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**HYDROLOGY AND WATER QUALITY**

The Hydrology and Water Quality chapter of the EIR describes existing drainage and water resources for the project site, and evaluates potential impacts of the project with respect to flooding, surface water resources, and groundwater resources. Information for this chapter was drawn from the *Placer County General Plan (PCGP)*,<sup>1</sup> the *PCGP EIR*,<sup>2</sup> and the *Rancho Del Oro Subdivision Preliminary Drainage Report*<sup>3</sup> (See Appendix P).

Impacts that have already been identified in the Rancho Del Oro Estates Initial Study as having *no impact* (i.e., violate any potable water quality standards; substantially degrade groundwater quality; alter the direction or rate of flow of groundwater), as having *less-than-significant* levels (i.e., substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lessening of local groundwater supplies [i.e., 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], or impacts that include required mitigation measures to reduce the impacts to a *less-than-significant* level (i.e., place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard boundary or Flood Insurance Rate Map or other flood hazard delineation map; place within a 100-year flood hazard area improvements which would impede or redirect flood flows; expose people or structures to a significant risk of loss, injury or death involving flooding. Subsequently, the applicant's engineer performed actual cross sections of Miners Ravine and compared them to the Federal Emergency Management Agency (FEMA) stream characteristics to determine a more accurate 100-year floodplain. The drainage analysis concluded that the proposed fill for Lots 7 through 11 would be completed outside the 100-year floodplain. Further discussion on this topic is provided in the discussion regarding Impact Statement 12-4 on page 12-15. The impacts identified as *potentially significant* in the Initial Study are addressed in this chapter. Required mitigation measures from the Initial Study have been included in Chapter 2, Executive Summary, of this Draft EIR.

**12.1 ENVIRONMENTAL SETTING**

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The section below describes the existing hydrological features of the project site and the surrounding region, as well as the water quality of the existing resources in and around the project site.

**Regional Geography and Climate**

The project site is located within the Granite Bay Community Plan (Community Plan) area within Placer County (County), California. The Community Plan area encompasses approximately 25 square miles of developing countryside in the western region of the County and is encompassed by Dick Cook Road to the north, Sierra College Boulevard on the west, Folsom Lake to the east, and the Sacramento County line to the south. Elevations range from 200

above sea level (asl) to 600 feet asl. The drainage pattern of the Community Plan area generally slopes from the east to west-southwest through a series of small drainages and streams. Major surface water features in the vicinity of the Community Plan area includes the American River, Folsom Lake, and Dry Creek.

The average rainfall for the Community Plan area is 25 inches, of which, approximately 90 percent occurs between the months of November and April each year (wet months). The primary soil type in the Community Plan area is the San Andreas Series, which are generally well-drained soils with moderately rapid permeability.

