

11

HYDROLOGY AND WATER QUALITY

The Hydrology and Water Quality chapter of the EIR describes existing drainage and water resources for the Timberline at Auburn 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*,¹ the *Placer County General Plan EIR*,² and the *Timberline at Auburn Preliminary Drainage Study* (See Appendix Y).³

Impacts that have already been identified in the Timberline at Auburn Initial Study as having *no impact* (violate any potable water quality standards; alter the direction or rate of flow of groundwater), impacts with *less-than-significant* levels (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 would be reduced to *less-than-significant* levels with the implementation of mitigation measures included in the Initial Study (otherwise substantially degrade groundwater quality) are not further addressed within this chapter. 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.

11.1 ENVIRONMENTAL SETTING

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 Auburn/Bowman Community Plan (ABCP) area within Placer County. The ABCP area encompasses approximately 40 square miles located in the Sierra Nevada foothills. Elevations range from 680 to 2,100 feet above sea level, with the majority of the area at approximately 1,300 feet above sea level. The drainage pattern of the ABCP area generally slopes east to southwest through one of several regional drainages, including Auburn Ravine, North Ravine, Orr Creek, Dry Creek, and Rock Creek, which lead into the Feather, American, or Sacramento River systems and ultimately out to the San Francisco Bay Delta.

In relation to the project site, the closest rainfall monitoring station is located to the southeast in Auburn, California. Although rainfall can vary in this region, the average precipitation in the vicinity of the project site is 34 inches, with a 50-year record ranging from 14 to 65 inches. Over 90 percent of the rainfall is concentrated between the months of November and April (wet months).

Surface Water Features

The project site is undeveloped and is composed of five parcels totaling 119 acres. The project site is located north of Bell Road, east of Richardson Drive, west of Meadowbrook Drive, and south of Golden Eagle Drive in unincorporated Placer County. An existing unnamed tributary with an outfall location at the northwest corner of the site serves approximately 90 percent of the site. This tributary is part of the Dry Creek Watershed. The remaining portion of the site outfalls to the northeast corner of the site and is part of the Rock Creek Watershed. Specifically, the site is within Subbasins DC95 and RC45, respectively (See Figure 11-1). A small unnamed ephemeral drainage crosses the central portion of the property. Seasonally wet areas are found on-site in ephemeral drainages, wetland swales, and other low-lying areas.

Columbia East Canal

The Columbia East Nevada Irrigation District (NID) Canal exists on-site; the canal flows from east to northwest and splits the subject property into two portions. As part of the proposed project, the portion of the Columbia East Canal that exists on-site would be encased and re-routed (See Figure 11-2).

Local Drainage

The project site is located within both the Dry Creek Watershed and the Rock Creek Watershed. The Dry Creek Watershed 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.

The project site has two primary discharge locations. One is the existing unnamed tributary located at the northwest corner of the site and the other is the existing drainage swale located at the northeast corner of the site. The property generally drains from a southeasterly to northwesterly direction.

Stormwater Drainage

The majority of the project site is currently undeveloped land. A single-family home is located on-site at 3342 Bell Road (APN 051-180-059). Stormwater drainage infrastructure does not exist on-site. Natural drainage of the site and vicinity is discussed above under the Local Drainage section. Areas to the southwest and northeast include single-family residential properties that use roadside ditches for stormwater runoff that ultimately discharges into the local drainage system. The project would include an on-site 2.9-acre stormwater detention basin that would be designed to provide both 100-year flood control protection and water quality treatment to approximately 58 acres that drains to Dry Creek. In addition, the project would include a 0.3-acre stormwater detention basin that would provide both 100-year flood control protection and water quality treatment for the portion of the site that drains to Rock Creek (approximately 12 acres) (See Figure 11-2 for the location of detention basins).

