

## 3.8 HYDROLOGY AND WATER QUALITY

### 3.8.1 Background and Methodology

#### 3.8.1.1 Regulatory Context

##### ***Stormwater Regulations***

The U.S. Environmental Protection Agency (EPA) was granted authority under the Clean Water Act of 1977 to establish regulations to restore and maintain the quality of surface waters. The EPA implemented the National Pollutant Discharge Elimination System (NPDES) permit program to regulate point sources of discharge pollutants into surface waters. In California, authority to regulate under the NPDES program has been delegated to the California State Water Resources Control Board (SWRCB). There are nine regional boards that implement SWRCB policy as related to climate and geographic conditions within the boards' regulatory boundaries. The Airport is located within the North Coast Regional Water Quality Control Board (Regional Board) boundary.

The NPDES program began a phased approach to regulate nonpoint sources of pollution associated with development in 1987. Phase II was implemented in 2003, requiring small stormwater systems in an urban area with a population of 50,000 and density of 1,000 residents per square mile to comply with the new NPDES program. The County of Sonoma, the Sonoma County Water Agency (SCWA), and the City of Santa Rosa have been issued a joint NPDES Phase I Municipal Stormwater Permit by the Regional Board that has recently been expanded to include Phase II requirements. The County of Sonoma regulates compliance in unincorporated areas and has authority over the Airport.

The County of Sonoma's Stormwater Quality Ordinance (Ordinance Number 4981) establishes NPDES requirements within unincorporated areas. Under Phase II, construction sites that result in disturbance of one or more acres must obtain a Stormwater General Construction Activity Stormwater Discharge Permit that includes preparation of a Stormwater Pollution Prevention Plan (SWPPP), implementation of construction Best Management Practices (BMPs) to minimize erosion and runoff, monitor discharges from construction sites, and to implement post-construction BMPs. Post-construction BMPs are intended to treat runoff from impervious areas to reduce pollutants from entering waterways.

Additionally, the County of Sonoma, SCWA and City of Santa Rosa have adopted a Standard Urban Stormwater Mitigation Plan (SUSMP) as a requirement of both the NPDES Phase I and Phase II permits. The stated SUSMP intent is to manage storm water runoff from new development and redevelopment, both for quality and quantity, as close to the point of origin as possible, and to conserve natural areas of the development site. It has the following three goals:

- prevent pollutants generated at developed or redeveloped sites from reaching the storm water conveyance system to the maximum extent practicable;
- limit storm water flows from post-development sites to predevelopment quantities to the maximum extent practicable; and
- conserve natural areas of a development site to the maximum extent practicable.

In addition to the above stormwater regulations, the Airport operates under an Industrial Storm Water Pollution Prevention Plan for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (General Permit) to comply with the SWRCB Water

Quality Order No. 97-03-DWQ and NPDES General Permit No. CAS000001. The General Permit has two major objectives:

- to identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of storm water discharges and authorized non-stormwater discharges from the Airport; and
- to identify and implement site-specific BMPs to reduce or prevent pollutants associated with industrial activities in stormwater discharges and authorized non-stormwater discharges. The General Permit includes long-term monitoring of SWPPP elements to ensure that they continue to be effective and maintained.

### **Section 404 of the Clean Water Act**

The U.S. Army Corps of Engineers (USACE) regulates Waters of the United States under Section 404 of the Clean Water Act. For a discussion of Waters of the U.S. and wetlands, see Section 3.14. The placement of fill material into Waters of the U.S. (including wetlands) generally requires an individual or nationwide permit from the USACE under Section 404 of the Clean Water Act.

### **Porter-Cologne Water Quality Control Act**

The State of California adopted the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) in 1969 to establish the nine regional boards, adopt statewide water quality control plans to establish water quality objectives for specific water bodies and authorize the NPDES program under the CWA.<sup>1</sup>

The Regional Board prepared the North Coast Water Quality Control Plan (Basin Plan) to establish the legal, technical, and programmatic basis for water quality regulation in the region.<sup>2</sup> The Basin Plan describes beneficial uses of major surface waters and their tributaries that are enforced by the Regional Board through issuance of permits. Specifically, under its Porter-Cologne Act authority, the Regional Board reviews projects for either Waiver of Waste Discharge Requirements, or for more complicated or larger scale projects, Waste Discharge Requirements. Waste Discharge Requirements are required of all wastewater treatment providers in the region. The Regional Board also reviews permits for discharge of wastes and wastewater to land and land disturbance activities if the activities could affect the beneficial uses of surface water or groundwater.

The Basin Plan sets forth beneficial uses for each hydrologic unit and subarea within the Regional Board's jurisdictional area. Project applications are reviewed, in part, for compliance with beneficial uses in the unit. The project is located within the Russian River Hydrologic Unit/Mark West Hydrologic Subarea. Beneficial uses for the Russian River Hydrologic Unit/Mark West Hydrologic Subarea are identified in **Table 3.8-1**.

