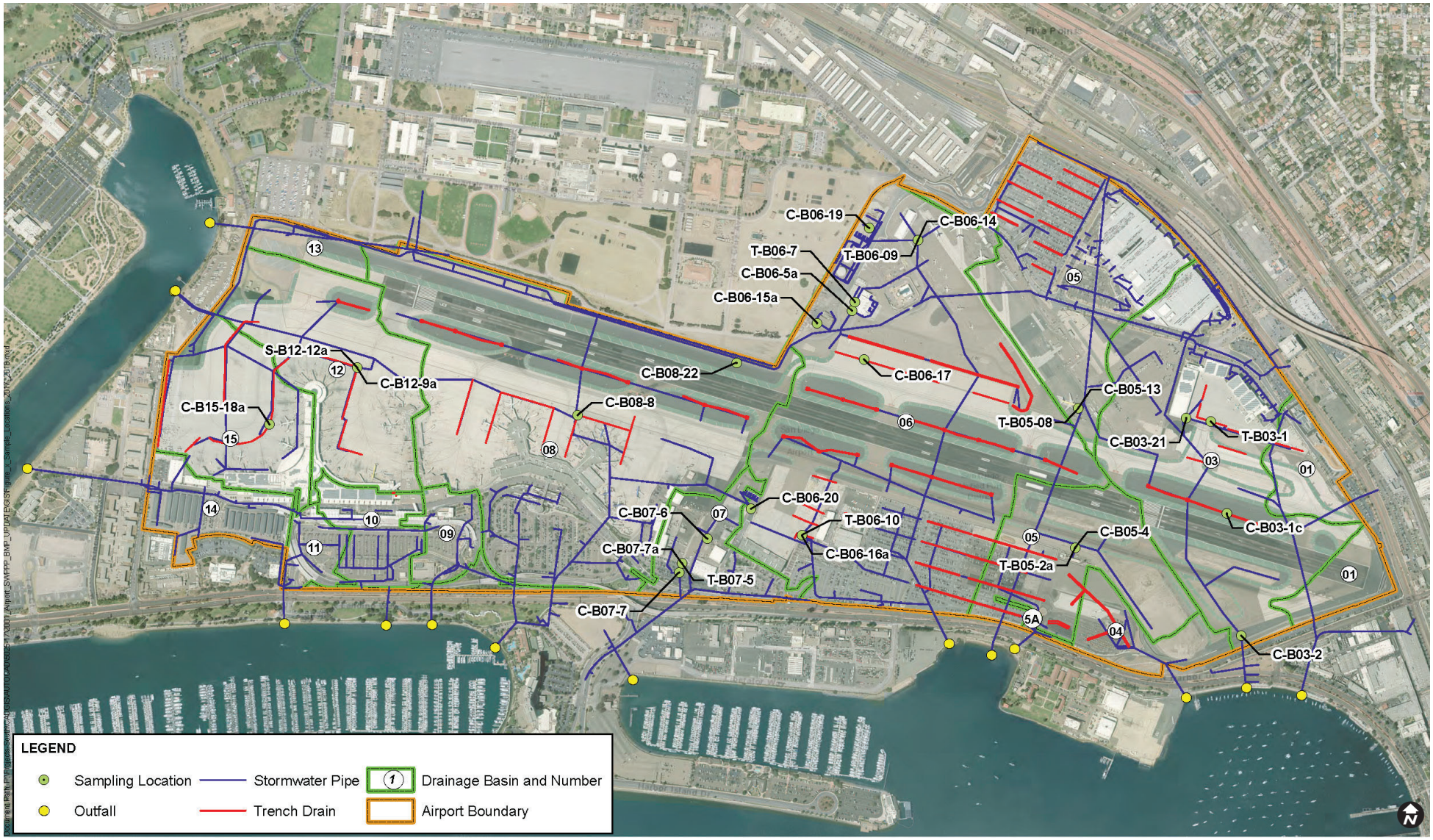
The implementation of the 2018-2019 monitoring program is summarized below, along with results and findings, as detailed in the Stormwater Sampling Report 2018-2019.[27]

The wet-weather sampling locations outlined in the monitoring programs have been selected to monitor compliance with the Industrial General Permit, with the data collected from those sites used to monitor the compliance with the Municipal Permit/Water Quality Improvement Plan goals. As such, there are 17 sample locations and one alternate location throughout the 7 of 15 drainage basins at the airport in which industrial activities occur. The sampling locations were selected on the basis of continuing review of the potential pollutants and pollutant sources, the scope of industrial operations within those particular drainage basins, the requirements of the Industrial General Permit, and recently installed treatment control BMPs (sampling locations were moved to be downstream from those treatment control BMPs, where feasible). Figure 3.10-2 shows the 15 drainage basins, those 7 in which industrial activities occur, and the sampling locations at the Airport. Sampling locations were selected as far downstream as feasible to capture as many areas as possible with industrial activities within a given drainage basin. Where sampling locations were tidally influenced or access was restricted (e.g., when aircraft were present in the aircraft movement area), samples of sheet flow runoff were collected.

The Industrial General Permit requires that four samples be collected annually from each sample site within 4 hours after the start of discharge. At SDIA, given the generally erratic rain patterns, sampling teams are on call 24 hours a day/7 days a week at the request of the Authority to maximize the potential for capturing runoff samples from a storm event.

The Industrial General Permit requires that O&G, TSS, and pH must be analyzed at all compliance sampling locations. Three analytes, namely, biochemical oxygen demand (BOD), chemical oxygen demand (COD), and ammonia are specifically listed in the Industrial General Permit as required analytes for air transportation facilities. In addition, samples must be analyzed for analytes that are likely to be found in stormwater runoff, including any related to receiving water 303(d) list impairments or any approved TMDLs. Thus, samples collected at the Airport are analyzed for PCBs, PAHs, indicator bacteria (total coliform, fecal coliform, and Enterococcus), total and dissolved metals (arsenic, cadmium, chromium, trivalent chromium, hexavalent chromium, and nickel), plus

[27] Wood PLC Environment and Infrastructure Solutions. Stormwater Sampling Report 2018-2019. August 2019.



Source: Wood PLC Environment and Infrastructure Solutions, August 2019.

Figure 3.10-2

SDIA STORMWATER SAMPLING LOCATIONS (2018-2019)

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dissolved lead, total hardness, and organochlorine pesticides. The remaining analytes, including total metals (aluminum, copper, iron, lead, and zinc), dissolved metals (copper and zinc),methylene blue active substances (MBAS), ethylene glycol, total petroleum hydrocarbons (TPH), and specific conductance (SC) were selected on the basis of an evaluation of activities conducted within the drainage basins at SDIA and review of the dataset that included historical water quality results from on-site sampling and relevant publicly available data sources for other comparable offsite locations, as noted above in the 2005 Sampling Plan. As such, samples from the compliance sampling locations were analyzed for these POCs, with variations occurring at different sites according to the industrial pollutant source assessments for each area and site conditions at the time of sampling.

Prior to the 2013-2014 monitoring season, mercury was added as a potential source of pollutants from industrial activities as a result of investigative orders issued by the RWQCB for areas in the northern portion of San Diego Bay and a subsequent re-evaluation of potential industrial pollutant sources. During the 2013-2014 and the 2014-2015 monitoring seasons, sampling results showed mercury was not detected at any of the compliance sites; therefore, mercury was removed from all compliance sampling locations' analyte lists during the 2015 SWMP update. Common industrial sources of mercury include establishments primarily engaged in manufacturing metal products and motor vehicle dismantlers, which are not activities that are performed at SDIA.

For the 2018-2019 monitoring season, compliance samples were collected for the permit-required four storm events, plus a fifth storm event to ensure collection of samples at all compliance sampling locations. Not all samples sites featured stormwater discharge during each storm, so samples could not be collected at each site during each storm. The total rainfall for the five storm events was 3.4 inches and the monitoring season's total rainfall for SDIA was 12.81 inches, which is approximately 25 percent above the annual total average rainfall of approximately 10 inches. A total of 71 compliance samples were collected during the five storm events at 17 sampling locations. Table 3.10-1 summarizes the mean, maximum, minimum, and coefficient of variance (COV) values for the analytical results.

Table 3.10-1: Compliance Sampling Analytical Results Summary, 2018-2019 Monitoring Season

Pollutant of Concern	Units	Mean[1]	Coefficient of Variance (%)	Minimum Value	Maximum Value	Number of Samples
General Chemistry						
Ammonia	mg/L	0.5441	100.68	ND	3.3	71
BOD	mg/L	15.49	95.07	ND	80	71
COD	mg/L	46.67	89.76	ND	191	71
Hardness	mg/L	22.5	63.94	5.2	75	71
MBAS	mg/L	0.0759	63.08	ND	0.22	71
O&G	mg/L	ND	47.54	ND	5.2	71
pH (field)	pH units	7.95	7.86	6.43	8.98	71
SC	µmhos/cm	80.57	66.79	20.2	365	71
Temperature	degrees Celsius	13.72	19.77	9.6	21.4	71
TSS	mg/L	20.34	97.38	ND	115	71
Metals						

Table 3.10-1: Compliance Sampling Analytical Results Summary, 2018-2019 Monitoring Season

Pollutant of Concern	Units	Mean[1]	Coefficient of Variance (%)	Minimum Value	Maximum Value	Number of Samples
Al	µg/L	359.8	127.04	18.7	2600	71
As, dissolved	µg/L	0.5992	63.51	0.22	2.1	33
As, total	µg/L	0.7888	60.45	0.37	2.5	33
Cd, dissolved	µg/L	0.3297	92.4	0.046	1.8	70
Cd, total	µg/L	0.5222	119.7	0.042	4.3	71
Cr III, dissolved	mg/L	0.000359	108	ND	0.0021	70
Cr III, total	mg/L	0.001062	111.6	ND	0.0071	71
Cr VI, dissolved	mg/L	0.000391	270.44	ND	0.0089	70
Cr VI, total	mg/L	0.000448	236.31	ND	0.0089	71
Cr, dissolved	µg/L	0.669	197	ND	11	70
Cr, total	µg/L	1.472	137.41	ND	16	71
Cu, dissolved	µg/L	22.84	134.09	0.8	150	70
Cu, total	µg/L	47.28	115.33	2.2	250	71
Fe	µg/L	0.933	352.68	0.009	22	71
Ni, dissolved	µg/L	1.505	94.95	0.18	7.7	70
Ni, total	µg/L	2.243	101.29	0.36	14	71
Pb, dissolved	µg/L	0.2631	190.45	ND	4	70
Pb, total	µg/L	1.757	101.02	0.11	7.4	71
Zn, dissolved	µg/L	117.4	90.46	5.4	500	70
Zn, total	µg/L	178.7	104.79	3.7	990	71
PAHs						
Acenaphthene	µg/L	ND	0	ND	ND	71
Acenaphthylene	µg/L	ND	0	ND	ND	71
Anthracene	µg/L	ND	0	ND	ND	71
Benzo (a) anthracene	µg/L	ND	0	ND	ND	71
Benzo (a) pyrene	µg/L	ND	0	ND	ND	71
Benzo (b) fluoranthene	µg/L	ND	0	ND	ND	71
Benzo (g,h,i) perylene	µg/L	ND	0	ND	ND	71
Benzo (k) fluoranthene	µg/L	ND	0	ND	ND	71
Chrysene	µg/L	ND	0	ND	ND	71
Dibenzo (a,h) anthracene	µg/L	ND	0	ND	ND	71
Fluoranthene	µg/L	ND	0	ND	ND	71
Fluorene	µg/L	ND	0	ND	ND	71
Indeno (1,2,3-cd) pyrene	µg/L	ND	0	ND	ND	71
Naphthalene	µg/L	ND	0	ND	ND	71
Phenanthrene	µg/L	ND	0	ND	ND	71
Pyrene	µg/L	ND	0	ND	ND	71
Organochlorine Pesticides and PCBs						
Chlordane	µg/L	ND	0	ND	ND	71