Figure 11-1
 ABCP Hydrology Study Subbasin Map

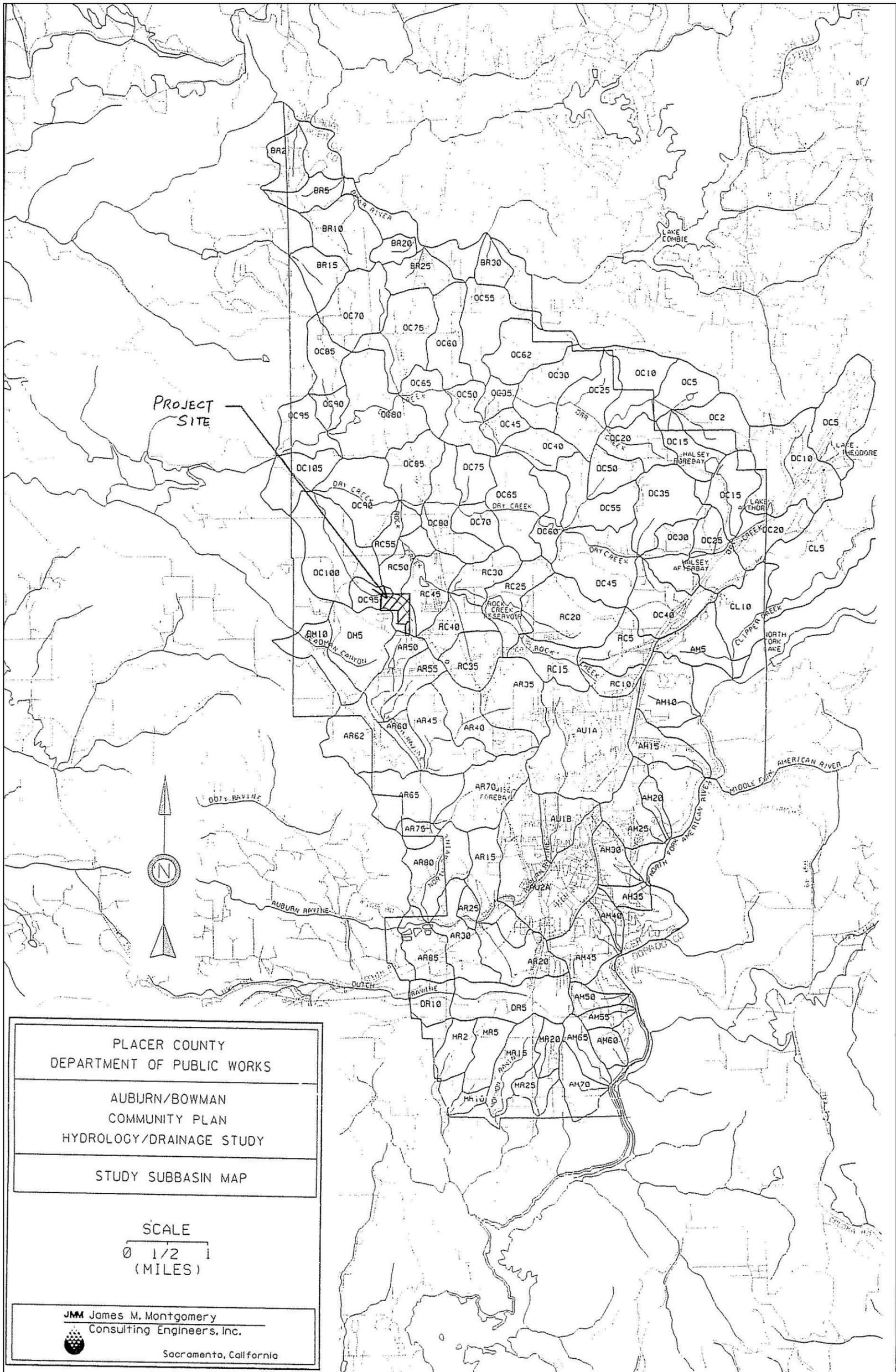
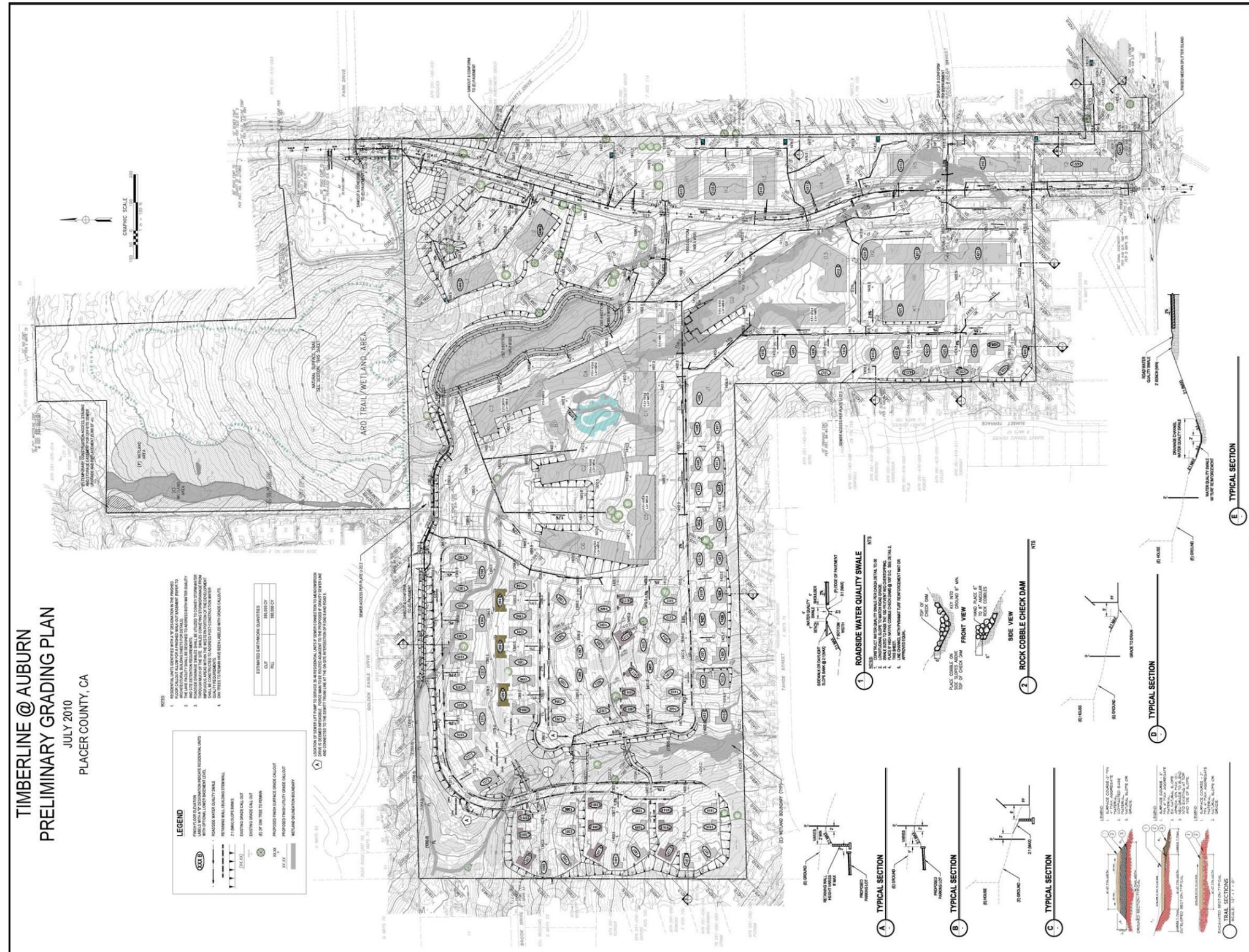


Figure 11-2
 Grading Plan



Local Flooding

Flooding in the Dry Creek watershed and its tributaries is well documented. The topography of the site is gently sloping, with estimated slopes ranging from five to 10 percent on the majority of the site, to approximately 20 percent in the northeastern portion of the property. On-site elevations range between approximately 1,420 feet above sea level at the southwest corner to approximately 1,350 feet above sea level at the northwest corner. The project site is within the Auburn Bowman Community Plan Hydrology Study plan area.