The Regional Board is responsible for permitting actions that may affect Waters of the State, defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Board protects all waters in its

<sup>1</sup> California Water Resources Control Board, *The Porter-Cologne Water Quality Control Act, California Water Code, Division 7 subsection 13000 et seq*, available at: [http://www.waterboards.ca.gov/laws\\_regulations/docs/portercologne.pdf](http://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf). Accessed May 25, 2011.

<sup>2</sup> North Coast Regional Water Quality Control Board, *Water Quality Regional Control Plan for the North Coast Region*, available at: [http://www.sonoma-county.org/cdc/pdf/rd/rr/mrww\\_task\\_group/070605\\_basin\\_plan.pdf](http://www.sonoma-county.org/cdc/pdf/rd/rr/mrww_task_group/070605_basin_plan.pdf). Accessed May 25, 2011.

regulatory scope, but has special responsibility for wetlands, riparian areas and headwaters. These water bodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. Regional Board jurisdiction includes isolated wetlands and waters that may not be regulated by the USACE under Section 404. Waters of the State are regulated by the Regional Board under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Act. Projects that require a USACE permit, or fall under other federal jurisdiction and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to

Table 3.8-1  
**USES FOR HYDROLOGIC UNIT/MARK WEST HYDROLOGIC SUBAREA**

Existing Beneficial Use	Potential Use
Municipal and Domestic Supply	Industrial Process Supply
Agricultural Supply	Hydropower Generation
Industrial Service Supply	Shellfish Harvesting
Groundwater Recharge	Aquaculture
Freshwater Replenishment	
Navigation	
Water Contact Recreation	
Non-Contact Water Recreation	
Commercial and Sport Fishing	
Warm Freshwater Habitat	
Cold Freshwater Habitat	
Wildlife Habitat	
Rare, Threatened, or Endangered Species	
Migration of Aquatic Organisms	
Spawning, Reproduction, and/or Early Development	

SOURCE: North Coast Water Quality Control Plan  
 PREPARED BY: Brelje & Race

Waters of the State, the Regional Board has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

**1602 Lake and Streambed Alteration Agreement**

The California Fish and Game Code requires an entity to notify the Department of Fish and Game (DFG) of any proposed activity that may substantially modify a river, stream, or lake. If the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. The Agreement includes reasonable conditions

necessary to protect those resources and must comply with the California Environmental Quality Act (CEQA). The entity may proceed with the activity in accordance with the final Agreement.<sup>3</sup>

### **Total Maximum Daily Load**

In accordance with Section 303(d) of the Clean Water Act, the Regional Board has identified impaired water bodies within its jurisdiction. The project is located within the Russian River watershed. The entire Russian River watershed has been determined to be impaired for sediment and temperature. Once a water body has been determined to be impaired, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant causing the impairment. TMDL is defined as: the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources and natural background, and a margin of safety. TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

#### **3.8.1.2 Thresholds of Significance**

The project would have a significant impact if it would:

1. violate any water quality standards or waste discharge requirements;
2. substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
3. substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
4. substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
5. create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
6. otherwise substantially degrade water quality; or
7. place within a 100-year flood hazard area structures which would impede or redirect flood flows.

#### **3.8.1.3 Methodologies**

The Proposed Project elements were evaluated for the potential to adversely affect the water quality and natural hydrology of the region. Potential impacts were evaluated based on applicable regulatory context, aerial photography, USGS quad sheets and available county reference documents (SUSMP and the County Grading Ordinance) that address water quality and stormwater guidelines. Technical analyses prepared by Brelje & Race include a Preliminary Stormwater Plan/SUSMP Assessment, Technical Report on Airport Drainage, Airport Creek Hydrologic Models and Preliminary Design – Airport Creek Constructed Natural Channel and Culvert. These studies are included in **Appendix J**.

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<sup>3</sup> California Department of Fish and Game, *Lake and Streambed Alteration Program*, available at: <http://www.dfg.ca.gov/habcon/1600/>. Accessed July 19, 2011.

## 3.8.2 Existing Conditions

### 3.8.2.1 Surface Waters

The project is located within the Mark West Creek subbasin of the Russian River Watershed. The subbasin is comprised of approximately 83 square miles that includes Windsor and the northern portion of Santa Rosa. Elevations in the subbasin range from 50 feet above sea level at the confluence of Mark West Creek and the Russian River to nearly 2,000 feet above sea level at its eastern boundary. Elevations at the Airport range from approximately 100 to 140 feet above sea level. The eastern portion of the subbasin is considerably more topographically diverse with mountains and valleys while the western portion, where the project is located, is generally flat. The site receives an average annual rainfall of approximately 31 inches.