Table 3.10-1: Compliance Sampling Analytical Results Summary, 2018-2019 Monitoring Season

Pollutant of Concern	Units	Mean[1]	Coefficient of Variance (%)	Minimum Value	Maximum Value	Number of Samples
PCB-1016	µg/L	ND	0	ND	ND	71
PCB-1221	µg/L	ND	0	ND	ND	71
PCB-1232	µg/L	ND	0	ND	ND	71
PCB-1242	µg/L	ND	0	ND	ND	71
PCB-1248	µg/L	ND	0	ND	ND	71
PCB-1254	µg/L	ND	0	ND	ND	71
PCB-1260	µg/L	ND	0	ND	ND	71
TPH						
Diesel Range Organics (C10-C24)	mg/L	ND	83.41	ND	0.22	71
Jet-A	mg/L	0.453	136.27	ND	3.9	71
Oil Range Organics (C22-C36)	mg/L	0.2268	164.42	ND	2	71
Glycols						
Ethylene glycol	mg/L	ND	0	ND	ND	5
Microbiology						
Total Coliforms	MPN/100 mL	2377	158.37	70	16000	26
Fecal Coliforms	MPN/100 mL	246.6	159.65	1	1400	26
Enterococcus	CFU/100 mL	986	144.33	50	6800	26

Source: Wood PLC Environment and Infrastructure Solutions. Stormwater Sampling Report 2018-2019. August 2019.

Note:

1. Half of the detection limit was used as the value for statistical analysis of results that were not detected.

Abbreviations: µg/L – micrograms per liter; µmhos/cm – micromhos per centimeter; BOD – biochemical oxygen demand; CFU/100 mL – colony forming units per 100 milliliters; COD – chemical oxygen demand; MBAS – methylene blue active substances; mg/L – milligrams per liter; MPN/100 mL – most probable number per 100 milliliters; ND – not detected; O&G – oil and grease; PAH – polycyclic aromatic hydrocarbon; PCB – polychlorinated biphenyl; SC – specific conductance; TPH – total petroleum hydrocarbons; TSS – total suspended solids.

Industrial-related Discharges

The analytical results of the compliance samples are compared with the NALs listed in the Industrial General Permit. As noted in Section 3.10.3.1, these benchmarks are not receiving water limits. As stated in the Industrial General Permit, these benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are levels that the SWRCB uses to determine whether stormwater discharges from any given facility merit further monitoring to ensure that the facility has been successful in implementing a SWPPP, or whether NAL exceedances have occurred and exceedance response actions (ERAs) are required, as described in the Industrial General Permit. As such, these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility.

For the 2018-2019 monitoring season, the sampling averages for each analyte and their corresponding annual and/or instantaneous NAL limit(s) listed in the Industrial General Permit are summarized in Table 3.10-2. Only total copper was detected at a concentration that exceeded the NAL, when comparing the overall mean concentration for all sites for all storms for the 2018-2019 wet-weather monitoring season.

Table 3.10-2: Analyte NAL Values and Sampling Averages

Analyte	Units	Annual NAL[1]	Instantaneous Maximum NAL[2]	Analyte Average[3] (2018 - 2019)
Aluminum (Total)	mg/L	0.75		0.359
Ammonia (as N)	mg/L	2.14		0.544
Arsenic (Total)	mg/L	0.15		0.001
Biochemical Oxygen Demand (BOD)	mg/L	30		15.49
Cadmium (Total)	mg/L	0.0053		0.001
Chemical Oxygen Demand (COD)	mg/L	120		46.67
Copper (Total)	mg/L	0.0332		**0.047**
Iron (Total)	mg/L	1		0.933
Lead (Total)	mg/L	0.262		0.001
Nickel (Total)	mg/L	1.02		0.002
Oil and Grease (O&G)	mg/L	15	25	ND
pH (field)	pH units	N/A	6.0<>9.0	7.95
Total Suspended Solids (TSS)	mg/L	100	400	20.34
Zinc (Total)	mg/L	0.26		.178

Source: Wood PLC Environment and Infrastructure Solutions. Stormwater Sampling Report 2018-2019. August 2019.

Note:

Bold/shaded = exceedance

1. Annual NAL Exceedances – The comparison of the average concentration for each parameter using the results of all the sampling and analytical results for the entire reporting year and comparing this value to the corresponding Annual NAL values in Industrial General Permit Table 2.
2. Instantaneous NAL Exceedance – The comparison of all sampling and analytical results from each distinct sample with the corresponding instantaneous maximum NAL values in Industrial General Permit Table 2. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum for TSS, O&G, and range for pH.
3. No instantaneous maximum NAL exceedances were observed in the 2018 – 2019 monitoring season. The parameters TSS and pH had single sampling events with detected concentrations that exceeded the instantaneous maximum NAL values, but did not have two sampling events within the monitoring season; thus, they do not qualify as instantaneous maximum NAL exceedances.

Abbreviations: mg/L – milligrams per liter; N/A – not applicable; NAL – numeric action level.

Concentrations of total copper first exceeded the NAL during the 2015-2016 monitoring season. As such, in compliance with the Industrial General Permit, the Authority performed a Level 1 ERA (exceedance response action) evaluation and developed a Level 1 ERA Report. Results of the evaluation included identifying locations with high copper concentrations, researching potential copper sources not identified in the SWPPP, ensuring that BMPs were adequate for controlling copper pollutant sources, adding and modifying existing BMPs with corresponding SWPPP revisions, and providing focused training for tenants and Authority personnel.

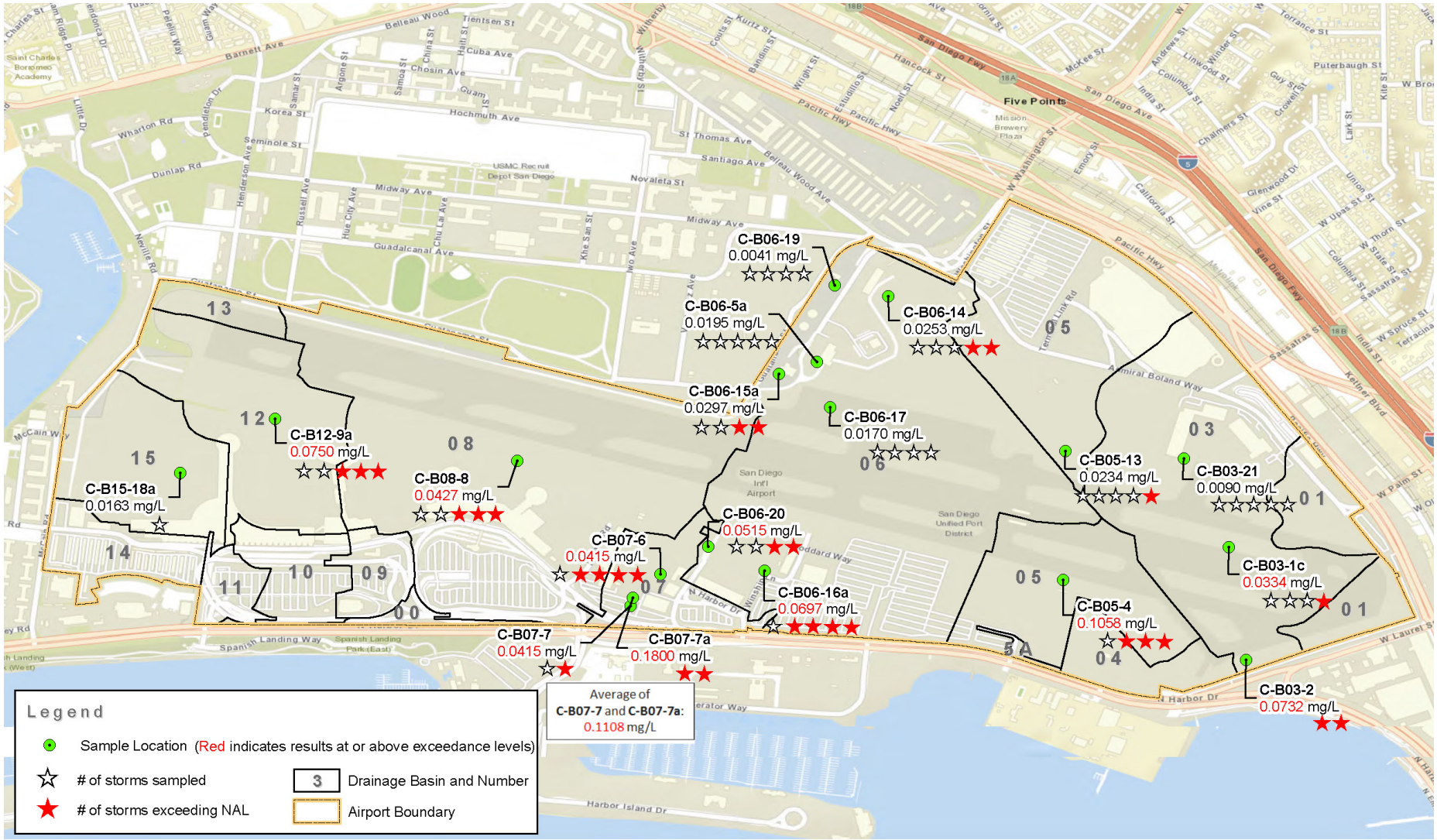
Given that the Authority was already in Level 1 status for copper at the start of the 2016-2017 monitoring season, and given that NAL for copper was again exceeded during the 2016–2017 monitoring season, the Authority was elevated to Level 2 status for copper beginning July 1, 2017. In response, the Authority developed a Level 2 ERA Action Plan detailing the Industrial Activity BMPs Demonstration that would be conducted to evaluate all pollutant sources associated with

industrial activities that are related to the NAL exceedance and to present how implemented BMPs were expected to lower copper concentrations in stormwater and, thus, prevent any future copper NAL exceedances. A Level 2 ERA Technical Report would be developed once the Level 2 ERA Action Plan has been implemented. Implementation of the Level 2 ERA Action Plan began during the 2017-2018 season. Given that the SAN Stormwater Capture and Reuse System comprises one element of the Level 2 ERA Action Plan and is anticipated to take several years to construct, the Authority requested a multi-year extension of the time allowed to complete the Level 2 ERA Action Plan and submit the subsequent Level 2 ERA Technical Report. The San Diego RWQCB approved the request on February 19, 2019.