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

According to the ABCP's Conservation and Open Space Element, the local occurrence of groundwater within the ABCP area is highly variable. Due to the dense nature of the underlying bedrock, the ABCP area does not contain any aquifers. However, groundwater could be located within surface fractures and cracks in the bedrock material. Currently, groundwater wells or monitoring stations are not located on-site. As identified in Chapter 10, Soils, Geology, and Seismicity, three distinct soil types are found within the project site. The majority of the property contains Auburn Silt Loam, a small area along the northeastern corner contains soil of the Auburn-Argonaut Complex, and a portion of the northeastern and the southwestern areas of the property contain soil of the Auburn Rock Outcrop Complex. Each of these soils is described by the U.S. Department of Agriculture Soil Survey of Placer County as having moderate permeability.

ABCP Hydrology Study

In July 1992, a master level drainage study was conducted in the Auburn/Bowman community. The master drainage study was done to provide Placer County with the information and policies necessary to effectively manage the storm waters within the study area.

The rapid growth the area was experiencing during that time became a concern for the County, as much of the agricultural and open space land was being developed for residential and commercial properties. As a result, without taking into consideration the future development of the area, the County risked increased flooding from streams and excessive spills from existing canals. The master hydrology study identified potential flooding areas and provided steps to plan and implement comprehensive, watershed-wide solutions to the drainage problems.

The proposed project is part of the overall Auburn/Bowman community, largely rural area located in the Sierra foothills in Placer County. The overall study area covered approximately 41.5 square miles and contained the following eight primary drainage basins: Bear River, Orr Creek, Dry Creek (including Rock Creek), Auburn Ravine (including North Ravine), Mormon Ravine, Dutch Ravine, American River, and Deadman Canyon. Within each of the primary watershed areas, there were a total of 105 subbasins analyzed.

On a master scale, the pre-development and post-development flows were analyzed for the 2-year, 10-year, 25-year, and 100-year storm events for the entire study area, including Subbasins DC95 and RC45, within which the proposed project site is located. Results for Subbasins DC95 and RC45 are shown in Table 11-1, below.

Crossing No.	Stream	Crossing	Total Drainage Area (sq. mi.)	2-Year		10-Year		25-Year		100-Year	
				Pre-Dev. (cfs)	Post-Dev. (cfs)						
43	Dry Creek (DC95)	Joeger Road	0.29	46	77	96	149	120	186	158	244
48	Rock Creek (RC45)	Richardson Road	3.78	381	478	922	1,149	1,195	1,566	1,596	2,088

Source: Morton & Pitalo, Inc. Timberline at Auburn Preliminary Drainage Study. June 18, 2008 (updated December 15, 2008).

Results from the master study showed that, without detention, an increase in peak flows will be experienced within Subbasins DC95 and RC45 during the 2-, 10-, 25-, and 100-year storm events. This is primarily due to the projected increase in impervious area based on the future development of subbasin areas.

Despite the increase in post-development flows, the ABCP hydrology study concluded that the impact of future uses on flood peaks will be minimal and, hence, there was not a need for a regional detention pond inside the study area to mitigate future flows. In addition, regional detention ponds were not considered in the master study due to the lack of suitable sites within the study area. Furthermore, the reservoirs in the study area (Rock Creek Reservoir, Dry Creek Reservoir, Halsey Forebay, and Orr Creek Reservoir) already act as detention basins.

As for localized detention, the ABCP hydrology study recommended that all new developments located in the shaded areas shown in Figure 11-3 be required to provide local, on-site detention. Localized detention was recommended for Subbasins DC95 and RC45; however, drainage improvements were not recommended within the vicinity of the proposed project site.

11.2 REGULATORY SETTING

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

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 (USACE) 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.

State

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.

Water quality objectives for the waterways within the CVRWQCB are specified in the Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin (Basin Plan),

which was prepared in compliance with the federal CWA and the Porter-Cologne Act. The Basin Plan establishes water quality objectives, and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento-San Joaquin River Basin. Because the project site is located within the CVRWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the 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 1 addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase 2 addresses all other discharges defined by EPA that are not included in Phase 1.

Construction Site Runoff Management

In accordance with NPDES regulations, in order to minimize the potential effects of construction runoff on receiving water quality, the State requires that any construction activity affecting one 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 control measures. In 1997, EPA proposed revisions to the 1992 general permit to clarify that all construction activity, including small construction sites that are part of a larger common plan (e.g., sites under one acre), would be eligible for coverage under the revised permit. In 2009, the State Water Resources Control Board (SWRCB) adopted a State General Permit that reflects revised EPA requirements. Because construction of the proposed project through buildout would collectively disturb more than one acre, the project would be subject to permit requirements. Implementation of such measures would be included in contract specifications.

Examples of typical BMPs completed in SWPPPs include: using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and

equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering stormdrains; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter drains or surface water.

Construction Dewatering

Clean or relatively pollutant-free wastewater that poses little or no threat to water quality may be discharged directly to surface water under certain conditions. Construction activity resulting in a land disturbance of one acre or more, or less than one acre but part of a larger common plan of development or sale must obtain the General Permit for Storm Water Discharges Associated with Construction Activity (General Permit). Construction activity includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. Construction activity does not include routine maintenance such as, maintenance of original line and grade, hydraulic capacity, or original purpose of the facility.

In addition to the General Permit, the CVRWQCB has also adopted a general NPDES permit for short-term discharges of small volumes of wastewater from certain construction-related activities. Permit conditions for the discharge of these types of wastewaters to surface water are specified in Waste Discharge Requirements (WDR) “General Order for Dewatering and Other Low-Threat Discharges to Surface Waters.” Discharges may be covered by the permit provided they are (1) either four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day. Construction dewatering, well development water, pump/well testing, and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit. The general permit also specifies standards for testing, monitoring, and reporting, receiving water limitations, and discharge prohibitions.

Section 303(d)

Section 303(d) of the Clean Water Act (CWA) contains backstop provisions designed to ensure that all state water quality standards are met. The water quality of many waters of the state is currently unacceptable. The Total Maximum Daily Load (TMDL) program was created by the State Board to implement the requirements of these backstop provisions, consistent with state and federal law, for the purpose of ensuring that water quality standards are attained. The TMDL program is the primary program responsible for achieving clean water where traditional controls on point sources have proven inadequate to do so. The program thus is charged with creating plans that consider all sources and causes of impairment, and allocating responsibility for corrective measures, regardless of sources or cause that will attain water quality standards.