Three creeks cross the Airport, generally from east to west. The creeks are tributary to Mark West Creek via Windsor Creek to the west of the Airport. Runoff from the northern and northeastern portions of the Airport drains to Redwood Creek and Airport Creek. Both creeks support marginal riparian habitat or wetlands. Ordinance Creek has been largely channelized or put into a culvert and provides drainage to the developed area of the hangars and aircraft storage on the eastern central portion of the Airport. Runoff from the southern portion of the Airport drains to depressions along the north side of Laughlin Road and then leaves the site via culverts and unnamed seasonal drainages to Mark West Creek to the south. The western portion of the Airport drains to Ordinance Creek and then to Airport Creek prior to leaving the site at an existing culvert under Windsor Road. Creeks and site drainage are shown in **Figure 3.8-1**.

The Airport is located within the Santa Rosa Plain that extends from just south of Cotati to approximately 20 miles to just north of Windsor. The Santa Rosa Plain is approximately six miles wide, defined by the Mayacamas on the east and the Coastal Range on the west. Primary water quality impairments in the Santa Rosa Plain as described in the County of Sonoma General Plan and Basin Plan are sedimentation and siltation, nutrients and pathogens. The Santa Rosa Plain is composed of several subbasins. The Airport is located within the approximately 89 square mile Mark West Creek subbasin. Agricultural practices and the conversion of rangeland and forestland to vineyard have increased sedimentation and siltation in the subbasin. Nutrients have been introduced by the use of fertilizers, grazing livestock and leaking septic systems, among others. Pathogens, primarily fecal coliform bacteria, have been introduced into the watershed by wastewater discharges, leaking septic systems, and from animal waste.

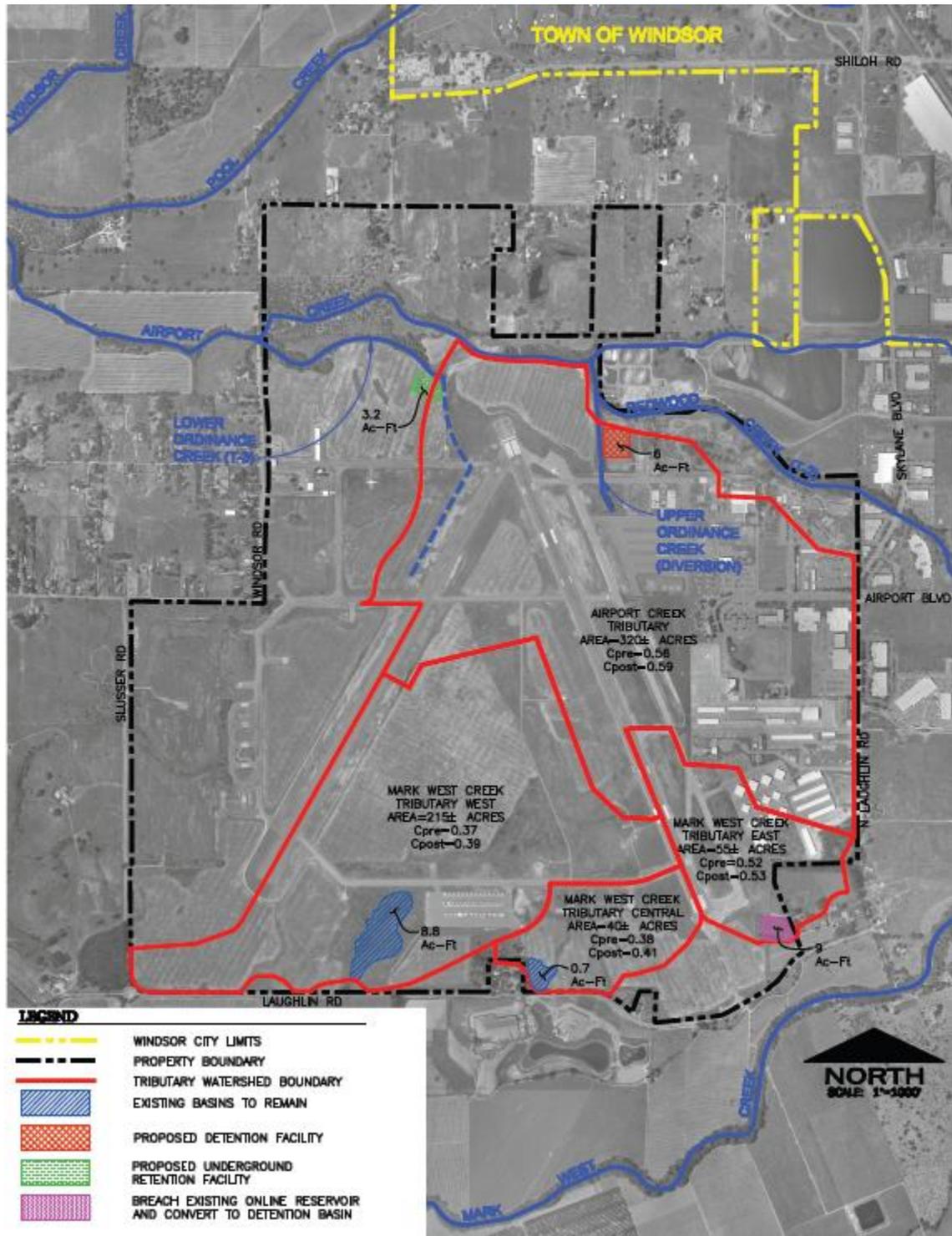
### 3.8.2.2 Flood Plains

The Federal Emergency Management Agency (FEMA) produces Flood Insurance Rate Maps (FIRM) as part of the National Flood Insurance Program to define floodways and determine areas subject to inundation during flooding events. The Airport has been mapped by FEMA and flooding information is included on FIRM Maps effective December 2, 2008.<sup>4</sup> Airport Creek and Redwood Creek both experience flooding within the project extents under current conditions. FIRM designations are shown in **Figure 3.8-2**.