The 2016–2017 monitoring season recorded the first NAL exceedance for zinc. In response to this exceedance, a Level 1 ERA evaluation was conducted for zinc, whereby potential pollutant sources contributing to the exceedance were identified and BMPs were added or modified in an attempt to lower zinc concentrations in stormwater runoff. At the end of the 2016-2017 monitoring season, the Authority prepared a Level 1 ERA Report summarizing the evaluation's findings and the steps that will be taken to decrease zinc levels. In response to the 2017-2018 copper and zinc NAL exceedances and the extension granted by the San Diego RWQCB for complete implementation of the Level 2 ERA Action Plan and subsequent submittal of the Level 2 ERA Technical Report for copper, SDIA revised the Level 2 ERA Action Plan to incorporate zinc, adjust the schedule and list remaining tasks to be performed. The revised action plan also identified temporary BMPs to be installed pending the stormwater capture and reuse development and other BMP installations. The Level 2 ERA Technical Report has been postponed, following San Diego RWQCB approval of the Authority's request for a multi-year extension of the time allowed for completing the Level 2 ERA Action Plan for copper (as noted above). The Revised Level 2 ERA Action Plan outlines the Industrial Activity BMPs Demonstration being conducted to evaluate all pollutant sources associated with industrial activity that are related to the NAL exceedances. Additionally, the Revised Level 2 ERA Action Plan presents how implemented BMPs are expected to lower copper and zinc concentrations in stormwater and, thus, prevent any future copper and zinc NAL exceedances. As such, implementation of the Level 2 ERA Action Plan for both copper and zinc continues at this time. However, as noted above, only total copper exceeded the NAL during the 2018-2019 wet-weather monitoring season, which indicates that the actions being implemented in the Level 2 ERA Action Plan for zinc appear to be effective.

Although all 7 drainage areas with industrial activities which are subject to the Industrial General Permit continue to be evaluated, based on the sample locations from which sample results exceeded the NAL for copper, the focus of the ERA actions for copper is on the sampling locations and drainage areas that most frequently exceeded the NAL, namely, basins 5, 6, and 7, as shown in Figure 3.10-3.

Similarly, although all 7 drainage areas with industrial activities continue to be evaluated, based on the sample locations from which sample results exceeded the NAL for zinc, the focus of the ERA actions for zinc will be on the sampling locations and drainage areas that most frequently exceeded the NAL, namely, basins 6 and 7, as shown in Figure 3.10-4.



Source: Wood PLC Environment and Infrastructure Solutions, August 2019.

Figure 3.10-3

San Diego International Airport
Airport Development Plan

MEAN TOTALS OF COPPER EXCEEDANCE LEVELS PER SAMPLE SITE (2018-2019)

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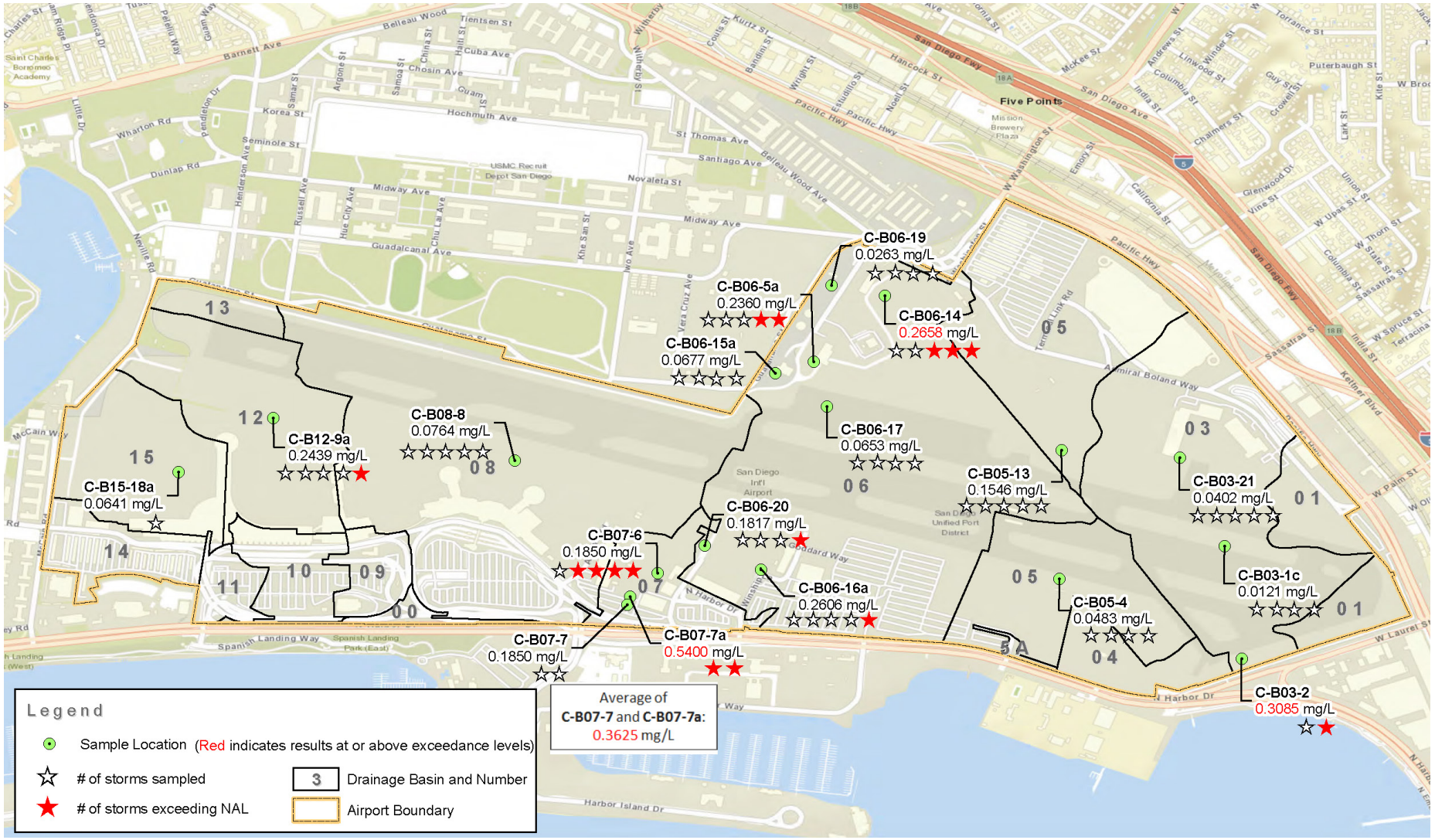

Source: Wood PLC Environment and Infrastructure Solutions, August 2019.

Figure 3.10-4

San Diego International Airport
Airport Development Plan

MEAN TOTALS OF ZINC EXCEEDANCE LEVELS PER SAMPLE SITE (2018-2019)

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The Authority's Industrial SWPPP (which comprises Section 7 of the Airport SWMP), is again being revised, as necessary, to incorporate appropriate aspects of the Level 2 ERA Action Plan prepared to reduce copper and zinc concentrations. Again, dischargers are in compliance with the Industrial General Permit provided they are developing and implementing Level 1 and Level 2 ERAs as necessary and appropriate for parameter(s) at the site, which exceed the NALs.

Municipal-related Discharges

The wet-weather stormwater compliance samples results are also compared with other analyte benchmarks to further evaluate the effectiveness of the Airport SWMP in addressing industrial activities, commercial activities, and municipal activities. Table 3.10-3 compares the mean concentrations calculated for POCs with the benchmarks, and counts the number of times exceedances occurred for individual samples throughout the 2018-2019 wet season. Those analytes that exceeded their respective benchmarks on at least one occasion at a minimum of at least one sample site included ammonia, BOD, COD, pH, TSS, aluminum, copper (total and dissolved), iron, zinc (total and dissolved), Jet-A, oil range organics, total coliforms, fecal coliforms, and Enterococcus. Most of these analytes exceeded their respective benchmarks at a frequency less than 25 percent. Only total copper, total coliform, and Enterococcus had an exceedance frequency above 40 percent, with Enterococcus having the highest frequency at 58 percent. The remaining analytes in Table 3.10-3 did not exceed the benchmarks at any time.

Table 3.10-3: Comparison with Analyte Benchmarks, 2018-2019 Monitoring Season

Pollutant of Concern	Units	Mean Concentration[1]	Benchmarks	Number of Analyses	Number of Exceedances	Exceedance Frequency (%)
General Chemistry						
Ammonia	mg/L	0.5441	2.14	71	1	1.4
BOD	mg/L	15.49	30	71	9	12.7
COD	mg/L	46.67	120	71	4	5.6
MBAS	mg/L	0.0759	0.5	71	0	0
O&G	mg/L	ND	15	71	0	0
pH	pH units	7.95	6.0–9.0	71	1	1.4
SC	µmhos/cm	80.57	900	71	0	0
TSS	mg/L	20.34	100	71	1	1.4
Metals						
Al	µg/L	359.8	750	71	13	18.3
As, dissolved	µg/L	0.5992	150	33	0	0
As, total	µg/L	0.7888	150	33	0	0
Cd, dissolved	µg/L	0.3297	5.3	70	0	0
Cd, total	µg/L	0.5222	5.3	71	0	0
Cr III, dissolved	µg/L	0.359	1700	70	0	0
Cr III, total	µg/L	1.062	550	71	0	0
Cr VI, dissolved	µg/L	0.391	16	70	0	0
Cr VI, total	µg/L	0.448	16.3	71	0	0
Cr, dissolved	µg/L	0.669	50	70	0	0
Cr, total	µg/L	1.472	50	71	0	0
Cu, dissolved	µg/L	22.84	33.2	70	11	15.7
Cu, total	µg/L	47.28	33.2	71	30	42.3

Table 3.10-3: Comparison with Analyte Benchmarks, 2018-2019 Monitoring Season

Pollutant of Concern	Units	Mean Concentration[1]	Benchmarks	Number of Analyses	Number of Exceedances	Exceedance Frequency (%)
Fe	µg/L	0.933	1	71	6	8.5
Ni, dissolved	µg/L	1.505	1020	70	0	0
Ni, total	µg/L	2.243	1020	71	0	0
Pb, dissolved	µg/L	0.2631	262	70	0	0
Pb, total	µg/L	1.757	262	71	0	0
Zn, dissolved	µg/L	117.4	260	70	9	12.9
Zn, total	µg/L	178.7	260	71	16	22.5
PAHs						
Acenaphthene	µg/L	ND	970	71	0	0
Acenaphthylene	µg/L	ND	300	71	0	0
Anthracene	µg/L	ND	300	71	0	0
Benzo (a) anthracene	µg/L	ND	300	71	0	0
Benzo (a) pyrene	µg/L	ND	300	71	0	0
Benzo (b) fluoranthene	µg/L	ND	300	71	0	0
Benzo (g,h,i) perylene	µg/L	ND	300	71	0	0
Benzo (k) fluoranthene	µg/L	ND	300	71	0	0
Chrysene	µg/L	ND	300	71	0	0
Dibenzo (a,h) anthracene	µg/L	ND	300	71	0	0
Fluoranthene	µg/L	ND	42	71	0	0
Fluorene	µg/L	ND	300	71	0	0
Indeno (1,2,3-cd) pyrene	µg/L	ND	300	71	0	0
Naphthalene	µg/L	ND	2350	71	0	0
Phenanthrene	µg/L	ND	300	71	0	0
Pyrene	µg/L	ND	300	71	0	0
PCBs and Organochlorine Pesticides						
Chlordane	µg/L	ND	0.09	56	0	0
PCB-1016	µg/L	ND	0.4	71	0	0
PCB-1221	µg/L	ND	0.4	71	0	0
PCB-1232	µg/L	ND	0.4	71	0	0
PCB-1242	µg/L	ND	0.4	71	0	0
PCB-1248	µg/L	ND	0.4	71	0	0
PCB-1254	µg/L	ND	0.4	71	0	0
PCB-1260	µg/L	ND	0.4	71	0	0
TPH						
Diesel Range Organics (C10-C24)	mg/L	ND	0.056-0.14	71	0	0
Jet-A	mg/L	0.453	0.5	71	22	31
Oil Range Organics (C22-C36)	mg/L	0.2268	0.5	71	13	18.3

Table 3.10-3: Comparison with Analyte Benchmarks, 2018-2019 Monitoring Season

Pollutant of Concern	Units	Mean Concentration[1]	Benchmarks	Number of Analyses	Number of Exceedances	Exceedance Frequency (%)
Glycols						
Ethylene glycol	mg/L	ND	140	5	0	0
Microbiology						
Total Coliforms	CFU/100 mL	2377	1000	26	11	42.3
Fecal Coliforms	CFU/100 mL	246.6	200	26	9	34.6
Enterococcus	CFU/100 mL	986	276	26	15	57.7

Source: Wood PLC Environment and Infrastructure Solutions. Stormwater Sampling Report 2018-2019. August 2019.