The goal of this guidance document is to assist the State Water Resources Control Board (SWRCB) and RWQCBs in addressing impaired waters through actions that are consistent with both national and regional United States Environmental Protection Agency (USEPA) regulations and guidance as well as with state technical, regulatory, and legislative requirements. The guidance should also facilitate a greater understanding of expectations, which can result in improved coordination, consistency, and information exchange among RWQCBs. This document

is also intended to provide the public with a better understanding of the process and products associated with the assessment of impaired waters and development of implementation plans to improve them.

As required by the CWA, states are to identify and report to USEPA their water quality-limited waters. These waters are to be identified according to the provisions established in USEPA's Water Quality Management and Planning Regulation at 40 CFR 130.7(b). The identified waters should include those impaired due to point and/or nonpoint sources of pollution and may include threatened good-quality waters. Section 303(d) of the CWA requires each state to maintain a list of impaired waterbodies and revise the list every 2 years. The 2002 list, which is the most current approved list for California, requires the development of plans for addressing impaired waters in over 1,800 waterbody/pollutant combinations. (One waterbody can be listed for numerous pollutants.)

Local

The following are the local government environmental goals and policies relevant to the CEQA review process pertaining to the hydrology aspects of the proposed project.

Auburn/Bowman Community Plan

The following goals and policies of the ABCP are applicable to the hydrology and water quality resources of the proposed project.

Environmental Resources Element

Hydrology

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| Goal 1 | Conserve and enhance, and protect from degradation, surface and ground water supplies and adequately plan for the development and protection of these resources for future generations. |
| Goal 2 | Safeguard and maintain natural waterways to ensure water quality, flora and fauna species diversity and unique wildlife habitat preservation. |
| Goal 3 | Reduce flood hazards both on-site and downstream. |
| Goal 4 | Reduce potential for loss of life and damage to property resulting from current floodway deficiencies. |
| Goal 5 | Educate the public regarding the potential impacts of their actions on drainage, flooding and water quality. |
| Policy 1 | Improve water quality by eliminating existing water pollution sources and by discouraging activities which |

include the use of hazardous materials around wetland and groundwater recharge areas.

- Policy 6 Promote water conservation through development standards, building requirements, landscape design guidelines, and other applicable policies and programs.
- Policy 12 Establish special procedures (including setbacks, etc.) for land use, building locations, grading operations, and vegetation removal adjacent to all drainage ways, canals, and significant water features.
- Policy 15 Continue to implement and enforce the Grading Ordinance and Flood Damage Prevention Ordinance.
- Policy 16 Ensure that new development storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's "Stormwater Management Manual" and the Placer County "Land Development Manual."
- Policy 17 Require new development to detain increases in peak stormwater runoff, or to pay appropriate in-lieu fees for compensating improvements, in all areas recommended for local detention in the "ABCP Hydrology Study" (Appendix D of the ABCP's Background Report).
- Policy 18 Reduce the negative impacts on water quality resulting from urban runoff for all commercial, industrial, and residential projects by treating such runoff before it enters intermittent or permanent streams. All feasible mitigation measures should be considered, including, but not limited to, artificial wetlands, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, wet scrubbing or parking areas with a scrubbing/vacuum machine and proper wash water disposal, or other effective BMPs, where appropriate.
- Policy 19 The community's canal systems should be protected from excessive contamination resulting from spillage or runoff of impurities originating from land development projects.
- Policy 21 Require fencing of canals wherever lot size is between 2.3 and 4.6 acres, and on a case-by-case basis as determined by the entity responsible for the canal.

- Policy 22 Require that each new development project potentially affecting a canal must provide proper protection to that canal as part of the development review committee (DRC) review of the project. Require that DRC coordinate its requirements with the entity responsible for the canal.
- Policy 23 Evaluate potential flood hazards in an area prior to the approval of future development projects.
- Policy 24 New construction (i.e., structures requiring building permits) should not be permitted within 100 feet of the centerline or permanent streams, within 50 feet of the centerlines of intermittent streams, or within the future (fully developed) 100-year floodplain, whichever is greater. Where floodplain information does not exist, require determination of this information by the project proponent prior to issuance of development permits.
- Policy 26 Assure that new development conforms with the adopted programs, recommendations, and plans of the Placer County Flood Control and Water Conservation District.

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.

11.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

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

- Substantially alter the existing drainage pattern of the site of 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 housing within a 100-year flood hazard area as mapped on a federal Flood Hazard boundary or Flood Insurance Rate Map (FIRM);

- Place within a 100-year flood hazard area improvements which would impede or redirect flood flows; or
- Impact the watershed of important surface water resources, including but not limited to Lake Tahoe, Folsom Lake, Hell Hole Reservoir, Rock Creek Reservoir, Sugar Pine Reservoir, French Meadows Reservoir, Combie Lake, and Rollins Lake.

Method of Analysis

The information contained in the Hydrology, Water Quality, and Drainage chapter of this EIR was derived primarily from the *Placer County General Plan*, the *Dry Creek Watershed Flood Control Plan*, and the *Timberline at Auburn 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.

The calculations conducted for pre- and post-development conditions were performed using the Placer County Precipitation Design Program (PDP) and the HEC-1 computer program, developed by Placer County and the U.S. Army Corps of Engineers, respectively. Seven sub-watershed areas were designated as being pertinent to analyzing on-site hydrology for pre-development conditions, as shown in Table 11-2, below, and in Appendix K of the *Timberline at Auburn Preliminary Drainage Report* (See Appendix Y).

Table 11-2	
Drainage Areas (Pre-Development Conditions)	
Sub-Watershed Number	Drainage Area (acres)
Draining to Dry Creek	
1	23.3
2	10.6
3	22.1
4	10.6
5	9.7
6	27.6
Total	103.9
Draining to Rock Creek	
1	10.3
Total	114.2
<p>Note: Sub-Watershed Numbers 1 through 6 drain to the unnamed tributary to Dry Creek and the combined runoff exits the site at the northwest corner of the property. Sub-Watershed Number 7 drains to an existing off-site drainage swale at the northeast corner of the property (to Rock Creek).</p> <p>¹103.9 acres includes a portion of the off-site area along Bell Road draining to the property.</p> <p>Source: Morton & Pitalo, Inc. <i>Timberline at Auburn Preliminary Drainage Study</i>. June 18, 2008 (updated December 15, 2008).</p>	

In addition, eight sub-watershed areas were designated as being pertinent to analyzing on-site hydrology for post-development conditions, as shown in Table 11-3 and in Appendix L of the *Timberline at Auburn Preliminary Drainage Report* (See Appendix Y).