### **Surface Water Features**

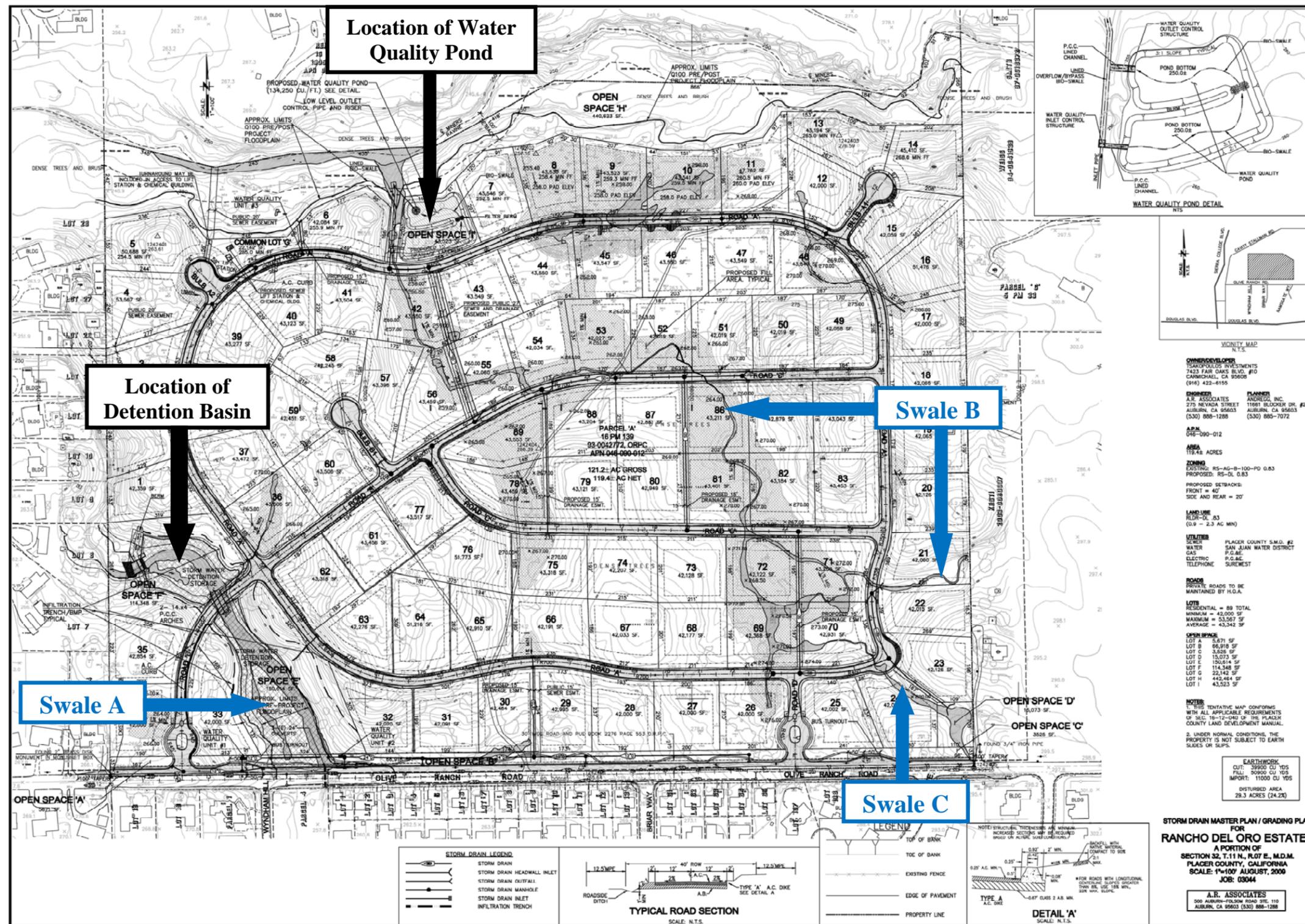
The project site is comprised of an undeveloped, single approximately 119-acre parcel located just north of Olive Ranch Road, approximately one quarter of a mile east of Cavitt-Stallman Road. Miners Ravine is a perennial stream that enters and exits the northern boundary of the project site, is the main natural drainage way for the site. Several swales are located onsite and form intermittent drainages into Miners Ravine, discussed below. The project site also contains a protected seasonal wetland and a small water pond for the cattle near the southern area of the site.

### **Local Drainage**

The project site is located within the Dry Creek Watershed, which encompasses approximately 101-square miles in Sacramento and southern Placer County, including portions of Rocklin, Roseville, and Granite Bay. Tributaries of the Dry Creek Watershed include Antelope Creek, Clover Valley Creek, Secret Ravine, Strap Ravine, Linda Creek, Cirby Creek, and Miners Ravine. Miners Ravine traverses the northern edge of the project site in an east to west direction and is a major tributary of the Dry Creek watershed.

The project site contains two main/significant swales (Swales A and B) that direct runoff into Miners Ravine to the north. Swale A is located near the southwest corner of the project site and contains a seasonal wetland. Approximately 325 off-site acres drain into Swale A via three 24-inch culverts located underneath Olive Ranch Road. The swale continues northward until the natural topography redirects Swale A to exit the project site along the western property line. Approximately 32.5 on-site acres drain into Swale A. Swale B enters the project site along the eastern property boundary, approximately 650 feet north of Olive Ranch Road. Approximately 43.5 off-site acres would drain into Swale B. A smaller branch of Swale B, Swale C, drains approximately 11.5 off-site acres and enters the project site approximately 500 feet south of Swale B along the eastern property line. The smaller branch joins with Swale B in the southeast corner of the project site and together, both swales drain approximately 65 on-site acres prior to discharging into Miners Ravine (See Figure 12-1 for identification of swale locations).

Figure 12-1  
 Drainage Features and Site Plan



## **Stormwater Drainage**

The project site is currently undeveloped and used for cattle grazing. The site does not contain any existing, on-site structures or any stormwater drainage infrastructure. Natural drainage of the site and vicinity is discussed above under Local Drainage. Areas to the east and west include single-family residential properties that use roadside ditches for stormwater runoff that ultimately discharges into the local drainage system. The proposed project would include an on-site stormwater detention basin (by constructing a berm within open space Lot F to detain flows within Swale A) and on-site stormwater infrastructure that would treat runoff via an on-site water quality pond prior to discharge to Miners Ravine and, subsequently, to Dry Creek.