Note:

1. Half of the detection limit was used as the value for statistical analysis of results that were not detected.

Abbreviations: µg/L – micrograms per liter; µmhos/cm – micromhos per centimeter; BOD – biochemical oxygen demand; CFU/100 mL – colony forming units per 100 milliliters; COD – chemical oxygen demand; MBAS – methylene blue active substances; mg/L – milligrams per liter; ND – not detected; O&G – oil and grease; PAH – polycyclic aromatic hydrocarbon; PCB – polychlorinated biphenyl; SC – specific conductance; TPH – total petroleum hydrocarbons; TSS – total suspended solids.

Table 3.10-4 presents the mean concentrations and number of samples collected at compliance sampling locations from the previous 13 monitoring seasons (2005-2006 through 2018-2019). Several analytes have been sampled more than 400 times over 13 years. A comparison of the means between the 2006–2019 13-year wet-weather sampling program dataset and the 2018-2019 dataset indicates improvements in water quality for all analytes except iron and Jet-A.

Table 3.10-4: T-test Results – All Compliance Sampling Locations Combined (2006–2019)

Analyte	Units	Mean Concentration[1]	Benchmarks	Number of Samples
General Chemistry				
Ammonia	mg/L	1.5653	2.14	420
BOD	mg/L	**36.143**	30	422
COD	mg/L	**133.01**	120	422
O&G	mg/L	1.5524	15	422
MBAS	mg/L	0.15825	0.5	420
pH	pH units	7.3688	6.0 – 9.0	422
SC	µmhos/cm	302.59	900	422
TSS	mg/L	36.743	100	422
Metals				
Al	µg/L	643.5	750	422
Cu, dissolved	µg/L	126.32	33.2	424
Cu, total	µg/L	176.77	33.2	425
Fe	µg/L	0.78705	1	422
Pb, dissolved	µg/L	1.6366	262	263
Pb, total	µg/L	6.5934	262	422
Zn, dissolved	µg/L	288.28	260	424
Zn, total	µg/L	387.65	260	425

Table 3.10-4: T-test Results – All Compliance Sampling Locations Combined (2006–2019)

Analyte	Units	Mean Concentration[1]	Benchmarks	Number of Samples
TPH				
Jet-A	mg/L	0.32294	0.5	420
Oil Range Organics (C22-C36)	mg/L	0.46396	0.5	420
Microbiology				
Total Coliforms	CFU/100 mL	3134.6	1000	107
Fecal Coliforms	CFU/100 mL	467.81	200	107
Enterococcus	CFU/100 mL	1022.9	276	107

Source: Wood PLC Environment and Infrastructure Solutions. Stormwater Sampling Report 2018-2019. August 2019.

Analyte concentrations in bold/shaded are above the benchmark.

Abbreviations: µg/L = micrograms per liter; µmhos/cm = micromhos per centimeter; BOD = biochemical oxygen demand; CFU/100 mL = colony forming units per 100 milliliters; COD = chemical oxygen demand; MBAS = methylene blue active; substances; mg/L = milligrams per liter; MPN/100 mL = most probable number per 100 milliliters; O&G = oil and grease; SC – specific conductance; TPH – total petroleum hydrocarbons; TSS – total suspended solids.

As noted in Section 3.10.3.1 above, the San Diego Bay Watershed WQIP is another aspect of the Municipal Permit which required the development of stormwater quality goals for the Authority. The discussion above noted that the Authority has chosen reduction in the concentrations of copper and zinc in wet weather stormwater discharges as its Focused Priority Water Quality Condition, because copper and zinc have been shown to be the primary POCs. The Fiscal Year 2017-2018 San Diego Bay WQIP Annual Report (2017-2018 WQIP Annual Report)[28] released in January of 2019 provides the most recent publicly available details on the Authority's performance in meeting the WQIP interim goals. Using the data and information from the 2017-2018 wet-weather sampling program,[29] the 2017-2018 WQIP Annual Report found that that the number of samples with dissolved copper concentrations that exceeded the benchmark in 2017-2018 was 54.5 percent. As such, the 2017-2018 fiscal year WQIP interim goal for copper was not met as scheduled. This may have been related to the low amount of rainfall received at SDIA in the 2017-2018 monitoring season (which was only 3.4 inches or approximately 1/3 the annual average). Since then, the 2018-2019 wet-weather sampling data, presented in Table 3.10-3 above, indicates that the number of samples with dissolved copper concentrations that exceeded the benchmark in 2018-2019 was only 15 percent. This percentage shows the Authority is currently meeting the interim goal of less than 20 percent for the fiscal years 2021-2025 time period.

The 2017-2018 WQIP Annual Report also found that that the number of samples with dissolved zinc concentrations that exceeded the dissolved zinc benchmark in 2017-2018 was 34.5 percent. As such, the 2017-2018 fiscal year WQIP interim goal for zinc was being met. Similarly, the 2018-2019 wet-weather sampling data, presented in Table 3.10-3 above, indicates that the number of samples with dissolved zinc concentrations that exceeded the benchmark in 2018-2019 was only

[28] San Diego Bay Responsible Parties. San Diego Bay Watershed Management Area Water Quality Improvement Plan – FY 2018 Annual Report. January 2019. Available: http://www.projectcleanwater.org/san-diego-bay-water-quality-improvement-plan-annual-reports/.

[29] Wood PLC Environment and Infrastructure Solutions. Stormwater Sampling Report 2017-2018. May 2019.

10 percent. This percentage shows the Authority is currently meeting the interim goal of less than 25 percent for the fiscal years 2021-2025 time period.

As noted in the Fiscal Year 2017-2018 San Diego Bay WQIP Annual Report, interim goals are intended as milestones that help assess progress toward the longer-term goals. The Authority has used the adaptive management process outlined in the WQIP to evaluate the progress toward meeting the goals and modify the strategies being implemented. As such, several of those strategies initially identified as optional have since been implemented. One strategy now being implemented is stormwater capture and reuse. First implemented as part of the Terminal 2 Parking Plaza, the Authority continues to develop stormwater capture and reuse infrastructure, as discussed further below.

In addition to the pollutants contributed by stormwater or wet weather flows, dry weather runoff can also seriously degrade the quality of the receiving water. Dry weather flows conveyed by the stormwater conveyance system, which can be substantial, consist of flows from groundwater infiltration and accidental, improper, or illegal discharges to the stormwater conveyance system. Typical examples of the latter are over-irrigation runoff and illegally disposed used motor oil, antifreeze, and other such chemicals, and spilled jet fuel; however, the potential for such occurrences is also minimized through implementation of the SDIA SWMP, as noted above.

3.10.4.5.1 SAN Stormwater Capture and Reuse System

The 2018 Strategic Stormwater Master Plan, Capture and Reuse Project[30] describes the scope and benefits of stormwater capture and reuse at SDIA. As noted above, stormwater capture and reuse is one strategy for meeting the final WQIP goals for the Authority (and thereby reducing pollution impacts to and improving the water quality of San Diego Bay). Stormwater capture and reuse is also one element of the Industrial Stormwater Permit-required Level 2 ERA Action Plan noted above, which is intended to improve the water quality in San Diego Bay.

The 2018 Strategic Stormwater Master Plan, Capture and Reuse Project includes hydrology and hydraulic modeling of existing conditions at SDIA. The 2018 Strategic Stormwater Master Plan, Capture and Reuse Project identifies necessary modifications to existing storm drains owned by the Authority or the City of San Diego. The Authority would coordinate with the City of San Diego on final design and construction details. The SAN Stormwater Capture and Reuse System is a large-scale multi-phase project intended to capture stormwater from a drainage area of approximately 200 acres. The proposed project would complete portions of the SAN Stormwater Capture and Reuse System.

Construction of the first phase of the SAN Stormwater Capture and Reuse System began in late 2018 and is intended to capture stormwater on the north side of the Airport and either reuse the water for car washing at the Rental Car Center and irrigation on the north side of the Airport or discharge the water to the existing bioswales around the Rental Car Center or a combination of both. The improvements associated with, and the areas of SDIA that would be treated by the SAN Stormwater Capture and Reuse System are shown on Figure 2-22 in Chapter 2, Project Description.

[30] San Diego County Regional Airport Authority. Strategic Stormwater Master Plan, Capture and Reuse Project. Prepared by AECOM. August 2018.

If the stormwater is discharged to the bioswales, it will infiltrate the bioswale soils and reach the underdrain system, from which it will be discharged into the storm drain system. Both treatment processes create a water quality benefit. Stormwater reuse, such as for car washing, retains 100 percent of the pollutants. Infiltration into soils, through use as irrigation water or drainage into bioswales, before discharging into the storm drain system retains a majority of the pollutants.

As noted above, the proposed project is subject to the new development/redevelopment requirements of the MS4 Permit and the SDCRAA BMP Design Manual. These requirements dictate a hierarchical approach to designing and implementing post-construction stormwater treatment controls for the project that can retain on-site 100 percent of the pollutants contained in the volume of stormwater runoff produced from a 24-hour 85th percentile storm event. To comply with the post-construction stormwater treatment control requirements, the proposed project would expand the capture area of the first phase of the SAN Stormwater Capture and Reuse System from 80 acres to approximately 200 acres. Thus, the SAN Stormwater Capture and Reuse System will allow for the creation of a bank of post-construction treatment control credits that can be applied to the footprint of the project. The project-related elements of the SAN Stormwater Capture and Reuse System include the construction of an underground storage tank with approximately 3.4 million gallons of storage and underground infiltration areas that would temporarily store approximately 3 million gallons of stormwater, while simultaneously allowing the stormwater to infiltrate into the ground. Instead of discharging into San Diego Bay, stormwater captured in the storage tank would be conveyed (piped) to the stormwater treatment facility that was constructed as part of the Terminal 2 Parking Plaza Project (completed in 2018) and reused in the cooling towers of the Central Utility Plant (CUP) or potentially for irrigation on the south side of the Airport. At final build-out, the total storage capacity of the SAN Stormwater Capture and Reuse System would be approximately 9.4 million gallons and allow for the capture and reuse or infiltration of approximately 39 million gallons of stormwater per year.

The overall purpose, intent, and design of the SAN Stormwater Capture and Reuse System is three-fold: (1) to develop a bank of credits needed to accommodate the post-construction stormwater treatment control requirements of the Municipal Permit for new developments/redevelopments applicable to the proposed project; (2) to provide a stormwater treatment control process to address copper and zinc and meet the NALs in the Industrial General Permit and the Authority's goals listed in the San Diego Bay WQIP; and (3) to help offset the amount of potable water being used for non-potable purposes at the Airport.