Table 11-3	
Drainage Areas (Post-Development Conditions)	
Sub-Watershed Number	Drainage Area (acres)
Draining to Dry Creek	
1	4.0
2	3.9
3	5.0
4	8.4
5	27.9
6	8.7
7	42.9
Total	100.8
Draining to Rock Creek	
1	11.3
Total	112.1
Notes: 1) In the pre-development drainage shed condition, 0.5 acres at the southeast corner of the project site currently drains to the east and is not included in the pre-development drainage area. This area is included in the post-development shed area #1. 2) In the pre-development drainage shed condition, 0.3 acres along the northern boundary drains off-site to the north and is not included in the pre-development drainage area. This area is included in the post-development shed area #7. 3) The 2.9 acre pond (detention facility) is not included in the drainage shed area totals.	
Source: Morton & Pitalo, Inc. <i>Timberline at Auburn Preliminary Drainage Study</i> . June 18, 2008 (updated December 15, 2008).	

As stated earlier, impacts identified as *potentially significant* within the Initial Study are addressed below. All other impacts listed in the Standards of Significance above have already been addressed in the Initial Study and were identified as having *no impact*, a *less-than-significant* impact, or a *potentially significant* impact that would be reduced to a less-than-significant level with implementation of the mitigation measures included in the Timberline at Auburn Initial Study. Required mitigation measures from the Initial Study have been included in Chapter 2, Executive Summary, of this Draft EIR.

Project Impacts and Mitigation Measures

11-1 Project impacts to the existing drainage pattern and increases in surface runoff.

An existing on-site tributary and an off-site swale direct surface runoff, from both off- and on-site drainage areas, to the northeast into Dry Creek and to the northwest into Rock Creek, respectively.

The proposed project would include construction of a continuing care retirement community (CCRC) that would include 780 residences and a commercial center (including 78 loft residences) on the approximately 119-acre site, which would alter the majority of the existing site to impervious surfaces (building foundations, paved streets, etc.).

Implementation of the proposed project would result in additional flows of stormwater as a result of the increase in impervious surfaces. The project design incorporates stormwater detention basins to serve the dual purposes of stormwater detention and water quality improvement. As shown in Figure 11-2, the main detention areas would be located in the northeast area of the project site. Following detention, stormwater flows would be conveyed via a controlled (gravity) service pipe to existing stormwater pipes in Richardson Drive (north of the project site) and the proposed mitigation wetlands located in the 24-acre Auburn Recreation Park District (ARD) parcel located northeast of the project site.

Included as Appendix Y, the *Timberline at Auburn Preliminary Drainage Report* was prepared for the proposed project to evaluate the potential impacts related to the grading and development of impervious surfaces. Per County requirements, the preliminary drainage report included a comparison of peak design storm flows for 2-, 10-, and 100-year storm events between existing conditions and the proposed project. Based on the results of the report, it was determined that after implementation of the proposed project with local detention basins, peak flows during 2-, 10-, and 100-year storm events would decrease for both Rock Creek and Dry Creek when compared to existing conditions (See Table 11-4).

Table 11-4						
Peak Flow Comparison (Pre-Development vs. Post-Development)						
Peak Flow Results (cfs)				2-Year	10-Year	100-Year
HEC-1 NODE	Stream (Subbasin)	Outlet Location	Total Drainage Area (acres)	Peak Flow (cfs)	Peak Flow (cfs)	Peak Flow (cfs)
Pre-Development Conditions						
CMB-5	Dry Creek	NW Corner of Project	103.9	50	97	170
SUB-7	Rock Creek	NE Corner of Project	10.3	5	10	18
Post-Development Conditions with Local Detention Basins						
CMB-6	Dry Creek	NW Corner of Project	100.8	42	73	126
SUB-8	Rock Creek	NE Corner of Project	11.8	5	8	11
Source: Morton & Pitalo, Inc. <i>Timberline at Auburn Preliminary Drainage Study</i> . June 18, 2008 (updated December 15, 2008).						

However, the proposed project does not currently include specific construction plans or an approved, final drainage report for the development; therefore, the project could result in **potentially significant** impacts to the existing drainage pattern.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

11-1(a) *Stormwater runoff shall be reduced to pre-project conditions through the installation of retention/detention facilities. Retention/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 Department (ESD). The ESD may, after review of the project drainage report, delete this requirement if it is determined that drainage conditions do not warrant installation of this type of facility. In the event on-site detention requirements are waived, this project may be subject to payment of any in-lieu fees prescribed by County Ordinance. No retention/detention facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.*

11-1(b) *Prepare and submit with the project Improvement Plans, a drainage report in conformance with the requirements of Section 5 of the 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: A written text addressing existing conditions, the effects of the improvements, all appropriate calculations, a watershed map, increases in downstream flows, 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 Practice" (BMP) measures shall be provided to reduce erosion, water quality degradation, and prevent the discharge of pollutants to stormwater to the maximum extent practicable.*

11-2 Construction-related impacts to surface water quality.

Project development would involve the construction of a CCRC, a commercial center, associated infrastructure, and a loop trail to be developed on the ARD parcel to the northeast, which would require grading, excavation, and other construction-related activities that could cause soil erosion at an accelerated rate during storm events. All of these activities have the potential to affect water quality and contribute to localized

violations of water quality standards if stormwater runoff from construction activities enters receiving waters.