## **Local Flooding**

Flooding in the Dry Creek watershed and its tributaries is well documented. The topography of the project site is varied with moderately sloped hills along the western, eastern, and southern edges of the site and a relatively flat area in the center of the project site. On-site elevations range between 245 and 300 feet above mean seal level. The project site is within the Dry Creek Watershed Flood Control Plan area. Portions of the project site are within a 100-year floodplain, as identified by the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps (FIRMs).

It should be noted that, according to the *Preliminary Drainage Report* that was prepared for the proposed project, impacts to Olive Ranch Road caused by water ponding below the road in the Swale A detention pond would not occur. The *Preliminary Drainage Report* indicates that the 2-, 10-, and 100-year headwater elevations would remain unchanged from pre-project to post-project conditions (e.g., upstream impacts would not occur).

## **Water Quality**

Surface water quality is affected by land development, agriculture, grazing, and urban runoff. Other potential sources include vehicle traffic and residential usage of pesticides. Common pollutants that may be present in low concentrations include hydrocarbons and heavy metals and nutrient concentrations (phosphates and nitrogen compounds). Pollutants vary in urban runoff due to elapsed time between rainfall, intensity of precipitation, and surrounding land uses. The greatest contribution of pollutants to surface waters generally occur during the first rain event of the year, as precipitation transports contaminants from surfaces and upper soils into local drainages.

## **Groundwater**

The project site and vicinity do not contain any documented groundwater wells within a one mile radius. However, just west of the project site in Miners Ravine, groundwater has been historically documented at depths of 10 to 20 feet below the surface. According to the Community Plan, the weathered and decomposed granite rock underlying most soils has very low permeability. Groundwater typically occurs only in small openings along fractures and would be of a limited quantity, when compared to other areas of the County. As identified in

Chapter 11, Soils, Geology, and Seismicity, four types of soils are found within the project site. The majority of the site contains Caperton-Andregg coarse sandy loams.

Approximately 50 percent of the on-site soils are comprised of Caperton soils, which are generally a shallow and somewhat excessively drained soil type. Of the remaining soils, approximately 30 percent are Andregg soils, which are moderately deep and well drained.

## **12.2 REGULATORY SETTING**

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The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of hydrology and water quality under the California Environmental Quality Act (CEQA) process.

### **Federal Regulations**

#### Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplains.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within the flood hazard areas, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). These standards are implemented at the State level through construction codes and local ordinances; however, these regulations only apply to residential and non-residential structure improvements. Although roadway construction or modification is not explicitly addressed in the FEMA regulations, the California Department of Transportation (Caltrans) has also adopted criteria and standards for roadway drainage systems and projects situated within designated floodplains. Standards that apply to floodplain issues are based on federal regulations (Title 23, Part 650 of the CFR). At the State level, roadway design must comply with drainage standards included in Chapters 800-890 of the Caltrans Highway Design Manual.

CFR Section 60.3(c)(10) restricts cumulative development from increasing the water surface elevation of the base flood by more than one foot within the floodplain.

#### Federal Clean Water Act

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain

general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

Nonpoint sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff, but is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements.

However, two types of nonpoint source discharges are controlled by the NPDES program: nonpoint source discharge caused by general construction activities, and the general quality of stormwater in municipal stormwater systems. The 1987 amendments to the CWA directed the federal EPA to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by EPA that are not included in Phase I.

## **State Regulations**

### State Water Resources Control Board

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. As discussed above in the water quality discussion, the project site is situated within the jurisdiction of the Central Valley Region of the RWQCB (Region 5). The CVRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within the CVRWQCB's jurisdiction.

### Construction Site Runoff Management

In accordance with NPDES regulations listed above, in order to minimize the potential effects of construction runoff on receiving water quality, the State requires that any construction activity affecting one (1) acre or more must obtain a General Construction Activity Stormwater Permit. Permit applicants are required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and implement Best Management Practices (BMPs) to reduce construction effects on receiving water quality by implementing erosion and sediment control measures.

## **Local Regulations**

### Granite Bay Community Plan

The following GBCP goals and policies are related to hydrology and water quality.