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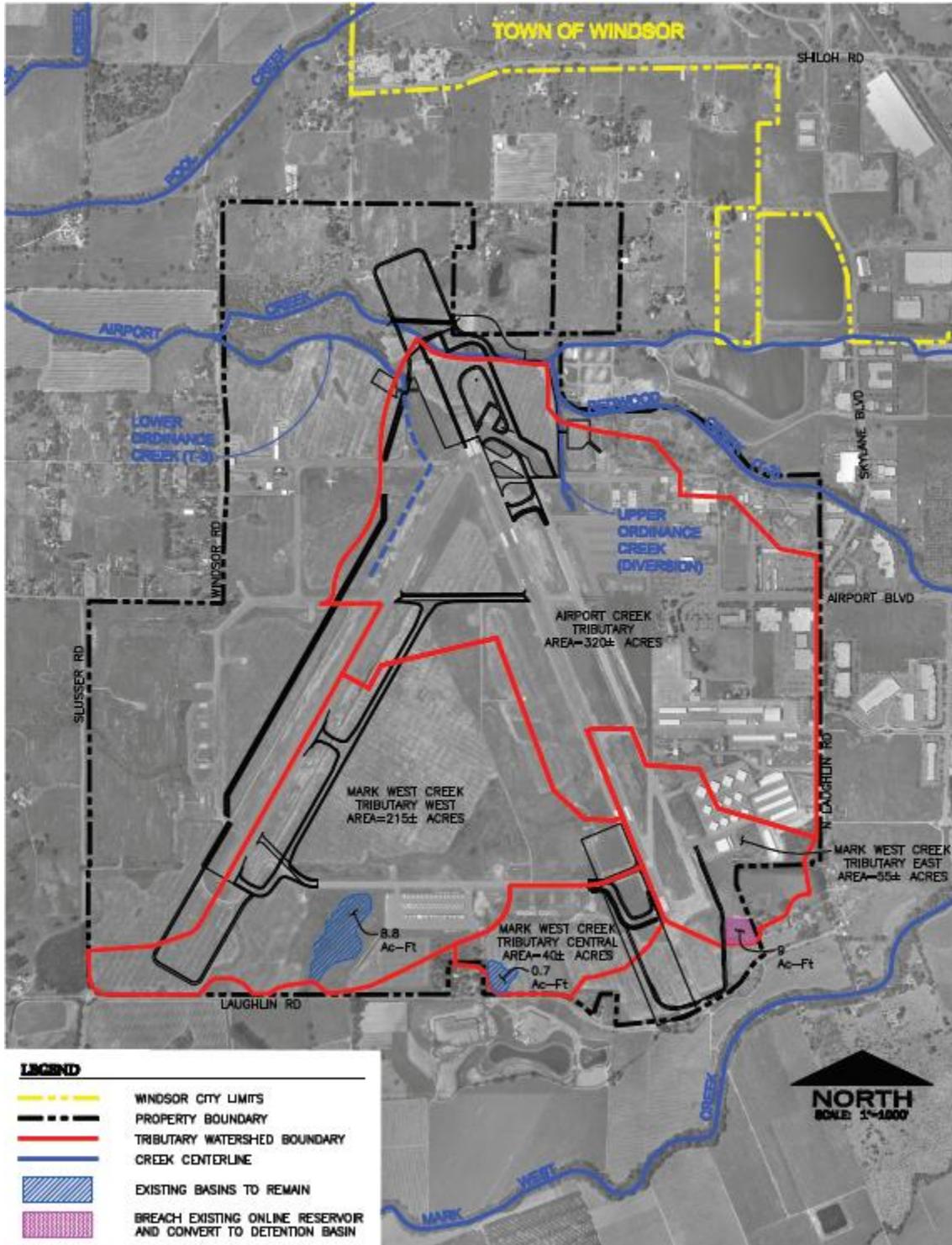
<sup>4</sup> Federal Emergency Management Agency, *FIRM Maps 06097C0564E, 06097C0568E, 06097C0702E and 06097C0706E*, available at: <http://www.msc.fema.gov>. Accessed May 25, 2011.