Construction activities such as grading, excavation, and trenching for site improvements would result in the disturbance of on-site soils. These exposed soils can 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 or contaminants entered receiving waters in sufficient quantities to exceed water quality objectives. Impacts from construction-related activities would generally be short-term and of 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 SWRCB 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 feasible extent, adverse impacts to water quality from erosion and sedimentation. In addition, runoff from both roadways and proposed areas of development on-site would be routed to either a designated vegetated swale and/or water quality treatment pond prior to discharge to the tributaries to Dry Creek and Rock Creek. The two above-mentioned on-site stormwater detention basins would also act as water quality ponds. However, because the proposed project could result in short-term impacts to surface water quality, the impact would be ***potentially significant***.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

- 11-2(a) *The location, size, and ownership of any canals (Columbia East Canal) on or adjacent to the property shall be described in the drainage report and shown on the Improvement Plans. The applicant shall provide the Engineering and Surveying Department (ESD) with a letter from the agency(s) controlling the canal(s) describing any restrictions, requirements, easements, etc. relative to construction of the project. Said letter shall be provided to the ESD prior to Improvement Plan approval. During construction, drainage from the project site shall not enter the*

Columbia East Canal. Measures such as temporary construction fencing shall be placed around the canal to prevent people, animals and debris from entering the canal during construction. Concurrent with the encasement and realignment of the Columbia East Canal, a trash rack and spillway shall be constructed at the downstream end of the encased canal if required by NID. The encasement and realignment of the Columbia East Canal shall be coordinated, reviewed, and approved by the NID.

11-2(b) *Implement Mitigation Measures 10-2(a) through 10-2(e).*

11-3 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.

As discussed under Impact 11-2 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 to enter into the local surface waters and degrade the water quality during the operational phase of the development. The proposed project includes designs for two on-site detention basins to be constructed on-site in order to assist with capturing potential pollutants before entering local waterways, such as Dry Creek. However, the potential for urban pollutants to enter and potentially pollute the local water systems would still exist; therefore, the impact would be *potentially significant*.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

11-3(a) *Water quality Best Management Practices (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: water quality inlets (TC-50), wet ponds (TC-20), detention basins (TC-22), and vegetated swales (TC-30). No water quality facility construction shall 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.

- 11-3(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).*
- 11-3(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.*
- 11-3(d) *All stormwater runoff shall be diverted around trash storage areas to minimize contact with pollutants. Trash container areas shall be screened or walled to prevent off-site transport of trash by the forces of water or wind. Trash containers shall not be allowed to leak and must remain covered when not in use.*

11-3(e) *Materials with the potential to contaminate stormwater that are to be stored outdoors shall be placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system, or protected by secondary containment structures such as berms, dikes, or curbs. The storage area shall be paved to contain leaks and spills and shall have a roof or awning to minimize collection of stormwater within the secondary containment area.*

11-3(f) *Loading dock areas shall be covered and run-on and/or runoff of stormwater to the dock area shall be minimized. Direct connections to storm drains from depressed loading docks (truck wells or sumps) are prohibited.*

11-4 Exposure of people and structures to flood hazards on the project site.

The proposed project site is located in an unmapped area for the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps (FIRMs) (See Figure 11-4).

According to the *Preliminary Drainage Study*, the unnamed tributary to Dry Creek, which had not previously been mapped by either FEMA or Placer County, was modeled using the HEC-RAS computer program to determine the extent of the tributary's 100-year floodplain (See Figures 11-5 through 11-8). HEC-RAS modeling results showed that the 100-year floodplain is relatively narrow along the tributary's reach through the proposed project site.

As part of implementation of the proposed project, the unnamed tributary would be re-routed. Stormwater flows would be conveyed via an underground storm drainage system in combination with an on-site detention pond and a man-made channel. The proposed conveyance system improvements would eventually tie in with the existing tributary at the northwest corner of the site.

The proposed underground and surface drainage improvements would be sized to handle the 100-year storm event. As a result, the 100-year floodplain under post development conditions would be contained inside the pipes, detention basin, and proposed drainage channel. Therefore, based on the analysis included within the *Preliminary Drainage Report*, 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*.