*Conservation Element*

- Goal 4      Protect the high quality of air and water resources consistent with adopted federal, state, and local standards.
- Policy 15      Retain in their natural condition all stream influence areas, including floodplains and riparian vegetation areas, while allowing for limited stream crossings for public roads, trails, and utilities.
- Policy 26      Review proposed projects for their potential adverse affect on air and water quality.
- Policy 27      Encourage application of measures to mitigate erosion and water pollution from earth disturbing activities such as land development and road construction.
- Policy 28      Control of fugitive dust at construction sites by the use of water and other reasonable dust controls shall be required.
- Policy 34      Construction activities within floodways shall generally be prohibited.
- Policy 36      Grading activities shall be prohibited during the rainy season.

*Safety Element*

Flood Hazard

- Goal      Protect the lives and property of the citizens of the Granite Bay area from unacceptable risk resulting from flood hazards.
- Policy 1      Continue to work closely with the U.S. Army Corps of Engineers and Resource Conservation District in defining existing and potential flood problem areas.
- Policy 2      Evaluate potential flood hazards in an area prior to the approval of any future development.
- Policy 4      Maintain natural conditions within the 100-year floodplain of all streams where work is required to maintain the stream's drainage characteristics and where work is done in accordance with the Placer County Flood Damage Prevention Ordinance.

- Policy 6      New construction shall not be permitted within 100-feet of the centerline of permanent streams and 50-feet of intermittent streams, or within the 100-year floodplain, whichever is greater.

### Placer County Flood Control and Water Conservation District

Formed by Senate Bill 1312, the Placer County Flood Control and Water Conservation District (PCFCWCD) is responsible for regional strategies for flood control management. A Stormwater Management Manual (SWMM) was developed by the PCFCWCD to relate the policies, guidelines, and specific criteria for evaluating hydrologic conditions associated with new development projects.

## **12.3 IMPACTS AND MITIGATION MEASURES**

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### **Standards of Significance**

An impact is considered significant, as identified by Appendix G of the CEQA Guidelines, if the proposed project would result in any of the following:

- Violate any water quality standards or waste discharge requirements;
- Substantially alter the existing drainage pattern of the site or area;
- Increase the rate or amount of surface runoff;
- Create or contribute runoff water which would include substantial additional sources of polluted water;
- Otherwise substantially degrade surface water quality;
- Place within a 100-year flood hazard area structures that would impede or redirect floodflows; or
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Impact the watersheds of important surface resources, including but not limited to Lake Tahoe, Folsom Lake, Hell Hold Reservoir, Rock Creek Reservoir, Sugar Pine Reservoir, French Meadows Reservoir, Combie Lake, and Rollins Lake.

### **Method of Analysis**

The information contained in the Hydrology and Water Quality chapter of this EIR was derived primarily from the PCGP, the *Dry Creek Watershed Flood Control Plan*, and the *Rancho Del Oro Subdivision Preliminary Drainage Report*. Determinations of significance were made based on the existing, or planned, infrastructure's ability to accommodate the proposed project. In addition, impacts to water quality were assessed in relation to Placer County Ordinances to determine the potential for adverse impacts.

Calculations conducted in the *Preliminary Drainage Report* used the USACE's HEC-1 computer model for the 100-year storm event, while calculations for the 24-hour, two-year, and 10-year events used the USACE HMS computer program. At the request of the Placer County Flood

Control District, Miners Ravine and the downstream Dry Creek system was analyzed for potential impacts related to the development of the proposed project.

As stated earlier, impacts identified as *potentially significant* within the Initial Study are addressed below. All other impacts related to the Standards of Significance listed above have previously been addressed in the Initial Study and have been identified as having *no impact*, a *less-than-significant* impact, or include mitigation measures to reduce the proposed project's potential for an adverse impact to a *less-than-significant* level.

## **Project Impacts and Mitigation Measures**

### **12-1 Project impacts to the existing drainage pattern and surface runoff.**

The project site contains oak woodlands and grassland habitat, which is completely undeveloped and historically used for cattle grazing. The natural slopes of the project site range from one to 15 percent and have an average infiltration rate of 0.128 inches per hour. The project site contains two existing, primary on-site swales (Swales A and B) that direct surface runoff, from both off- and on-site drainage areas, northward into Miners Ravine and subsequently into Dry Creek. A third existing on-site swale (Swale C) enters the southeast corner of the site and combines into Swale B.