Figure 3.8-1  
AIRPORT VICINITY TRIBUTARY AND WATERSHED MAP



SOURCE: Brelje & Race  
PREPARED BY: Brelje & Race

Figure 3.8-2  
AIRPORT VICINITY FLOODPLAIN MAP



SOURCE: Brelje & Race  
PREPARED BY: Brelje & Race

### **3.8.2.3 Groundwater**

Approximately 42 percent of Sonoma County uses groundwater for potable and irrigation uses. The Sonoma County General Plan establishes four classifications to indicate general areas of groundwater availability:

- Class I are the major groundwater basins;
- Class II are major natural recharge areas;
- Class III are marginal groundwater availability areas; and
- Class IV are areas with low or highly variable water yield.

The General Plan designates the Airport as a major groundwater basin (Class I).

The project is located entirely within the Santa Rosa Valley Groundwater Basin and the Santa Rosa Plain Subbasin, which is distinct from the surface water subbasin. The Santa Rosa Plain Subbasin is the largest of the subbasins with a total surface area of approximately 125 square miles, extending from Rohnert Park in the south to between Healdsburg and Windsor in the north. The County of Sonoma does not currently have a groundwater management plan. Groundwater is managed indirectly by PRMD through well permits and by groundwater availability zones established in the General Plan.

### **3.8.3 Environmental Impacts and Mitigation Measures**

#### **Impact 3.8.1: Increase in Runoff as a Result of Short-Term Project Elements**

The total impervious area (TIA) associated with the Proposed Project would increase from approximately 215 acres to 240 acres, or an increase of 12 percent. With a total of 1,060 existing acres, the Proposed Project would result in an increase of two percent of the Airport being converted to impervious surface. Approximately 15 acres of the new impervious surface will drain to the north and approximately 10 acres will drain to the south.

On the northern portion of the Airport, a detention basin facility would be provided to reduce peak runoff to existing conditions for up to the 100-year 24-hour storm event, as well as a second retention basin facility sized to retain the runoff volume increase from the two year, 24-hour storm event. These basins are intended to regulate (detain and retain) runoff from the improvements within the Airport Creek watershed shown on **Figure 3.8-1**. Sizing for the retention and detention basin elements have been assessed according to standards contained in the *Guidelines for Standard Urban Storm Water Mitigation*<sup>5</sup> and the *Sonoma County Water Agency Flood Control Design Criteria Manual*.<sup>6</sup>

The retention and detention facilities have been designed to compensate for the increase in runoff and volume increases based on the increase in impervious area to be implemented on the northern portion of the site that drains to Airport Creek. Detention of stormwater is used to meter out releases to reflect runoff rates from existing conditions. Retention is utilized to retain stormwater from the two year, 24-hour storm event. Treatment of stormwater runoff is discussed below in section 3.8.4. The Airport Creek tributary area is approximately 320 acres and includes the majority of the existing and proposed site development on the east side of the Airport. Incorporation of the retention and detention facility, as required by **Mitigation Measure 3.8.1**

<sup>5</sup> County of Sonoma, *Guidelines for the Standard Urban Storm Water Mitigation Plan* (2005), available at: <http://www.sonoma-county.org/prmd/sw/pdf/susmp.pdf>. Accessed May 25, 2011.

<sup>6</sup> Sonoma County Water Agency, *Flood Control Design Criteria* (1983), available at: [http://www.scwa.ca.gov/files/SCWA-Flood%20Control\\_Sm.pdf](http://www.scwa.ca.gov/files/SCWA-Flood%20Control_Sm.pdf). Accessed May 25, 2011.

will ensure that any impacts to on- or off-site flooding are reduced to a less-than-significant level.

The runoff volume generated from the two year, 24-hour storm would be increased slightly from approximately 57 acre-feet under the existing conditions to approximately 60 acre-feet with implementation of the Proposed Project, representing an increase of three acre-feet over existing conditions. A retention facility to retain three acre-feet and a detention facility to detain six acre-feet are included in the project description. The retention basin is intended to retain the increase in volume from at least the two year, 24-hour storm event and maintain the equivalent runoff volume as existing conditions. The detention facility would reduce peak flow for up to the 100-year event. These criteria comply with SUSMP for mitigation of the potential for downstream impacts as a result of hydromodification (modifying the amount of impervious surfaces leading to an increase runoff) for a given project. Therefore, impacts to downstream Windsor Creek from hydromodification (insignificant for two year storm events or less) of its local tributary, Airport Creek, is not considered significant.

The southern portion of the Airport ultimately drains to Mark West Creek. There are three locations where drainage leaves the Airport to the south from existing drainage basins (see **Figure 3.8-1**). Existing capacities and required volume to provide retention and detention is presented in **Table 3.8-2**.

