3.3.13 Hydrology and Water Quality

Introduction

The purpose of the Hydrology and Water Quality section is to evaluate and describe the impacts of the LRDP or specific projects on surface and groundwater resources (including aquifer characteristics and water quality), and for the project site to generate runoff that could affect flooding or drainage characteristics (both on-site and downstream), or to be affected by flooding from storm events or dam failure inundation.

The availability of water supplies and infrastructure to serve LRDP and project demand should be addressed in the Public Services and Utilities and Energy sections of the LRDP or Project environmental document, as discussed in UC CEQA Handbook Section 3.3.21, Utilities and Energy.

Responsible Agencies

The protection of water resources and water quality, flooding issues, and floodplain encroachment in California is the responsibility of the following primary federal and State agencies, which either have statutory authority or are Responsible Agencies under CEQA:

- **Department of Water Resources (DWR)** [http://www.dwr.water.ca.gov](http://www.dwr.water.ca.gov), which guides development and management of the State's water resources;

- **State Water Resources Control Board** [http://www.swrcb.ca.gov/](http://www.swrcb.ca.gov/) and nine **Regional Water Quality Control Boards** [http://www.swrcb.ca.gov/regions.html](http://www.swrcb.ca.gov/regions.html) for projects resulting in point source discharges to surface waters (e.g., industrial facilities, wastewater treatment plants) and non-point source discharges (e.g., construction site and urban stormwater runoff) in accordance with the California Porter-Cologne Water Quality Act;

- **California Department of Health Services** [http://www.dhs.ca.gov](http://www.dhs.ca.gov) for projects involving water or wastewater treatment, and use of reclaimed water;

- **California Department of Fish and Game** [http://www.dfg.ca.gov](http://www.dfg.ca.gov) for projects that would change the natural state of any river, stream or lake (California Fish and Game Code, Sections 1600 through 1607);

- **State Reclamation Board** [http://www.recbd.ca.gov/](http://www.recbd.ca.gov/) for any activity or any type of encroachment on or near the banks of the Sacramento and San Joaquin Rivers or their tributaries; or for activities on any designated "floodway" (Colby-Alquist Flood Plain Management Act: California Water Code, Section 8590 et seq); and

- **California Department of Water Resources, Division of Safety of Dams (DSOD)** [http://www.damsafety.water.ca.gov](http://www.damsafety.water.ca.gov) for projects involving construction, enlargement, repair or removal of a dam or reservoir (California Water Code, Division 3C Parts 1 and 2).

Other State agencies with statutory authority or that may wish to comment on the environmental document with regard to hydrology and water quality issues include: Department of Food and
Federal Agencies


LRDP EIR

The Hydrology and Water Quality section of the EIR should describe the specific hydrological characteristics of the campus, including existing water bodies, drainage patterns, 100-year flood plain(s), existing drainage and/or flood control facilities, groundwater recharge potential, surface and groundwater quality. The section should then assess whether the proposed project would substantially affect these characteristics and factors.

The analysis should focus primarily on:

- changes in drainage patterns and/or the quantity and rate of drainage that would affect existing system capacity
- changes in the quantity and rate of runoff or other discharges that would affect receiving water quality (surface and/or groundwater)
- development in areas subject to 100-year flood hazard or in areas subject to dam failure or inundation.

Project EIR

To the extent not analyzed in an LRDP EIR, the Hydrology and Water Quality section of the Project EIR or the IS should analyze whether the project would result in any effects that were not anticipated or evaluated by the LRDP EIR. Further, it should analyze the project in relation to the current LRDP. The results of a site-specific drainage study should be used to quantify the rate and volume of stormwater runoff.

Standards of Significance

Would the project:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (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);

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

- Otherwise substantially degrade water quality;

- 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 structures within a 100-year flood hazard area that would impede or redirect flood flows;

- 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

- Inundation by seiche, tsunami, or mudflow?

**Analytical Methods**


- Calculate increases in stormwater runoff from the proposed project. Preliminary drainage studies should be prepared by qualified engineers or hydrologists using standard protocols (e.g., HEC-1, HECRAS) to determine the effects of increased runoff on downstream flooding and whether mitigation (e.g., on-site detention) is needed.

- Determine the effects of stormwater runoff water quality on the quality of the receiving water by testing or collecting data, or qualitatively, based on anticipated uses, when limited or no data is available.

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• Determine which regulatory standards must be met, including federal National Pollutant Discharge Elimination System (NPDES) permits administered by the SWRCB and RWQCBs, any local pretreatment requirements, and evolving nonpoint source discharge requirements, including those under the NPDES Phase II program. [http://www.cfpub.epa.gov/npdes](http://www.cfpub.epa.gov/npdes)

• Identify potential cumulative impacts, with particular focus on effects of increased stormwater runoff at downstream locations and reduction in floodplain storage area.

**Generally Feasible Mitigation Measures**

• Redesign project facilities to avoid floodprone lands and natural stream channels.

• Implement stormwater drainage and erosion control strategies to avoid significant adverse water quality impacts.

• Incorporate facilities to provide temporary or long-term storage of stormwater runoff to minimize increase in downstream flood risk.

• Provide facilities to allow increased groundwater recharge of stormwater or reclaimed wastewater.

• Design landscaped areas of development sites to absorb runoff from roofs and walkways.

• Explore the feasibility of using reclaimed wastewater for landscape irrigation or other subpotable use.

• Design development on campus to maintain sufficient levels of absorption in water recharge areas, so that springs and seeps fed by affected aquifers are not substantially diminished.

• Require Best Management Practices in construction contracts, consistent with NPDES General Construction Activity Stormwater Permit requirements to minimize sedimentation resulting from construction and the transport of soils by construction vehicles.

• Schedule construction grading during the dry season to the extent feasible

• Incorporate applicable NPDES Phase II requirements

• Continue to comply with permit requirements and applicable laws and regulations in discharging wastewater effluent.