3.10.4.5.2 303(d) List and Total Daily Maximum Loads (TMDLs)

As noted in Section 3.10.3.1 above, San Diego Bay is currently listed under Section 303(d) as "impaired" for impacts due to mercury, PAHs, and PCBs. In addition, portions of San Diego Bay into which stormwater from SDIA discharges are listed under CWA Section 303(d) as "impaired" for impacts due to copper, sediment toxicity, and benthic community effects.[31] The San Diego RWQCB has yet to initiate the process to develop TMDLs at these locations. Of the four Toxic Hot Spots in the San Diego Bay, the one located between the foot of Grape Street and the foot of Laurel Street

[31] California State Water Resources Control Board. 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report). 2018. Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml.

(known as the Laurel Hawthorn Embayment) receives stormwater runoff from local urbanized areas of the City of San Diego as well as SDIA. On June 18, 2014, the San Diego RWQCB issued Investigative Order No. R9-2014-0007, an Order Directing General Dynamics, the San Diego County Regional Airport Authority, and the San Diego Unified Port District to Submit Technical Reports Pertaining to an Investigation of Sediment Chemistry in the Laurel Hawthorn Central Embayment (LHCE) in San Diego Bay, San Diego, California. On April 17, 2015, the parties submitted a joint Sediment Chemistry Assessment Report to the RWQCB. The report concluded that:

1. Several metals were detected throughout the data gap area, but not at elevated levels when compared to sediment quality guidelines (only one exceedance of an ERM (effects-range median) guidance level was observed).

2. Pyrethroid pesticides and PAHs were found at low levels in the investigation footprint and are not chemicals of concern for this site.

3. PCBs were observed at elevated levels throughout the LHCE investigation area, but at significantly lower levels than in other areas within the Laurel-Hawthorn Embayment (LHE).

4. Legacy chlorinated pesticides (namely dichlorodiphenyltrichloroethane [DDT] and derivatives, and dieldrin) are ubiquitous throughout the study area. These legacy contaminants are not uncommon in urban and rural watersheds due to their historic widespread application and persistence in the environment.

The Report recommended that the goal of the LHCE sediment investigation to fill a data gap that was identified by the RWQCB in the overall assessment of sediment quality within the LHE had been successfully filled and no additional assessment of the sediments within the LHCE was needed.

In response to the report, however, in March of 2018, the RWQCB found that the sediment chemistry investigation conducted in 2015 revealed elevated levels of pollutants in the bottom marine sediment along the portion of San Diego Bay within the central portion of the LHE. In July of 2018, the RQWCB issued Draft Investigative Order No. R9-2018-0035, Directing General Dynamics, the San Diego County Regional Airport Authority, and the San Diego Unified Port District to Submit Technical Reports Pertaining to an Investigation of Sediment Pollutants in the LHCE in San Diego Bay, San Diego, California. The RWQCB also issued two additional Draft Investigative Orders concurrent with Investigative Order R9-2018-0035, namely: (1) Draft Investigative Order No. R9-2018-0034 directing the City of San Diego to conduct an investigation in the LHE influenced by the 84-inch stormwater conveyance system outfall; and (2) Draft Investigative Order No. R9-2018-0033 directing Solar Turbines to conduct an investigation in the LHE influenced by their stormwater conveyance system outfalls. The RWQCB expects that the completion of the three sediment investigations will provide a more comprehensive evaluation of the extent and chemical concentrations of waste constituents that pose a threat to the benthic community, human health, and aquatic-dependent wildlife within the investigation area of the LHE. As of this date, the RWQCB has yet to issue final versions of any of the three Investigative Orders.

As noted above, surface runoff at SDIA flows primarily to the south, toward San Diego Bay, and to the west-southwest, toward the boat channel. Sediments in some samples gathered from the boat channel contained metals (copper, lead, zinc), and pesticides (chlordane and DDT) at concentrations that presented a potential risk to ecological receptors. The U.S. Navy was responsible for investigation and remediation of boat channel contamination under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The U.S. Navy determined that contamination resulted primarily from stormwater runoff from surrounding U.S. Navy and Marine properties, the Airport, City of San Diego properties, and from atmospheric deposition. The U.S. Navy began remediation work in the boat channel in September 2017 and completed the work in March 2018.

3.10.4.6 Atmospheric Deposition

Deposition of particles and soot is a common occurrence in urban and suburban areas. Though often thought to be associated with airports and aircraft, various studies of deposition have not identified such a link. For example, air monitoring studies were performed in the vicinity of the Los Angeles International Airport (LAX) by the South Coast Air Quality Management District (SCAQMD).[32] For these studies, samples of atmospheric fallout were collected adjacent to the LAX and at numerous residences located in nearby the communities. While soot particles were present in all the samples and generally in greater abundance than at other locations in the South Coast Air Basin, the studies concluded that there was "no discernable pattern of fallout material under LAX's flight path which would indicate a predominate influence from aircraft." A study commissioned by Los Angeles World Airports in 1998 that collected and evaluated atmospheric deposition samples at six sites surrounding LAX reported similar conclusions as the SCAQMD study listed above.[33]

In addition, researchers studying the deposition of particulate matter and trace metals to Santa Monica Bay and the bay watershed determined that the bulk of material being deposited was in particle size categories greater than 10 micrometers in diameter, meaning greater than PM_{10}.[34] Particles of this size are not emitted by aircraft, nor do the aircraft emitted particles ever coagulate/aggregate into particles larger than approximately 0.05 micrometers in diameter.[35] Particles of this size do not settle out by gravity (referred to as sedimentation), but are carried downwind for large distances before being removed through rainout/washout or dry deposition.[36]

Further, a City of San Diego study on Dry Weather Aerial Deposition was prepared in 2007 to assess the contribution of aerial deposition and its impact to concentrations of pollutants in storm water

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[32] South Coast Air Quality Management District. Air Monitoring Study in the Area of Los Angeles International Airport & Inglewood Particulate Fallout Study Under and Near the Flight Path to Los Angeles International Airport. 2000.

[33] Camp Dresser & McKee, Planning Consultants Research, and AeroVironment Environmental Services. LAX Master Plan Final Environmental Impact Report, Technical Report 4, Attachment Y, "Ambient Monitoring and Deposition Monitoring." April 2004.

[34] Stolzenbach, Keith D., Rong Lu, Cheng Xiong, Sheldon Friedlander, Richard Turco, Ken Schiff, and Lisel Tiefenthaler. Measuring and Modeling of Atmospheric Deposition on Santa Monica Bay and the Santa Monica Bay Watershed. 2001.

[35] Kinsey, John S., U.S. Environmental Protection Agency. Characterization of Emissions from Commercial Aircraft Engines during the Aircraft Particle Emissions eXperiment (APEX) 1 to 3. EPA-600/R-09/130. October 2009; and Whitefield, Philip D. et al. Transportation Research Board of the National Academies, Airport Cooperative Research Program Report 9: Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data. 2008. Available: http://www.nap.edu/catalog.php?record_id=14197#toc.

[36] Friedlander, Sheldon K. Smoke, Dust, and Haze: Fundamentals of Aerosol Dynamics. 2000.

within the City of San Diego.[37] The study determined that re-entrainment of dust from freeways and surface streets is most likely the largest contributor of aerial particulates throughout the City of San Diego. Further, the study determined that aerially deposited copper, lead, and zinc do not appear to be occurring at elevated levels on a regional airshed scale. The sources of deposited copper, lead, and zinc appear to originate from the activities related to urban processes (traffic volume, construction, industry, and historical contaminants in soil) within localized areas and the concentrations vary within different areas of the City and within different watersheds and sub-watersheds.

Therefore, it is reasonable to assume that atmospheric deposition of soot, dust and other forms of particulate matter occurs in measurable quantities in the vicinities of these large metropolitan airports. However, air pollution in urban areas is generated by many different sources and many of the constituents are petroleum-based (e.g., burned and unburned fossil fuels), and, thus, it is difficult to isolate and attribute the full impact of airports and aircraft on atmospheric deposition in urban areas. To date, the research results indicate that aircraft do not contribute substantially to deposition. For information on impacts on air quality associated with construction and operation of the proposed project, see Section 3.2, Air Quality.

3.10.4.7 Floodplains

SDIA and its vicinity are included on Panels 1880G and 1885G of FEMA's Flood Insurance Rate Map (FIRM), San Diego County, California and Incorporated Areas.[38] Figure 3.10-5 illustrates the mapped floodplain at SDIA and shows that virtually all of SDIA is mapped as Zone X, "areas determined to be outside the 500-year floodplain." An approximately 11.4-acre portion of SDIA, located near the southeastern edge of the Airport, directly across from the U.S. Coast Guard station, is within an area mapped as Zone X and designated "areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood." See Section 3.11, Land Use and Planning, for a discussion of flood risk related to sea level rise.

Tsunamis, associated with seismic activity, are a potential flood hazard; however, the highest recorded tsunami in San Diego Bay was approximately 5 feet from peak to trough, which would not affect SDIA. Additionally, none of SDIA is located within a tsunami inundation area, as determined by the California Emergency Management Agency, California Geologic Survey, and University of California.[39]

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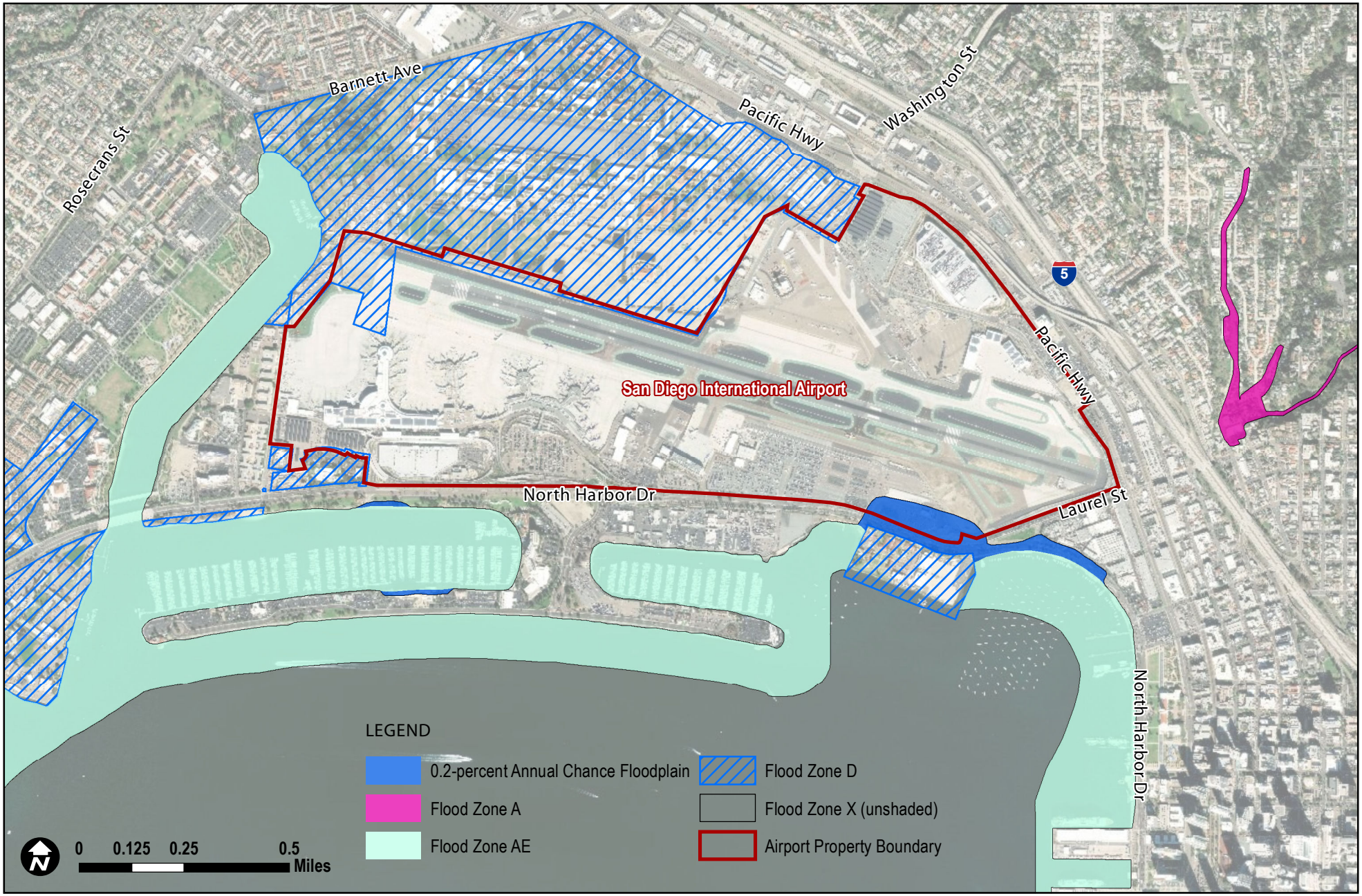
[37] Weston Solutions. City of San Diego Dry Weather Aerial Deposition Study Final Report. Prepared for the City of San Diego. September 4, 2007.