Figure 11-4
 FEMA Flood Insurance Rate Map

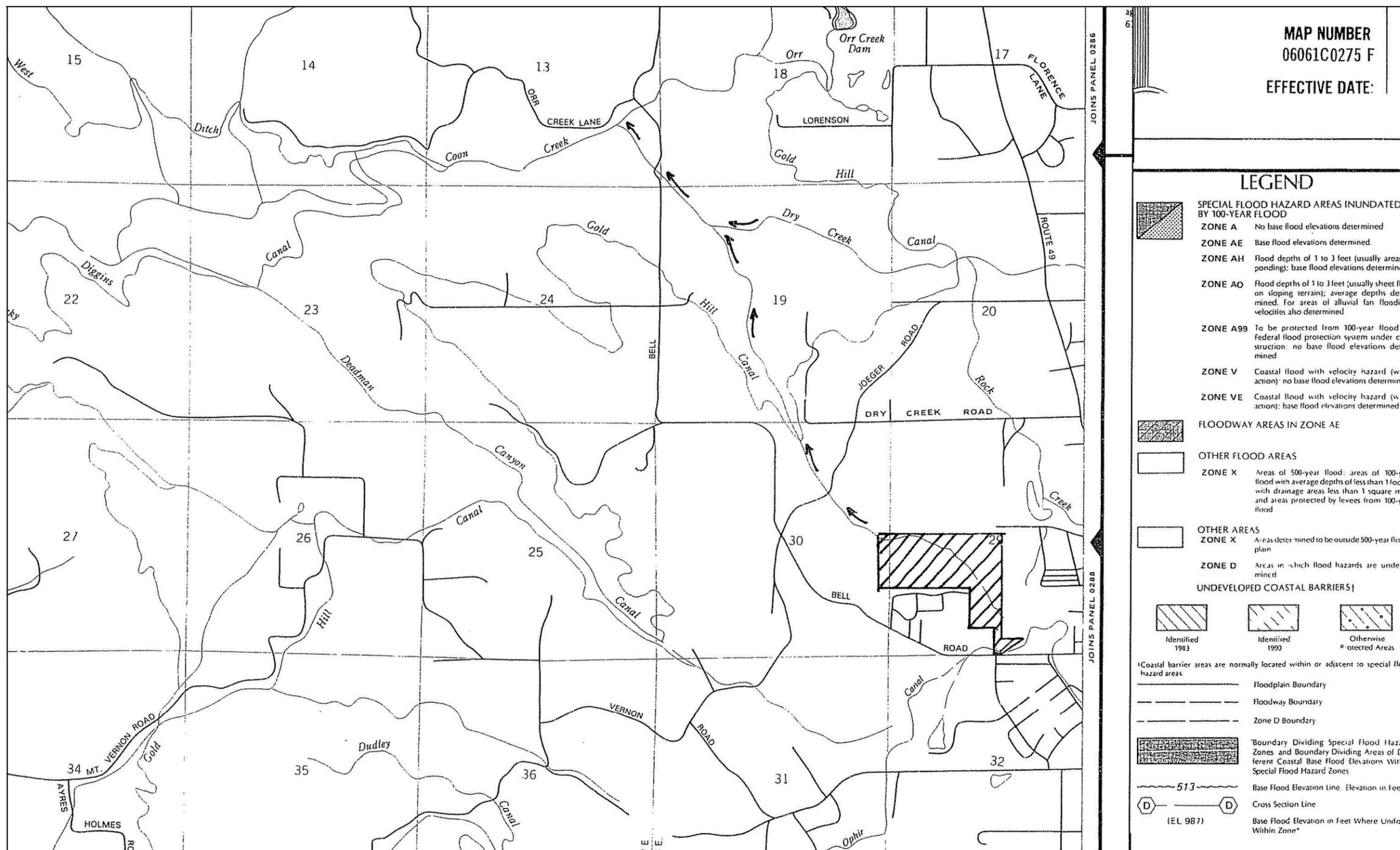
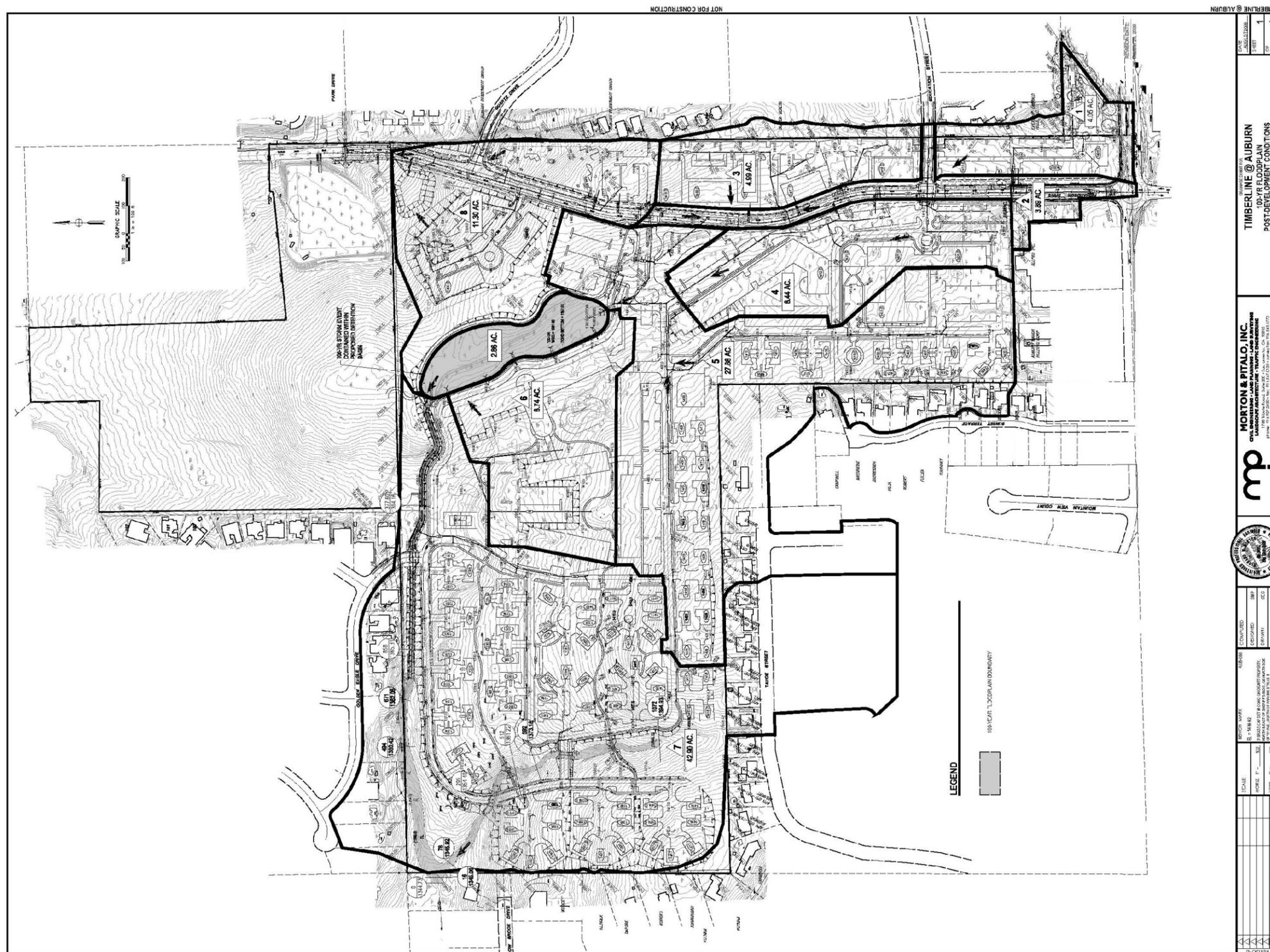


Figure 11-6
 100-Year Floodplain – Post-Development Conditions



DATE	11/10/10	SCALE	AS SHOWN	REVISION	NO.	DESCRIPTION
BY	MP	DATE		1		
CHECKED		SCALE		2		
DATE		SCALE		3		
BY		SCALE		4		
CHECKED		SCALE		5		
DATE		SCALE		6		
BY		SCALE		7		
CHECKED		SCALE		8		
DATE		SCALE		9		
BY		SCALE		10		