Table 3.8-2  
CAPACITIES OF WATER BASINS

Basin	Existing Volume	Required Volume
West	+/- 8.8 acre feet	1.4 acre feet
Central	+/- 0.7 acre feet	0.4 acre feet
East	+/- 9.0 acre feet	4.1 acre feet

SOURCE: Brelje & Race  
PREPARED BY: Brelje & Race

An approximate 6.0-acre-foot detention basin facility would be provided to reduce peak runoff to existing conditions for up to the 100-year 24-hour storm event. An approximate 3.2-acre-foot retention basin facility sized to retain the runoff volume increase from the 2-year, 24-hour storm event also would be provided. Final sizing would be determined during final project design. Locations for the facilities are proposed in this document. Final siting would be subject to performance testing to ensure site suitability during the final design of the project. Any revision to proposed siting would be located in areas reviewed in this document and demonstrated to be equal to or less disruptive of existing resources than the proposed location.

The west basin consists of an existing, low lying area where runoff collects. The existing central basin was created by a berm constructed at the downstream end to capture runoff. During smaller, more frequent storm events, the west and central basins provide retention, promoting infiltration and/or evaporation. During larger, less frequent storm events, these basins have a discharge outlet (culvert), which provide detention functions by attenuating runoff that is conveyed south of Laughlin Road, ultimately into Mark West Creek. At the west and central locations, the topography of the existing basin features currently have more than adequate capacity to provide detention and retention of runoff, and would continue to do so post-

construction. There is no need to provide additional stormwater retention or detention volume in these two subbasins. The east basin is an existing, man-made online reservoir. Based on review of aerial photos and conversations with the adjacent property owner, this reservoir historically remains full throughout the year, indicating that the reservoir does not provide any retention functions. The required retention volume for the easterly tributary watershed is accounted for by incorporated it into the total proposed underground retention basin to the north where the soil conditions are better suited for infiltration. The existing online reservoir will be reconfigured to work as a detention facility with adequate capacity by installation of a new outlet, which will attenuate runoff that is conveyed south of Laughlin Road, ultimately into Mark West Creek. Post-construction stormwater treatment is discussed below in **Section 3.8.4**. Therefore, there would be no impact to off-site drainage from the southern portion of the Airport.

#### **Mitigation Measure 3.8.1**

No mitigation is warranted.

#### **Impact 3.8.2: Changes to Airport Creek and Ordinance Creek**

The implementation of the short-term project elements would result in the re-routing of Airport Creek, which currently passes just to the north of the approach ends of Runways 14 and 19. Approximately 1,500 feet of Airport Creek's meandering natural channel would be rerouted through approximately 650 feet of straight culvert and 850 feet of constructed channel. Approximately 280 feet of the existing ditch that connects Airport Creek to Ordinance Creek (cross connection) would be replaced by 600 feet of culvert.

A computer model of Airport Creek (limited to the reach between Skylane Boulevard and the confluence with Windsor Creek) using the Army Corps of Engineers' HEC-RAS software was developed to provide a resource for the design phase of the Proposed Project and to more precisely represent both the existing Airport/Ordinance Creek system as well as evaluate the impacts of proposed changes to Airport Creek within the limits of the Proposed Project (see **Appendix J**). An update of the existing hydrology models of Airport Creek, Ordinance Creek and Redwood Creek, which drain the northern portion of the Airport is presented in **Appendix J**. Updated peak flow values were appropriately incorporated into a digital hydraulic model of Airport Creek.

Preliminary design of the channel realignments was done to determine feasibility and design parameters associated with hydraulic capacity and flooding. The normal design event (the storm frequency event) for Airport Creek in this location is the 25-year event, based on an upstream tributary area of approximately two square miles, which places it in the category of a secondary waterway. The proposed improvements combined with high existing elevations north of the realigned Airport Creek channel would not allow overland relief of 100-year event runoff where the water escapes the banks. Therefore, per Sonoma County Water Agency Flood Control Design Criteria, the preliminary design event for the evaluation of these improvements used the 100-year storm. The modeling is included in **Appendix J**.

The proposed constructed channel configuration is a trapezoidal channel with a bottom width of 30 feet and 4:1 side slopes. Ultimately, the final design for the channel would include provisions for low-flow conditions. Culverted sections use standard box culvert sizes and would meet the requirements of the Sonoma County Water Agency Flood Control Criteria. The proposed configuration of the culvert conveying Airport Creek under the runway safety area is a triple box culvert made up of three 10-foot wide by eight-foot high concrete conduits. Calculations in **Appendix J** show that there is adequate flow capacity and freeboard (height between the water

surface and culvert) provided by this configuration. Outlet velocity is within an acceptable range of less than five feet per second for the 100-year event. The proposed cross connection culvert from Ordinance Creek would be an eight-foot wide by four-foot wide box culvert. The existing ditch from the cross connection outfall to Ordinance Creek (a distance of approximately 150 feet) would be excavated down approximately two feet to permit enough hydraulic grade (change in water level to facilitate flow) in the cross connection culvert.