[38] Federal Emergency Management Agency-National Flood Insurance Program. Flood Insurance Rate Map Panels 1880G and 1885G. Revised May 16, 2012. Available: https://msc.fema.gov/portal/search?AddressQuery=san%20diego%20international%20airport#searchresultsanchor.

[39] California Emergency Management Agency, California Geologic Survey, University of Southern California. Tsunami Inundation Map for Emergency Planning, State of California-San Diego County, Point Loma Quadrangle. June 1, 2009. Available: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanDiego/Documents/Tsunami_Inundation_PointLoma_Quad_SanDiego.pdf.



Source: FEMA, 2013

Figure 3.10-5

FLOOD ZONE MAP

A seiche is a standing wave in an enclosed or partially enclosed body of water. Seiches and seiche-related phenomena have been observed on lakes, reservoirs, swimming pools, bays, harbors, and seas. There is no known history of a seiche having ever occurred in San Diego Bay.

3.10.4.8 PFAS in Foam Used for Fire Suppression

SDIA is required by the FAA to use per- and polyfluoroalkyl substances (PFAS)-containing aqueous film forming foam (AFFF) for fire suppression purposes. SDIA must conduct tests of AFFF equipment annually, and as such, emergency and training operations can be a source of PFAS in soil and/or groundwater. However, since the early 2000s, AFFF used in all firefighting training activities at SDIA has been captured and disposed of in the sanitary sewer, which has greatly reduced the potential for PFAS to impact soils and/or groundwater. SDIA is also in the process of exchanging the existing foam stored on-site to the most environmentally-friendly foam available that is certified by the FAA (Chemguard 3% AFFF C-30-6-1MS-C).[40] Finally, SDIA has acquired a "NoFoam System" that allows for annual AFFF testing without discharging foam, as allowed by a recent FAA CertAlert.[41] As mentioned, PFAS present in AFFF could potentially impact soils and/or groundwater. While SDIA does not currently have a requirement to monitor and test for PFAS, PFAS have been detected in groundwater as part of an environmental site assessment conducted in the vicinity of a former firefighting training area that has not been used for several decades.[42] On March 20, 2019, the SWRCB issued Water Code Section 13267 Order for the Determination of the Presence of Per- and Polyfluoroalkyl Substances (Order WQ 2019-0005-DWQ)[43] requiring airports, including SDIA, and landfills that have "accepted, stored, or used materials that may contain per- and polyfluoroalkyl substances (PFAS)" to submit a work plan for a one-time preliminary site investigation of PFAS impacts at the facility. In compliance with this PFAS Order, SDIA developed a work plan for a preliminary investigation to determine if soil and/or groundwater is impacted by PFAS to help the San Diego RWQCB get an understanding of PFAS concentrations at SDIA. The work plan was submitted to the San Diego RWQCB in late May 2019 and approved on July 22, 2019. Results of the investigation must be reported to the RWQCB by December 13, 2019.

3.10.5 Thresholds of Significance

Criteria for significance determination are based on Appendix G of the State CEQA Guidelines. The proposed project would result in significant impacts associated with hydrology and water quality if it would:

Impact 3.10-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

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[40] Gilb, Richard. Manager – Environmental Affairs, San Diego County Regional Airport Authority. Personal Communication. April 29, 2019.

[41] U.S. Department of Transportation, Federal Aviation Administration. National Part 139 CertAlert No. 190-01. Aqueous Film Forming Foam (AFFF) Testing at Certificated Part 139 Airports. January 17, 2019. Available: https://www.faa.gov/airports/airport_safety/certalerts/media/part-139-cert-alert-19-01-AFFF.pdf.

[42] Group Delta Consultants. Supplemental Site Investigation Report, North Side Support Facilities, San Diego International Airport, San Diego, CA. March 12, 2019.

[43] California State Water Quality Control Board. Water Code Section 13267 Order for the Determination of the Presence of Per- and Polyfluoroalkyl Substances Order WQ 2019-0005-DWQ. March 20, 2019.

Impact 3.10-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact 3.10-3 Substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on- or off-site.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

iii) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

iv) impede or redirect flood flows.

Impact 3.10-4 Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The Appendix G significance thresholds for hydrology and water quality impacts include one criterion that does not apply to the proposed project. It states that a project would cause a significant impact if it would: "*In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation*." As described in Section 3.10.4.7 above, the project site is not located in a flood hazard, tsunami, or seiche zone; therefore, no further evaluation is required. The potential for increased risk of flooding associated with sea level rise is addressed in Section 3.11, Land Use and Planning.

3.10.6 Project Impacts

3.10.6.1 Impact 3.10-1

Summary Conclusion for Impact 3.10-1: Construction and operation of the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. As such, and as further described below, implementation of the proposed project would result in a *less than significant impact* relative to construction and operation of the project.

3.10.6.1.1 Construction

Construction of the proposed project would include activities involving the use of chemicals and other potential water quality pollutants, such as paints, solvents, adhesives, concrete curing additives, and other such compounds, which if released to, and/or become entrained in stormwater runoff, could lead to a violation in water quality standards or waste discharge requirements. The storage, handling, use, and disposal of such materials are regulated by various federal, state, and local requirements related to hazardous materials/wastes. Additionally, construction of the proposed project would be subject to the requirements of the SWRCB Construction General Permit (Order No. 2010-0014-DWQ, NPDES No. CAS000002), which requires construction projects with

coverage under the Construction General Permit to implement a SWPPP. In accordance with Section XIV - SWPPP Requirements of the Permit:

"The SWPPP shall be designed to address the following objectives:

1. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;

2. Where not otherwise required to be under a Regional Water Board permit, all non-storm water discharges are identified and either eliminated, controlled, or treated;

3. Site BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the BAT/BCT standard;

4. Calculations and design details as well as BMP controls for site run-on are complete and correct, and

5. Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed."

Based on the above, the potential for the Project's construction-related pollutants to cause a violation of water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality is considered to be negligible; hence, project construction would result in a ***less than significant impact***.

3.10.6.1.2 Operations

Implementation of the proposed project would involve development of new/replacement terminals and other buildings, apron areas, and roadway improvements, all of which are similar in nature and operation to those of existing facilities at SDIA. The level of activities such as aircraft washing, equipment cleaning, and maintenance activities, as well as oil and fuel spills, that can runoff into the drainage system if appropriate measures are not taken is not expected to change as a result of the proposed project given that, the proposed project would not result in higher aviation activity levels at SDIA in the future than would otherwise occur (see Section 2.5.1.2 in Chapter 2).

Further, operations at SDIA are subject to the requirements of the Municipal Permit (NPDES Permit No. CAS0109266), the Industrial General Permit (NPDES Permit No. CAS000001), and the SDIA SWMP, described above in Section 3.10.3.1, which provide the framework for operation of existing facilities and development of new facilities at SDIA to comply with applicable water quality permits, standards, and regulations. The SWMP identifies requirements to manage potential on-site sources of non-stormwater discharge such as control of wash water from vehicle washing and methods to contain spills in outdoor material storage areas. Compliance with the SWMP and other permits, standards, and regulations, would ensure that non-stormwater runoff would not violate water quality standards.

The proposed project is subject to the new development/redevelopment requirements of the MS4 Permit and the BMP Design Manual in Appendix C of the SWMP. The MS4 Permit requires that 100

percent of the pollutants contained in the volume of stormwater runoff produced from a 24-hour 85th percentile storm event over the project footprint or equivalent area be retained on-site. The SAN Stormwater Capture and Reuse System, which would be expanded upon and completed in conjunction with the proposed project, meets the MS4 Permit requirements applicable to the proposed project as a new development/redevelopment project. Instead of discharging into San Diego Bay, stormwater runoff from an area equivalent to the project footprint, along with the pollutants contained therein, would be captured and conveyed (piped) to a treatment facility that allows the water to be reused in the cooling towers of the CUP or potentially for irrigation on the south side of the Airport. At final build-out, the total storage capacity of the SAN Stormwater Capture and Reuse System would allow for the capture and reuse of approximately 39 million gallons of stormwater per year, a net reduction of approximately 25 percent in the overall volume of stormwater discharged from SDIA. The SWMP and the SAN Stormwater Capture and Reuse System will ensure that the Authority complies with the MS4 Permit and the Industrial General Permit.

The San Diego Bay Shorelines at Harbor Island East Basin and West Basin are included on the CWA Section 303(d) list as impaired for copper and could become subject to a TMDL at some point in the future. The entirety of San Diego Bay itself is 303(d) listed as impaired for PCBs and could also become subject to a TMDL at some point in the future. The San Diego RWQCB has yet to develop or adopt TMDLs for these pollutants. While there may be a suite of BMPs that could be implemented to satisfy the requirements of a TMDL for metals, infiltration and capture/harvest and reuse BMPs are known to be the most effective. The SAN Stormwater Capture and Reuse System will ensure that the Authority will be operated in a manner that can meet TMDL requirements, should they be adopted in the future.

As described above in Section 3.10.4.6, it is difficult to isolate and attribute the full impact of airports and aircraft on atmospheric deposition in urban areas due to the many different sources (e.g., traffic, industry, and historical contaminants in soil). Further, as discussed in Section 2.5.1.2 in Chapter 2 the proposed project would not result in higher aviation activity levels at SDIA in the future, and, thus, the proposed project would not change the quantity of air-borne pollutants that would be deposited.

Based on the above, implementation of the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. The proposed project would result in a ***less than significant impact*** relative to construction and operation of the project.

3.10.6.1.3 Mitigation Measures

No mitigation is required for construction or operations.

3.10.6.1.4 Significance of Impact After Mitigation

As indicated above, no mitigation is required relative to this impact. The project would result in a ***less than significant impact*** for construction and operations.

3.10.6.2 Impact 3.10-2

Summary Conclusion for Impact 3.10-2: Project construction may require temporary groundwater dewatering, but this would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge or otherwise impede sustainable management of the groundwater basin. Operation of the proposed project would not require dewatering. Thus, the proposed project would result in a *less than significant impact* for construction and *no impact* for operations.