The proposed project would include the development of 89 single-family home lots that would alter approximately 25 percent of the existing site to impervious surfaces (building foundations, paved streets, etc.). Development around Swale A would include the construction of a detention berm where Swale A exits the project site and the construction of a new access road (Road B), which would cross over Swale A in the southwest area of the site (See Figure 12-1). The construction of the Road B crossing would include a multi-barrel, bottomless arch type structure. The berm would form the boundary of a new stormwater detention basin to be located north of the new access road and south of the seasonal wetland to control any increases in stormwater runoff resulting from project implementation. Project designs include the construction of a concrete, stepped weir to be placed within the earthen berm to regulate flow rate from the basin. The weir would be located approximately 50-feet upstream from the westerly project boundary.

Swale B would be redirected into an underground spiral-ribbed, steel pipe that would serve as the main drainage pipeline for the proposed project throughout the site (See Figure 3-6, Storm Drain Master Plan/Grading Plan, in Chapter 3, Project Description, of this EIR). The new main drainage pipeline would begin on Lot 21 and follow the proposed lot lines and roads of the proposed project before entering a proposed water quality pond inlet control structure that would discharge into the water quality pond to be constructed in Open Space Lot I (between Lots 6 and 7 located to the northern boundary of the site). The main drainage (Swale B) would be designed to convey the post-project 100-year peak flow and include a 20 percent factor of safety. The proposed project does not include overland releases for the main drainage line (Swale B).

Swale C would also be redirected into an underground pipe that would begin at Lot 23 and end at a connection to the main drain (Swale B) by Lot 21. All proposed on-site drainage would be collected in pipe/inlet systems that would be connected to the main drain system. The new underground pipes conveying drainage from Swales B and C would convey runoff for the majority of the site into Miners Ravine (See Impact Statement 12-2 for a discussion of potential construction impacts to Miners Ravine). Details for the control and collector mechanisms for on-site lot and road drainages on the project site are included in the *Rancho Del Oro Subdivision Preliminary Drainage Report* (See Appendix P). As shown in Appendix P, drainage along Olive Ranch Road would be collected in pipe/inlet systems, treated via water quality vaults, and ultimately conveyed to Swale A Open Space Lot E between Lots 32 and 33.

Included as Appendix P, the *Rancho Del Oro Subdivision Preliminary Drainage Report* was prepared for the proposed project to evaluate the potential impacts related to the grading and development of impervious surfaces. A water quantity analysis was included in the preliminary drainage report for the 32.5 on-site and 325 off-site acres that would drain into the proposed detention basin (to be located within Open Space Lots E and F). Analysis included utilizing the USACE's HMS computer program for 24-hour, 2-, 10-, and 100-year events for pre- and post-project drainage conditions of Swale A. With the on-site detention basin provided in Swale A, there is a slight 100-year decrease to Swale A (approximately 43 cubic feet per second). Downstream properties would not be impacted by increases in peak flows due to the proposed project.

The main drainage for the project site (Swale B) would convey runoff into the water quality control pond (between Lots 6 and 7), which would have a 134,250 cubic foot capacity. According to the *Guidance Document for Volume and Flow-based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection*, introducing a 25-percent increase in imperviousness would require 600 cubic feet per acre of storage volume. A total of 141.9 acres of drainage (86.9 on-site acres plus 55 upstream, off-site acres) would drain into the proposed water quality control pond.

The required volume for the water quality control pond is 85,140 cubic feet (600 times 141.90). As previously mentioned, the proposed pond would have a storage volume of 134,250 cubic feet of storage capacity, or 157 percent of the required storage capacity.

Based on the results of the preliminary drainage report, it was determined that the proposed project including the on-site detention basin would slightly decrease peak flows for Swale A during the 100-year storm event, when compared to the peak flows of both the on- and off-site drainage of Swale A under existing conditions. It should be noted that the preliminary drainage report also includes an analysis of the project's impacts on runoff within the main stem of Miners Ravine. This analysis determined that the project would have an insignificant impact on peak flow runoff within the main stem of Miners Ravine; therefore, on-site stormwater detention is only recommended for the portion of the project site that drains to Swale A. However, the proposed project does not currently include specific construction plans or an approved, final drainage report for the development;

therefore, project implementation could result in **potentially significant** impacts to the existing drainage pattern and surface runoff.

Mitigation Measure(s)

Once implemented, the following mitigation measures would reduce the above impacts to *less-than-significant* levels.