Calculations for the constructed channel upstream of the culverts indicate that the proposed cross section of 4:1 side slopes and a 30-foot-wide channel bottom would adequately convey the 100-year event, provided that finished top of bank is at least 1.5 feet higher than the calculated 100-year water surface elevation along the length of the new channel. The channel realignment trends north into an area of higher elevation to the existing Airport Creek channel to be replaced, so this requirement should be easily met by the finish grade. There is a transition zone at the point where the channel connects into Airport Creek where overbank flow (flooding) could occur. Such flooding in this area would not affect any existing buildings or facilities in the flood plain, and would qualify for an exception to freeboard (difference between the water surface elevation and the top of bank) requirements for existing conditions as described in the SCWA Flood Control Design Criteria manual.

The hydraulic improvement resulting from the construction of the box culvert and realigned channel would not result in increased water surface elevations upstream of the point where the constructed natural channel connects back into the existing Airport Creek channel. Similarly, neither Redwood Creek, which has a confluence with Airport Creek a short distance upstream from the proposed channel realignment nor Airport Creek upstream of the project would be hydraulically affected by the Proposed Project.

The preliminary design contained in **Appendix J** concludes that the box culvert and creek realignment elements accommodate modeled flows and would reduce any potential risk of upstream flooding to a less-than-significant level. The long-term project elements require no realignment to any of the creeks in the Airport Study Area and would have no impact on these resources.

### **Mitigation Measure 3.8.2**

No mitigation is warranted.

### **Impact 3.8.3: Construction-Related Degradation of Surface Waters**

During construction activities, vegetation is removed and bare earth is exposed, moved and stockpiled, leaving it subject to erosion by wind and rainfall. Runoff can transport erodible earthen materials offsite and into waterways, contributing to sediment and siltation loads within those waterways.

As a requirement of Statewide General Construction Stormwater Discharge Permit and SUSMP, the Proposed Project must implement construction and post-construction stormwater quality BMPs. While the construction-related degradation of surface waters associated with the long-term project elements would generally be less than for the short-term project elements, construction and post-construction stormwater quality BMPs would be implemented for both long-term and short-term project elements.

Project construction would result in grading of approximately 120 acres for proposed improvements. Based on a total existing size of 1,060 acres, this represents approximately 11

percent of the Airport. The Proposed Project would be required to file a Notice of Intent with the SWRCB in compliance with General Construction Permit, prepare and implement a SWPPP and an erosion control plan. Appropriate BMPs would be implemented by the Proposed Project to minimize construction-related erosion and runoff which would include the following:

- schedule construction activities during dry weather and keep grading operations to a minimum during the rainy season (October 15 through April 15);
- protect and establish vegetation;
- stabilize construction entrances and exits to prevent tracking onto roadways;
- protect exposed slopes from erosion through preventative measures and cover the slopes to avoid contact with storm water by hydroseeding, applying mulch or using plastic sheeting;
- install straw wattles and silt fences on contour to prevent concentrated flow - straw wattles should be buried three to four inches into the soil, staked every four feet, and limited to use on slopes that are no steeper than three units horizontal to one unit vertical - silt fences should be trenched six inches by six inches into the soil, staked every six feet, and placed two to five feet from any toe of slope;
- designate a concrete washout area to avoid wash water from concrete tools or trucks from entering gutters, inlets or storm drains and maintain washout area and dispose concrete waste on a regular basis;
- establish a vehicle storage, maintenance and refueling area to minimize the spread of oil, gas and engine fluids. Use oil pans under stationary vehicles;
- protect drainage inlets from receiving polluted storm water through the use of filters such as fabrics, gravel bags or straw wattles;
- check the weather forecast and be prepared for rain by having necessary materials onsite before the rainy season; and
- inspect all BMPs before and after a storm event and maintain BMPs on a regular basis and replace as necessary.

Compliance with the SUSMP, the General Construction Permit and the County Grading Ordinance would ensure that construction measures to reduce runoff and prevent polluted runoff from leaving the Airport would be incorporated into the Proposed Project and are required by mitigation contained in **Section 3.6, Geology and Soils**. Included mitigation would insure that any impact to surface waters from construction-related activities are minimized to the extent practicable and are less than significant (see **Mitigation Measure 3.6.2**).

### **Mitigation Measure 3.8.3**

No mitigation is warranted.

### **Impact 3.8.4: Runoff-Related Degradation of Surface Waters**

The new pavement areas would be designed to avoid direct drainage to Airport Creek to the north and Mark West Creek to the south. Precipitation falling on the new paved areas would drain towards the pavement edges and sheet flow through the adjacent vegetated buffer areas, similar to existing drainage conditions. The natural vegetated buffer areas provide initial infiltration and treatment prior to being collected by drainage facilities and discharged into the existing creek systems. The vegetated buffer areas are minimally 100 feet in width, greater than the adjacent paved areas conveying runoff through these areas, which meets or exceeds SUSMP requirements. This overland flow treatment is preferred to mechanical treatments from a regulatory, cost and maintenance perspective. No further post-construction mitigations are

determined to be necessary and impacts to surface water runoff quality as a result of the Proposed Project are considered to be less than significant.