3.10.6.2.1 Construction

As indicated earlier, groundwater at SDIA ranges from approximately 7 to 12 feet below ground surface and does support beneficial uses. It is possible that construction of certain improvements associated with the proposed project, particularly subsurface utilities improvements, may require temporary dewatering during construction. Such dewatering would be relatively short-term in duration and the groundwater impacts, if any, would be localized in nature. Due to past activities and spills at the project site, contaminated groundwater may be encountered during ground disturbing activities. As discussed in Section 3.9, Hazards and Hazardous Materials, areas with groundwater contamination above acceptable limits would require encapsulation or other measures set forth in a site-specific treatment plan such as removal and disposal. The specific actions to address the contamination would be determined in coordination with the appropriate federal, state, county, or city agencies, which, depending on the nature of contamination, could include the County Department of Environmental Health (DEH), RWQCB, and/or California Department of Toxic Substances Control (DTSC). The remediation activities would be subject to stringent oversight by the applicable agency/agencies, and would take place until regulatory requirements are met and closure is granted in accordance with all applicable regulations as identified in Section 3.9, Hazards and Hazardous Materials. Groundwater remediation activities would benefit groundwater quality and would not decrease groundwater supplies or interfere with groundwater recharge. Therefore, construction-related impacts would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin; hence, the groundwater impacts would be ***less than significant.***

3.10.6.2.2 Operations

Operation of the proposed project is not expected to require any groundwater dewatering, nor would the amount of impervious surfaces increase; hence, there would be ***no impact*** in this issue area relative to operations.

3.10.6.2.3 Mitigation Measures

No mitigation is required for construction or operations.

3.10.6.2.4 Significance of Impact After Mitigation

As indicated above, no mitigation is needed relative to this impact. The project would result in a ***less than significant impact*** for construction and ***no impact*** for operations.

3.10.6.3 Impact 3.10-3

Summary Conclusion for Impact 3.10-3: Construction and operation of the proposed project would not substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; nor would the project substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; nor would the project impede or redirect flood flows. As such, and as further described below, implementation of the proposed project would result in a *less than significant impact* on existing drainage and stormwater runoff.

3.10.6.3.1 Drainage Patterns, Erosion and Siltation On- or Off-Site

Construction

The proposed project site is fully developed and, with minor exceptions, completely paved, which makes the existing potential for erosion or siltation/sedimentation negligible. Nevertheless implementation of the proposed project would require removal of existing pavement and buildings, while the proposed project improvements are constructed. As such, the underlying soils would be temporarily exposed to stormwater runoff, thereby creating the potential for erosion and/or siltation/sedimentation during construction. As noted above, construction of the proposed project would be subject to the requirements of the SWRCB Construction General Permit (Order No. 2010-0014-DWQ, NPDES No. CAS000002), which requires construction projects with coverage under the Construction General Permit to implement a SWPPP. One of the Permit requirements relative to construction is that: "The SWPPP shall be designed to address…All pollutants and their sources, *including sources of sediment associated with construction, construction site erosion* (emphasis added) and all other activities associated with construction activity are controlled…"

The preparation of a construction SWPPP and application for coverage under the Construction General Permit occur in conjunction with completion of detailed construction plans and specifications, and are typically completed just prior to starting construction activities. The proposed improvements have not yet progressed to that level of project planning and details; consequently, it is not possible to delineate the specific erosion and sedimentation control measures that would be implemented during construction of the proposed project. There are, however, numerous BMPs available for erosion and sedimentation control that are typically incorporated into construction SWPPPs for projects in Southern California and identified in the SDCRAA Storm Water Management Plan. Erosion and sedimentation control measures that are suitable for a flat site such as SDIA include:

- Applying of mulch or soil binders in graded/disturbed areas, particularly such areas that will be inactive for 14 or more days;
- Hydroseeding (for long-term stabilization of graded/disturbed areas);
- Watering (for the control of wind erosion and dust generation);
- Installing a silt fence (not in proximity to aircraft operations areas);

- Installing check dams;
- Using fiber rolls at the toe, top, face and/or grade breaks of exposed soil to reduce the rate of water flow, absorb water, and filter sediment;
- Using gravel bag berms;
- Street sweeping and vacuuming;
- Using sand bag barriers;
- Implementing storm drain inlet protection; and/or
- Stabilizing construction entrances.

Based on the above, project construction would not substantially alter the existing drainage patterns of the site in a manner that would cause substantial erosion or siltation on- or off-site; therefore, project construction would result in a ***less than significant impact*** on drainage patterns, siltation, or erosion.

Operations

As noted above, the project site is already developed and essentially fully-paved. Upon completion of construction, the existing paved condition of the site would be reinstated. Table 3.10-5 summarizes the existing surface conditions, in terms of paved surfaces, relative to the main components of the proposed project.

Table 3.10-5: Paved Surface Conditions

Proposed Project Component	Existing Surface Conditions	New Impervious Surfaces Added?
30-gate T1 replacement and elevated curbfront	Existing paved concrete aircraft apron; existing Commuter Terminal and air freight buildings, paved concrete and asphalt, paved roads and paved surface parking areas	None
Airport entry road	Existing paved surface parking areas (readily visible adjacent to North Harbor Drive)	None
Parking structure	Existing paved surface parking area for Terminal 1 and former Commuter Terminal.	None
On-airport circulation roadway improvements / Off-airport roadway improvements.	Existing roads with paved asphalt, curbfronts or sidewalks.	None
Taxiways A and B	Paved taxiways and paved airfield surfaces used today to allow existing aircraft to taxi on surfaces rated to support the weight of aircraft.	None

Source: SDCRAA, July 2018.

Existing site facilities and proposed project components, including the SAN Stormwater Capture and Reuse System, are designed to capture and reuse stormwater collected from the Airport site alone. These facilities intercept stormwater runoff, but do not substantially change drainage patterns. As such, there would be no substantial alteration in the existing drainage patterns of the site or area in a manner that would result in substantial erosion or siltation on- or off-site; hence, there would be ***no impact*** in this issue area relative to operations.

3.10.6.3.2 Rate and Amount of Surface Runoff

Construction

SDIA has an existing stormwater drainage system designed to accommodate runoff from storm events and avoid flooding. Project construction activities would modify this existing storm drain system (see Operations discussion below for a description of modifications to the system), requiring that affected portions of the system be temporarily taken out of service while the modifications are completed. These modifications, however, would not affect the storm drains or drainage areas outside the Authority's jurisdiction (e.g., the City San Diego) and would comply with regulatory programs, including the City of San Diego Storm Water Standards to the extent they apply and the SDCRAA BMP Design Manual. Additionally, there may be occasions where stormwater flows would need to be redirected around open construction areas. In either of the above type situations, a temporary stormwater conveyance system(s) would be installed to maintain appropriate stormwater drainage until the nearby construction activities are completed or the permanent system improvements or replacement drain line segments are in place and operational, which would serve to avoid flooding during construction. It should be noted that the construction-related changes in surface runoff would be localized in nature, occurring within the area(s) immediate to construction that is underway at the time, and would not be an airport-wide impact.

As such, it is concluded that construction activities associated with the proposed project would not substantially alter the existing drainage patterns of the site or area in a manner that would increase the rate or amount of surface runoff, which would result in flooding; therefore, project construction would result in a ***less than significant impact***.

Operations

As noted above, the project site is already developed and essentially fully-paved. Development of the proposed new/replacement terminals and other buildings, apron areas, and roadway improvements would not result in an increase in the overall volume of stormwater runoff at SDIA or a substantial change in drainage patterns at the Airport. In addition rerouting and resizing existing storm drain lines, which is typical when new structures are added to an existing site, the proposed project would enhance and enlarge the Airport's existing SAN Stormwater Capture and Reuse System. The SAN Stormwater Capture and Reuse System, along with on-site infiltration, is an integral part of the Authority's Water Stewardship Plan for SDIA and stormwater management program. The essence of the stormwater capture and reuse system is to route a portion of the stormwater drainage into an underground storage system and/or infiltration vault, rather than discharging it out into San Diego Bay or the boat channel. Any stormwater that is reused will be treated for non-potable purposes. In so doing, there is a net reduction in the overall volume of stormwater discharged from SDIA.

Specifically, with implementation of the SAN Stormwater Capture and Reuse System (using the rainfall history for the 57-year period between September 30, 1948 and September 30, 2005), modeling conducted for the Strategic Stormwater Master Plan determined that peak discharge and volume at the outfalls that discharge stormwater captured from SDIA would generally decrease. The decrease is attributable to the additional storage provided by the SAN Stormwater Capture and Reuse system. A comparison of the discharge at the outfalls that discharge stormwater captured from SDIA under existing conditions and proposed conditions is shown in Table 3.10-6.

Some increases would occur at several of the outfalls including Outfall 10 and Outfall 16. The increase at Outfall 10 is attributed to loss of existing surface storage in the T1 parking area. The increase at Outfall 16 is attributed to runoff that is currently drained to Outlet 8, but that would be diverted for treatment and then pumped to Outfall 16 under future conditions. The increase in discharge at Outfall 16 is minor, because the discharge rate is largely controlled by the North Side Utilities Pump Station. As shown in Table 3.10-6, overall the total peak volume of stormwater would decrease 1,225.6 million gallons.

Table 3.10-6: Comparison of Existing and Proposed Outfall Flow and Volume

Outfall	Maximum Flow (cfs)			Total Volume (MG)		
	Existing	Proposed	Impact	Existing	Proposed	Impact
Out-01	205.6	205.6	0.0	5,360.6	5,360.9	0.3
Out-02	465.5	465.4	-0.1	4,647.2	4,641.7	-5.6
Out-03	83.0	70.9	-12.1	1,283.3	961.5	-321.8
Out-04	18.7	20.2	1.5	169.5	140.4	-29.1
Out-05	10.2	5.7	-4.4	93.4	50.6	-42.8
Out-06	123.5	101.4	-22.1	1,785.6	1,389.8	-395.8
Out-07	1.4	0.9	-0.5	13.1	9.1	-4.0
Out-08	130.5	69.9	-60.6	2,102.0	699.2	-1,402.8
Out-09	35.3	32.0	-3.2	447.9	291.5	-156.4
Out-10	132.9	133.5	0.6	1,845.0	1,882.6	37.6
Out-11	15.2	13.7	-1.6	111.6	95.7	-15.9
Out-12	19.7	19.6	-0.1	76.5	70.6	-5.9
Out-13	10.2	10.2	0.0	75.2	75.2	0.0
Out-14	38.0	30.1	-7.9	843.8	701.8	-141.9
Out-15	46.6	45.7	-0.9	463.3	463.7	0.4
Out-16	87.3	92.9	5.6	1,504.6	2,762.5	1,257.8
Out-17	162.6	171.9	9.3	2,604.6	2,604.9	0.2
Total				**23,427.2**	**22,201.7**	**-1,225.6**

Source: San Diego County Regional Airport Authority. Strategic Stormwater Master Plan, Capture and Reuse Project. Prepared by AECOM. August 2018.

Note:

1 Based on USEPA Storm Water Management Model (SWMM) modeling using the rainfall history for 57 years of hourly rainfall data from October 17, 1948 to December 31, 2005 for California Climatic Data Archive (CCDA) Lindbergh.