12-1(a) *The project applicant shall prepare and submit with the project Improvement Plans a drainage report, in conformance with the requirements of Section 5 of the Land Use Development Manual (LDM) and the Placer County Storm Water Management Manual that are in effect at the time of submittal, to the Engineering and Surveying Department for review and approval. The report shall be prepared by a Registered Civil Engineer and shall, at a minimum, include the following: a written text addressing existing conditions, the effects of the improvements, all appropriate calculations, a watershed map, increases in downstream flows, and proposed on- and off-site improvements and drainage easements to accommodate flows from this project. The report shall identify water quality protection features and methods to be used both during construction and for long-term post-construction water quality protection. Best Management Practices (BMPs) shall be provided to reduce erosion and water quality degradation, and to prevent the discharge of pollutants to stormwater to the maximum extent practicable.*

12-1(b) *Drainage facilities, for purposes of collecting runoff on individual lots, shall be designed in accordance with the requirements of the County Storm Water Management Manual that are in effect at the time of submittal, and shall be in compliance with applicable stormwater quality standards, to the satisfaction of the Engineering and Surveying Department (ESD). These facilities shall be constructed with subdivision improvements and easements provided as required by the ESD. Maintenance of these facilities shall be provided by the Homeowners' Association.*

**12-2 Construction-related impacts to surface water quality.**

The proposed project would involve the construction of 89 single-family residential units on a single parcel located just north of Olive Ranch Road. Development activities would include, but not be limited to, new roadways, bridges, homes, a stormwater detention basin, parking areas, open spaces, and drainage infrastructure, all of which would require grading, excavation, and other construction activities that could cause soil erosion at an accelerated rate during storm events. All such activities have the potential to affect water quality by contributing to localized violations of water quality standards if stormwater runoff from construction activities enters receiving waters.

The exposed soils could affect water quality in two ways. Stormwater runoff from the site may contain suspended soil particles and sediments, or sediments can be transported as dust that eventually reaches local waterbodies, either through direct deposition or as suspended sediment in the runoff in this area. Spills or leaks from heavy equipment and machinery, staging areas, or building sites could also enter runoff. Typical pollutants could include, but not be limited to, petroleum products and heavy metals from equipment and products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products could result in water quality degradation if runoff containing the sediment entered receiving waters in sufficient quantities to exceed water quality objectives. Impacts from construction-related activities would generally be short-term and of a limited duration.

As the proposed project would require construction activities that would result in a land disturbance greater than one acre, the applicant would be required by the State to obtain the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP would incorporate Best Management Practices (BMPs) in order to prevent, or reduce to the greatest extent feasible, adverse impacts to water quality from erosion and sedimentation. However, as the proposed project could potentially result in short-term impacts to surface water quality, this is considered to be a *potentially significant* impact.

Mitigation Measure(s)

Once implemented, the following mitigation measures would reduce the above impacts to *less-than-significant* levels.

12-2(a) *Implement Mitigation Measure 12-1(a).*

12-2(b) *Water quality BMPs shall be designed according to the California Stormwater Quality Association Stormwater Best Management Practice Handbooks for Construction, for New Development / Redevelopment, and/or for Industrial and Commercial, (and/or other similar source as approved by the Engineering and Surveying Department (ESD)).*

*Storm drainage from on- and off-site impervious surfaces (including roads) shall be collected and routed through specially designed catch basins, vegetated swales, vaults, infiltration basins, water quality basins, filters, etc. for entrapment of sediment, debris and oils/greases or other identified pollutants, as approved by the ESD. BMPs shall be designed, at a minimum, in accordance with the Placer County Guidance Document for Volume and Flow-Based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection. Post-development (permanent) BMPs for the project include, but are not*

*limited to, the following: infiltration trenches (TC-10), water quality vaults, and a water quality treatment pond. Water quality facility construction shall not be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.*

*All BMPs shall be maintained as required to ensure effectiveness. The applicant shall provide for the establishment of vegetation, where specified, by means of proper irrigation. Maintenance of these facilities shall be provided by the project owners/permittees.*

### **12-3 Operational water quality degradation associated with urban runoff from the project site.**

The increased impervious area created by the development of the proposed project would alter the types and levels of pollutants that could be present in project site runoff. Runoff from streets, driveways, parking lots, and landscaped areas typically contains nonpoint source pollutants such as oil, grease, heavy metals, pesticides, herbicides, fertilizers, and sediment. Concentrations of pollutants carried in urban runoff are extremely variable, depending on factors such as the following:

- Volume of runoff reaching the storm drains;
- Time since the last rainfall;
- Relative mix of land uses and densities; and
- Degree to which street cleaning occurs.