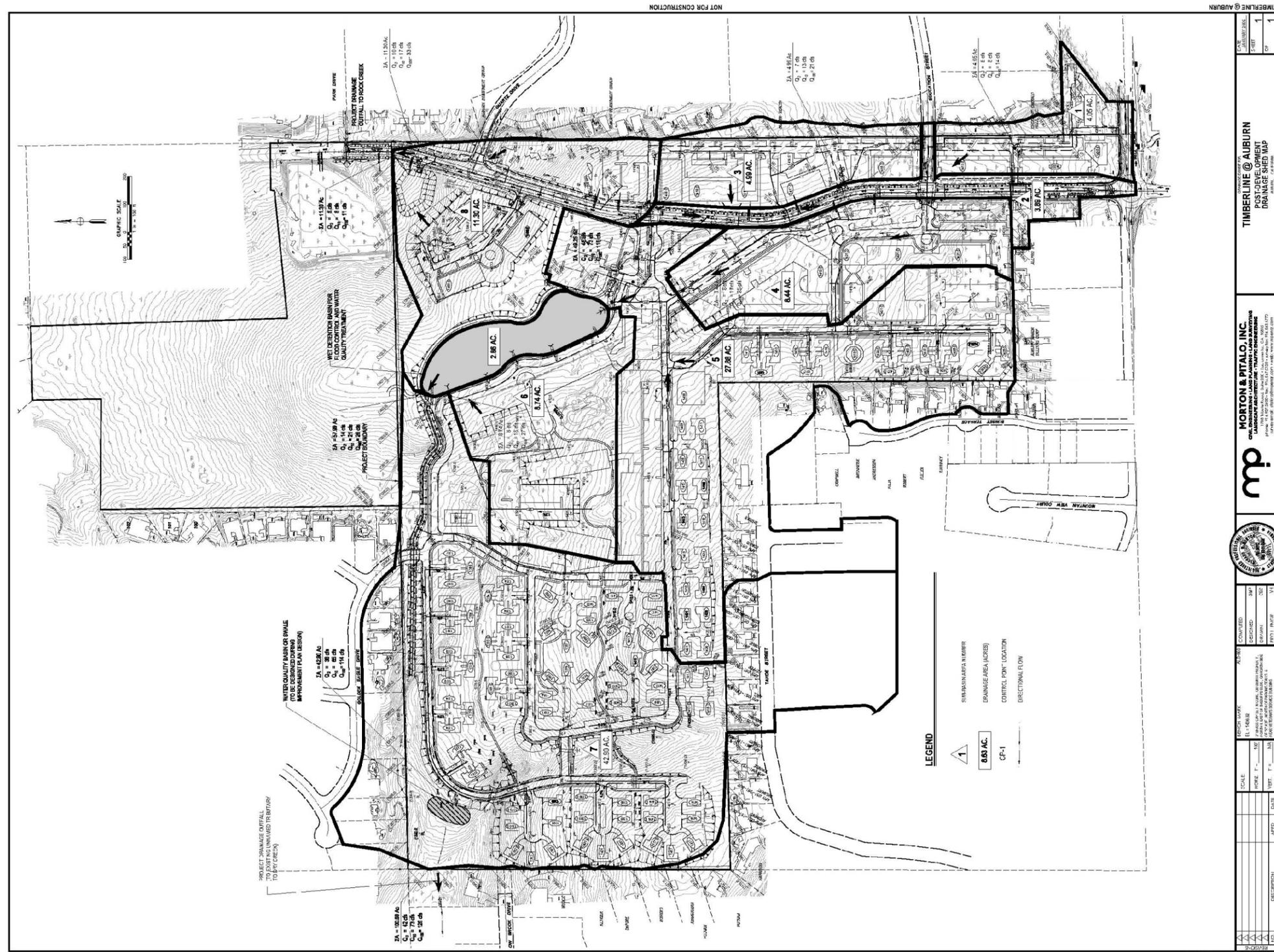
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TIMBERLINE @ AUBURN
 100-YR FLOODPLAIN
 POST-DEVELOPMENT CONDITIONS

SHEET NO. 1
 OF 1

Figure 11-8
 Post-Development Drainage Shed Map



TIMBERLINE @ AUBURN
 POST-DEVELOPMENT
 DRAINAGE SHED MAP

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mp

NO.	DATE	DESCRIPTION	BY	CHK	APP
1	11/10/10	ISSUED FOR PERMIT	MP	MP	MP
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

SCALE: 1" = 100'
 SHEET: 11-10
 DATE: 11/10/10

PROJECT: TIMBERLINE @ AUBURN
 SHEET: 11-10
 DATE: 11/10/10

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

11-4(a) *Implement Mitigation Measure 11-1(b).*

11-4(b) *Show the limits of the future, unmitigated, fully developed, 100-year floodplain (after grading) for the on-site tributaries, as shown in the Preliminary Drainage Report, on the Improvement Plans and Informational Sheet(s) filed with the appropriate Final Map(s), and designate same as a building setback line unless greater setbacks are required by other conditions contained herein.*

11-4(c) *The drainage report shall demonstrate that the proposed project will not increase the 100-year floodplain water surface elevation upstream or downstream of the project area.*

11-5 Impacts to important surface water resources (i.e., Lake Tahoe, Folsom Lake, Rock Creek Reservoir, etc.) in the watershed.

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. The project site is located within the Dry Creek and Rock Creek watersheds, which do not have a direct nexus to important surface water resources identified by Placer County including, but not limited to, Lake Tahoe, Folsom Lake, Hell Hole Reservoir, Rock Creek Reservoir, Sugar Pine Reservoir, French Meadows Reservoir, Combie Lake, or Rollins Lake. Other watersheds direct surface runoff into these water resources outside the vicinity of the project site.

Due to the size and scope of the proposed project, potential impacts to local surface waters within the watershed are unlikely. As discussed in Impact Statements 11-2 and 11-3 and the associated mitigation measures, on-site runoff would be collected in the two proposed detention basins from which runoff would then be channeled into Dry Creek and Rock Creek. Project implementation would not significantly impact the overall quantity of water entering surface waters of regional importance. Therefore, development of the proposed project would result in a *less-than-significant* impact related to important local surface water resources.

Mitigation Measure(s)

None required.

Endnotes

¹ Placer County. *Placer County General Plan*. August 1994.

² Placer County. *Placer County General Plan EIR*. August 1994.

³ Morton & Pitalo, Inc. *Timberline at Auburn Preliminary Drainage Study*. June 18, 2008 (updated December 15, 2008).