Abbreviations: cfs –cubic feet per second, MG - milligram

The landside conveyance infrastructure associated with the SAN Stormwater Capture and Reuse System would be designed to comply with the City of San Diego Drainage Design Manual (January 2017) which requires that the storm drain system and overflow can carry a 100-year frequency storm event without damaging or flooding adjacent buildings or potential building sites, and that the underground storm drain system be designed to accommodate a 50-year frequency storm. The airside conveyance infrastructure would comply with the FAA requirements that in a 5-year storm event, there would be no encroachment of runoff on the taxiway and runway, and apron ponding around the storm drain inlet is no greater than four inches, and that during a 10-year storm event, the 50 percent of the center of runways and taxiways would be free from ponding. Further, in compliance with the SDCRAA BMP Design Manual, the SAN Stormwater Capture and Reuse System

would be designed to drain the tank in 36 hours following the end of rainfall and/or the tanks would be sized to capture at least 80 percent of the average annual runoff volume.[44]

As described above, with implementation SAN Stormwater Capture and Reuse System, the flow and volume of stormwater entering the existing outfalls would decrease overall and thereby decrease risk of flooding on-site. Further, the infrastructure would meet the City's, FAA's, and Airport's requirements to accommodate storm events. Based on the above, there would be no substantial alteration in the existing drainage patterns of the site or area in a manner that would increase the rate or amount of surface runoff, which would result in flooding; hence, project operations would result in a ***less than significant impact***.

3.10.6.3.3 Contribution of Runoff Water - Capacity and Water Quality

Construction

As described in Section 3.10.6.3.2, above, construction activities would require that affected portions of the system be temporarily taken out of service and a temporary stormwater conveyance system(s) would be installed to maintain appropriate stormwater drainage in compliance with regulatory programs, including the City of San Diego Storm Water Standards to the extent they apply and the SDCRAA BMP Design Manual. While the precise location(s) of temporary storm drains and periods of operation would be determined during the project design and engineering of each construction phase, such modifications are expected to occur on-site and would not impact the storm drains or drainage areas of the City San Diego, nor would it impact native vegetation or California least tern nesting areas. Construction would not create or contribute runoff water that would exceed the capacity of the stormwater drainage system owned by the Authority or the City of San Diego. As described above for Impact 3.10-3, construction activities would involve the use of chemicals and generation of construction-related pollutants having the potential to adversely affect runoff water quality; however, there are numerous existing regulatory programs, including, but not limited to, the state Construction General Permit that requires a construction SWPPP to address that potential and avoid such water quality impacts. As such, project construction would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Construction of the proposed project result in a ***less than significant impact***.

Operations

As noted above, the project site is already developed and essentially fully-paved with an existing storm drain system. As described in Section 3.10.6.3.2 above, development of the proposed new/replacement terminals and other buildings, apron areas, and roadway improvements would reduce the overall volume of stormwater runoff at SDIA and would not substantial change in drainage patterns at the Airport. Additionally, as described above, the expanded SAN Stormwater Capture and Reuse System incorporated in the proposed project will provide a total stormwater storage capacity of approximately 9.4 million gallons. This storage capacity will allow for the capture and reuse of approximately 39 million gallons of stormwater per year, a net reduction of

[44] San Diego County Regional Airport Authority. Strategic Stormwater Master Plan, Capture and Reuse Project. Prepared by AECOM. August 2018.

approximately 25 percent in the overall volume of stormwater discharged from SDIA. As described above for Impact 3.10-1, operations at SDIA are subject to the requirements of the Municipal Permit (NPDES Permit No. CAS0109266), the California Industrial General Permit (NPDES Permit # CAS000001), and the SDIA SWMP, which provides the framework for operation of existing facilities and development of new facilities at SDIA to address potential sources of polluted runoff. As also noted in that discussion, implementation of the proposed project would expand the existing SAN Stormwater Capture and Reuse System and serve to reduce the discharge of polluted runoff from SDIA. The system would include a treatment system that would comply with the requirements of the MS4 Permit and the SDCRAA BMP Design Manual, and that would meet the treatment requirements of the non-potable beneficial end uses of the treated stormwater (e.g., makeup water for the cooling towers, car washing, landscaping irrigation, etc.).

The 2018 Strategic Stormwater Master Plan, Capture and Reuse Project[45] identifies necessary modifications to existing storm drains owned by the Authority or the City of San Diego based on hydrology and hydraulic modeling of existing conditions at SDIA and the design progression of the SAN Stormwater Capture and Reuse System, including the proposed project. The Authority would coordinate with the City of San Diego on final design and construction details to implement the modifications identified in the 2018 Strategic Stormwater Master Plan, Capture and Reuse Project.[46] As described in Section 3.10.6.3.2 above, the modifications would be required to meet design standards identified by the City of San Diego, FAA, and SDCRAA. Additionally, with completion of the final project design and engineering plan, a drainage study would be completed as part of the building permit process.

Based on the above, implementation of the proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; hence, there would be a ***less than significant impact*** in this issue area relative to operations.

3.10.6.3.4 Impede or Redirect Flood Flows

Construction

As described in Section 3.10.4.7, an approximately 11.4-acre portion of SDIA, located near the southeastern edge of the Airport, directly across from the U.S. Coast Guard station, is within an area mapped by the FEMA FIRM as Zone X and designated "areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood." The project improvement proposed for this area would consist of development of the new on-airport access road coming off of North Harbor Drive. The eastern portion of the new roadway would be elevated, to allow Rental Car Center/north parking area shuttles to pass beneath, and the western portion of the new roadway would be at an elevation generally similar to that of the surrounding area, which is approximately 10 to 11 feet msl. Construction of the roadway in this area would not materially impede or redirect 100-year flood flows in this area, notwithstanding that the depth of 100-year inundation in the area

[45] San Diego County Regional Airport Authority. Strategic Stormwater Master Plan, Capture and Reuse Project. Prepared by AECOM. August 2018.

[46] San Diego County Regional Airport Authority. Strategic Stormwater Master Plan, Capture and Reuse Project. Prepared by AECOM. August 2018.

is relatively minor to begin with (i.e., less than 1 foot). As such, project construction would result in a ***less than significant impact***.

Operations

As noted above, the project improvement proposed for this area is a new roadway that is anticipated to be developed at an elevation generally similar to that of the surrounding area. Operation of the subject roadway would not materially impede or redirect 100-year flood flows in this area. As such, project operation would result in a ***less than significant impact***.

3.10.6.3.5 Summary

The project site is paved or semi-paved and, therefore, impervious, and there are no surface waters located on-site. This condition would remain with implementation of the proposed project and no substantial alteration of the drainage pattern would occur. Further, project construction would comply with regulations governing storm water runoff, such as the SWRCB Construction General Permit to control runoff and pollutants and their sources. Likewise, operation of the proposed project would comply with applicable regulations such as NPDES permits, the SDIA SWMP, SDCRAA BMP Design Manual, and the City's Storm Water Standards for areas within the jurisdiction of the City. The proposed project would also complete portions of the SAN Stormwater Capture and Reuse System. This system is designed to capture and reuse stormwater collected from the Airport site, which would intercept and treat stormwater runoff but not substantially change drainage patterns. Therefore, construction and operation of the proposed project would have a ***less than significant impact*** and would not substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; and/or impede or redirect flood flows.

3.10.6.3.6 Mitigation Measures

No mitigation is required for construction or operations.

3.10.6.3.7 Significance of Impact After Mitigation

As indicated above, no mitigation is required relative to this impact. The project would result in a ***less than significant impact*** for construction and operations.

3.10.6.4 Impact 3.10-4

Summary Conclusion for Impact 3.10-4: Construction and operation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. As such, and as further described below, implementation of the proposed project would result in a *less than significant impact* for construction and operations.

As described in Section 3.10.3.2, the groundwater basin underlying SDIA is not subject to a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As also described in Section 3.10.3.2, nearby waters to which stormwater from the Airport discharges are the coastal waters of the San Diego Bay and groundwater of the San Diego Mesa Hydrologic Area. The Basin Plan does not identify any existing or potential beneficial uses for the groundwater in the San Diego Mesa Hydrologic Area but does identify beneficial uses for the coastal waters of San Diego Bay. As described under Impact 3.10-1 above, construction and operation of the proposed project would comply with applicable water quality permits, standards, and regulations that would ensure compliance with waste discharge requirements. Compliance with the waste discharge requirements would ensure that the runoff from the project site would not contribute to degradation of water quality within San Diego Bay. Further, implementation of the proposed project would expand the existing SAN Stormwater Capture and Reuse System and serve to reduce the discharge of polluted runoff from SDIA. Instead of discharging into San Diego Bay, stormwater runoff from an area equivalent to the project footprint, along with the pollutants contained therein, would be captured and conveyed (piped) to a treatment facility that allows the water to be reused in the cooling towers of the CUP or potentially for irrigation on the south side of the Airport instead of entering San Diego Bay. This would result in water quality benefits; therefore, the proposed project would not contribute to degradation of beneficial uses in San Diego Bay.

The Basin Plan incorporates TMDLs that have been adopted by the San Diego RWQCB. However, as described under Impact 3.10-1, the RWQCB has yet to develop or adopt TMDLs for the San Diego Bay Shorelines at Harbor Island East Basin and West Basin for copper and for the entirety of San Diego Bay for PCBs. Regardless, the SAN Stormwater Capture and Reuse System will ensure that the Authority will be operated in a manner that can meet TMDL requirements, should they be adopted in the future.

Based on the above, implementation of the proposed project would not conflict with or obstruct implementation of the Water Quality Control Plan for the San Diego Basin and would result in a ***less than significant impact*** relative to construction and operation of the project.

3.10.6.4.1 Mitigation Measures

No mitigation is required for construction or operations.

3.10.6.4.2 Significance of Impact After Mitigation

As indicated above, no mitigation is needed relative to this impact. The project would result in a ***less than significant impact*** for construction and operations.

3.10.7 Summary of Impact Determinations

Table 3.10-7 summarizes the impact determinations of the proposed project related to hydrology and water quality, as described above in the detailed discussion in Section 3.10.6. Identified potential impacts are based on the significance criteria presented in Section 3.10.5, the information and data sources cited throughout Section 3.10, and the professional judgment of the report preparers, as applicable.

Table 3.10-7: Summary Matrix of Potential Impacts and Mitigation Measures Associated with the Proposed Project Related to Hydrology and Water Quality

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Impact 3.10-1: Construction and operation of the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. As such, implementation of the proposed project would result in a *less than significant impact* relative to construction and operation of the project.	Construction: Less than Significant Operation: Less than Significant	No mitigation is required	Construction: Less than Significant Operation: Less than Significant
Impact 3.10-2: Implementation of the proposed project may require temporary groundwater dewatering during construction, but it would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Operation of the proposed project improvements is not expected to require dewatering. As such, implementation of the proposed project would result in a *less than significant impact* for construction and *no impact* for operations.	Construction: Less than Significant Operation: No Impact	No mitigation is required	Construction: Less than Significant Operation: No Impact
Impact 3.10-3: Construction and operation of the proposed project would not substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; and/or impede or redirect flood flows. As such, implementation of the proposed project would result in a *less than significant impact* for construction and operations.	Construction: Less than Significant Operation: Less than Significant	No mitigation is required	Construction: Less than Significant Operation: Less than Significant

Table 3.10-7: Summary Matrix of Potential Impacts and Mitigation Measures Associated with the Proposed Project Related to Hydrology and Water Quality

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Impact 3.10-4: Construction and operation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. As such, implementation of the proposed project would result in a *less than significant impact* for construction and operations.	Construction: Less than Significant Operation: Less than Significant	No mitigation is required	Construction: Less than Significant Operation: Less than Significant

3.10.7.1 Mitigation Measures

No mitigation is required for construction or operations.

3.10.8 Significant Unavoidable Impacts

There would be no significant and unavoidable impacts to hydrology and water quality associated with construction and operation of the proposed project.