The proposed project would include the construction of a water quality pond on Open Space Lot I, located between Lots 6 and 7. The water quality pond would provide for approximately 134,250 cubic feet of water quality volume. Development of the proposed project would alter approximately 25 percent of the project site to impervious surfaces. According to the *Guidance Document for Volume and Flow-based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection*, introducing 25-percent imperviousness would require a storage volume of 600 cubic feet per acre. A total of 86.9 on-site acres and 55-upstream acres (total of 141.9 acres) would drain into the proposed water quality pond on Open Space Lot I. The required pond volume would be 85,140 cubic feet (600 x 141.9). The proposed 134,250 cubic foot water quality pond would be sized for approximately 157 percent of the required volume.

Furthermore, the proposed project includes four water quality infiltration trenches, which would be constructed on Open Space Lots E and F, each would be sized in the same manner as the water quality pond, (600 cubic feet/acre), discussed above. The sizings of trench cross-sections of the four trenches have not yet been specified in the preliminary designs. The proposed project would also include three Vortech water quality units that would be sized for peak flows of 0.2 inches per hour (as set forth in the *Guidance Document for Volume and Flow-based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality*). The Vortech units would be located

in areas of the project site where infiltration trenches are not feasible and also placed alongside on-site roadways for accessibility purposes. Actual sizing and design of the water quality units have not yet been specified in the preliminary designs.

As discussed under Impact 12-2 above, the proposed project would be required to complete and submit an on-site SWPPP for approval. The SWPPP would include BMPs to reduce and/or eliminate the potential for urban runoff pollutants primarily during the construction phase of the project. However, the SWPPP includes post-construction BMPs to be implemented during the construction phase for the reduction of operational pollutants. On-site water quality protection measures included to assist with capturing potential operational pollutants include an on-site water quality pond, four water quality trenches, and three water quality units to be constructed on-site. As the final sizing specifications for the water quality trenches and water quality units have not yet been specified, operational pollutants could enter local waterways during project implementation, which is a *potentially significant* impact.

Mitigation Measure(s)

Once implemented, the following mitigation measures would reduce the above impacts to *less-than-significant* levels.

12-3(a) *Implement Mitigation Measures 12-1(a) and 12-2(b).*

12-3(b) *This project is located within the area covered by Placer County's municipal stormwater quality permit, pursuant to the National Pollutant Discharge Elimination System (NPDES) Phase II program. Project-related stormwater discharges are subject to all applicable requirements of said permit. BMPs shall be designed to mitigate (minimize, infiltrate, filter, or treat) stormwater runoff in accordance with "Attachment 4" of Placer County's NPDES Municipal Stormwater Permit (State Water Resources Control Board NPDES General Permit No. CAS000004).*

12-3(c) *All storm drain inlets and catch basins within the project area shall be permanently marked/embossed with prohibitive language such as "No Dumping! Flows to Creek" or other language as approved by the Engineering and Surveying Department and/or graphical icons to discourage illegal dumping. Message details, placement, and locations shall be included on the Improvement Plans. ESD-approved signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, shall be posted at public access points along channels and creeks within the project area. The Homeowners' association is responsible for maintaining the legibility of stamped messages and signs.*

**12-4 Exposure of people and structures to flood hazards on the project site.**

According to the preliminary hydrology study prepared for the Community Plan area and the two Flood Insurance Rate Maps (FIRMs) issued by FEMA for the project site (Panel

No. 06061C0483G and 06061C0479G, respectively), northern portions of the site along Miners Ravine are located within a 100-year floodplain. The remaining areas of the project site are areas designated as Zone X, which are outside of the 100-year floodplain located along Miners Ravine. The proposed project includes plans to fill in low areas of Lots 7-11, which could impact the 100-year floodplain along Miners Ravine. Included in Appendix P, A.R. Associates included an analysis for pre- and post-project 100-year floodplain impacts. The analysis was performed to determine if filling in the low areas of Lots 7-11 would impact the 100-year flood level. The watersurface and stream bottom elevations collected by A.R. Associates field crew were compared to the FEMA stream characteristics to assess whether the 100-year floodplain encroached onto Lots 7-11. The analysis determined that the proposed fill activities for Lots 7-11 would be completed outside of the 100-year floodplain. Per the requirements of the GBCP, Policy 6 of the Safety Element, all new construction shall not be permitted within 100 feet of the centerline of Miners Ravine. Mitigation Measure 4-3(a), presented under Impact Statement 4-3 in Chapter 4, Land Use, of this EIR, requires a 100-foot setback from the centerline of Miners Ravine for all new on-site structures proposed for development.