The proposed changes would be reflected in the Airport's Industrial SWPPP for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (General Permit) to comply with the State Water Resources Control Board Water Quality Order No. 97-03-DWQ and National Pollutant Discharge Elimination System General Permit No. CAS000001. The General Permit was updated in 2008 but does not recognize proposed improvements associated with the Proposed Project. Stormwater treatment elements of the General Permit are self correcting as a result of monitoring and revisions to the SWPPP to address detected deficiencies. However, failure to appropriately update the General Permit could result in not being in compliance with stormwater sampling procedures, which could lead to permit violations and less effective stormwater treatment and monitoring, which would be a potentially significant impact.

#### **Mitigation Measure 3.8.4**

The County of Sonoma shall update the Airport's Industrial Storm Water Pollution Prevention Plan for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (WDID: 1B495000836) to recognize new impervious surfaces introduced by the Proposed Project and revise maintenance and sampling protocols to include such improvements.

The implementation of this mitigation measure would reduce potential impacts as a result of runoff-related degradation of surface to a less-than-significant level.

#### **Impact 3.8.5: Changes to Groundwater Recharge as a Result of Short-Term Project Elements**

The Airport receives municipal water service from the Town of Windsor, does not rely on wells and would not result in any direct lowering of groundwater via withdrawals in the immediate vicinity. Provision of municipal water service was addressed in the Initial Study (see **Appendix A**).

Impervious areas collect rainfall and convey it away from the area without the water infiltrating the soil. The proposed improvements result in an increase of two percent of the impervious surface at the Airport. Based on the relatively rural and undeveloped character of the surrounding areas, such a small increase would have a less-than-significant impact to groundwater recharge. On a regional scale, such a small conversion from pervious to impervious surface would have no measurable impact to groundwater recharge. Consistent with SUSMP goals, the Proposed Project would use retention basins to retain runoff from the two year 24-hour rainfall event. This would capture rainfall runoff associated with the new impervious areas from that storm event and retain it for percolation into the aquifer. There would be a loss of groundwater recharge associated with culverting Airport and Ordinance Creeks. A portion of that lost recharge capacity is made up for with the retention facilities, as described above. Additional recharge capacity would be created through habitat improvements for wetland and riparian mitigation (please see **Section 3.4, Biological Resources**) and stream channel improvements. Based on the largely rural character of the project area, any impact to groundwater recharge from the project would be less than significant.

### **Mitigation Measure 3.8.5**

No mitigation is warranted.

### **Impact 3.8.6: Increase in Runoff and Changes to Groundwater Recharge Associated with Long-Term Project Elements**

The long-term project elements are, necessarily, being assessed at a programmatic, first-tier level of analysis rather than a site-specific evaluation of any potential future project element. CEQA and its Guidelines state that a programmatic analysis is appropriate for a series of actions that can be characterized as one large project and are related geographically.<sup>7</sup> CEQA encourages agencies to prepare a programmatic analysis of large-scale planning approvals, such as the Master Plan, and to defer the development of detailed, site-specific information until such time as the agency receives an application and prepares a future environmental document for a project on a specific site.<sup>8</sup>

While it has been possible to make detailed assessments of some of the impacts that would be associated with long-term project elements, it is speculative at best to attempt to quantify the potential future impacts associated with increased runoff and changes to groundwater recharge without knowing the nature and scope of each long-term project element. The long-term project elements are still conceptual, and specific development plans have not been prepared. Until the precise scope, design, and location for each long-term project element is more clearly defined, any attempt to quantify impacts from increased runoff and changes to groundwater recharge on site is impossible. Impacts will be dependent not only upon the location selected for particular long-term project elements, but also on the very nature of the project proposed. For example, if the control tower is merely replaced in its existing location, there will be no additional impervious surfaces and, accordingly, no additional runoff or changes to groundwater recharge. Conversely, if the new control tower is sited at one of two alternative locations described in the Master Plan, there will be a corresponding increase in impervious surfaces and potential impacts to runoff and groundwater recharge. In addition, if the Air Cargo Facility identified as one of the long-term elements in the Master Plan is determined to be feasible, it would require grading and the addition of new impervious surfaces roughly south of Taxiway D. Without this information, impacts to runoff and groundwater recharge cannot be quantified. What is certain is that any future long-term project element proposed, would require additional environmental analysis to assess potential impacts and identify appropriate mitigation.

It should also be noted that certification of this EIR does not constitute an approval of any potential future long-term project element; nor does it compel any future County decision maker to take a particular action. Any future long-term project element would instead require a separate application and a separate, project-level environmental review, and would be subject to the unfettered discretion of the relevant decision makers. The decision makers would be free to deny future projects, and/or impose conditions on them limiting their extent, reach, methods, or environmental impacts

### **Mitigation Measure 3.8.6**

No mitigation is warranted at this time.

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<sup>7</sup> CEQA Guidelines, Subsection 15168, subd. (a)(1).

<sup>8</sup> CEQA Guidelines, Subsection 15152, subds. (b) and (c).