As discussed under Impact Statement 12-1, the proposed drainage system would be able to accept and convey stormwater runoff into Miners Ravine and subsequently into Dry Creek, which has historically been prone to flood events. The preliminary drainage report for the proposed project included an analysis of the proposed project, in combination with the current adopted watersurface profile from Placer County Flood Control and Water Conservation District for Miners Ravine. The analysis determined that the introduction of stormwater runoff from the project site would not result in any measurable increases in the 100-year peak flow of the Miners Ravine/Dry Creek drainage.

Based on the analysis included within the Rancho Del Oro Subdivision Preliminary Drainage Report (See Appendix P), the proposed project is not anticipated to result in impacts related to flood hazards. However, the proposed project does not currently include specific construction plans or a final drainage study for the project site and flood-related impacts are therefore considered as *potentially significant*.

Mitigation Measure(s)

Once implemented, the following mitigation measures would reduce the above impacts to *less-than-significant* levels.

12-4(a)      *Implement Mitigation Measure 12-1(a).*

12-4(b)      *Stormwater runoff for Swale A shall be reduced to pre-project conditions through the installation of on-site detention facilities. (On-site stormwater detention is only recommended for the portion of the project that drains into Swale A and not for the project's impacts on runoff within the main stem of Miners Ravine.) Detention facilities shall be designed in accordance with the requirements of the Placer County Storm Water Management Manual that are in effect at the time of submittal, and to the satisfaction of the Engineering and Surveying Division (ESD). No*

*detention facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.*

12-4(c) *The limits of the future, unmitigated, fully developed, 100-year floodplain (after grading) for Miners Ravine shall be shown on the Improvement Plans and Informational Sheet(s) filed with the Final Map and shall designate the same as a building setback line, unless greater setbacks are required by other project conditions.*

12-4(d) *Finished house pad elevations shall be shown two feet above the 100-year floodplain line for Lots 5, 6, 7-11, 13, and 14 and finished lift station and chemical building pad elevations shall be shown two feet above the 100-year floodplain line for Lot G on the Improvement Plans and Informational Sheet(s) filed with the Final Map. Pad elevations shall be certified by a California registered civil engineer or licensed land surveyor and submitted to the Engineering and Surveying Department. This certification shall be completed prior to construction of the foundation or at the completion of final grading, whichever comes first. No construction is allowed until this certification has been received by the Engineering and Surveying Department and approved by the Flood Plain Manager. Benchmark elevation and location shall be shown on the Improvement Plans and Informational Sheet(s), to the satisfaction of the Design Review Committee.*

## **12-5 Potential impacts to important local watershed or important surface resources.**

The proposed project has been designed to minimize potential impacts to local surface waters by gathering and re-depositing local runoff into the drainage system. Miners Ravine and Dry Creek are the local surface waters in the immediate vicinity or downstream of the project site. The limited size and scope of the proposed project would have minimal impacts to any local surface waters in the region. As described under Impact Statement 12-1, the proposed storage detention basin to be located in Open Space Lots E and F (southwest corner of site) would collect and store the 325 off-site drainage acres and the 32 on-site drainage acres before being channeled into Miners Ravine. The calculated discharge rates from the storage basin into Miners Ravine would be slightly reduced when compared to pre-project conditions. The remainder of the drainage collected on-site would be conveyed into a water quality storage pond to be located in Open Space Lot I (between Lots 6 and 7). As described under Impact Statement 12-3, the water quality control pond would be sized for 157 percent of the required storage capacity. Implementation of the recommended mitigation measures presented under Impacts Statements 12-2 and 12-3 would reduce potential construction-related and operational pollutants from entering into the local waterways. Without implementing the recommended mitigation measures, potential impacts to the important local watershed and surface resources are ***potentially significant***.

Mitigation Measure(s)

Once implemented, the following mitigation measure would reduce the above impacts to *less-than-significant* levels.

12-5            *Implement Mitigation Measures 12-3(a) through 12-3(c).*

**Endnotes**

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<sup>1</sup> Placer County, *Placer County General Plan*, August 1994.

<sup>2</sup> Placer County, *Placer County General Plan EIR*, October 1993.

<sup>3</sup> A.R. Associates, *Rancho Del Oro Subdivision Preliminary Drainage Report*, November 2007 (amended November 14, 2008).