

Appendix IS-7

Hydrology Technical Memorandum



DATE: November 9, 2018
TO: Ms. Frankie Tong
FROM: Chris Dorn
RE: 8th and Grand/Hope
Surface Water Hydrology and Water Quality-Technical Memo

KPFF has conducted a review of existing Surface Water Hydrology and Water Quality conditions for the 8th and Hope project site. Following are our findings.

Project Description

The project site is located within the City of Los Angeles at 754 South Hope Street and 735 South Grand. The existing site is fully developed and operating as a parking structure and an asphalt surface parking lot. The project site area is approximately 0.83 acres. It is bound by Hope Street to the northwest, 8th Street to the southeast, Grand Avenue to the southeast, and existing privately owned parking structures to the northeast.

The proposed project consists of a new forty-five story mixed-use residential apartment building consisting of 547 residential units, a 37,216 square-foot school (or 33 additional residential units in the event that the school is not developed), rooftop decks, a podium level swimming pool, four levels of parking above grade, three levels of subterranean parking and 7,499 square-feet of retail at the ground floor.

Existing Hydrology

Surface hydrology is regulated by the City of Los Angeles (City). City requirements include compliance with the State of California General Permit for storm water discharges during construction for projects with over one acre of land disturbance, and post-construction compliance with the Los Angeles County Department of Public Works (LACDPW) Hydrology Manual and the City of Los Angeles Low Impact Development (LID) Ordinance.

The LACDPW Hydrology Manual requires that a storm drain conveyance system be designed for a 25-year storm event and that the combined capacity of a storm drain and street flow system accommodate flow from a 50-year storm event. The existing site has a 50-year storm flow rate of 2.60 cubic feet per second (cfs).

The entire existing project site is impervious. Storm water runoff from the project site is conveyed by sheet flow in the southerly direction. The majority of surface runoff flows towards the gutter along 8th Street and is conveyed to the existing catch basin at the corner of 8th and Hope Street. The existing parking lot is relatively flat, sloping at approximately 2% in the southwesterly direction.

Underground storm drainage facilities exist along 8th Street. Based on available record data and visual observations, a 4 inch curb drain is located on 8th Street, two existing catch basins are located

at the intersection of Hope and 8th Street and one catch basin is located at the intersection of Grand Avenue and 8th Street. Record drawings indicate that the catch basins are piped to a 42 inch diameter reinforced concrete pipe (RCP) located within the 8th Street right-of-way. Based on the record information this drainage system is owned and maintained by the Los Angeles County Flood Control District (LACFCD).

The site is located within Federal Emergency Management Agency (FEMA) flood Zone X, which denotes an area where the potential for flooding is minimal. There are no surface water bodies in the project vicinity. Therefore, the project will not impede or redirect flood flows and will not expose people or structures to risk due to flooding.

Proposed Hydrology

Storm water runoff from the project site will be conveyed by new private underground storm drain pipes to overflow to the street and into existing County drainage facilities along 8th Street. Due to proposed planting areas on the podium level the extent of proposed impervious surfaces will be less than 100 percent, which would be less than the existing condition. Therefore, this project will not increase the quantity of stormwater runoff. Since runoff is being reduced with the introduction of landscaped areas, existing storm drain infrastructure will not be adversely impacted.

Best Management Practices (BMPs) implemented during project construction will be identified on the Erosion Control Plan. The Erosion Control plan displays how the project can effectively prevent erosion and prohibit the entry of pollutants into the public storm drain system during construction.

Post construction BMPs will be implemented to control pollutants associated with storm water runoff in compliance with City of Los Angeles Watershed Protection Division LID Standards. Compliance with City storm water mitigation requirements and the addition of landscaping will reduce the quantity and improve the quality of storm water runoff generated on the project site. The addition of post-construction BMPs, such as infiltration drywells, will be strategically placed, thus not imposing a significant impact on the environment or existing infrastructure.

Existing Water Quality Management

Storm water runoff from the project site is conveyed by sheet flow into the concrete gutters along Hope Street, 8th Street, and Grand Avenue into LA County owned drainage facilities. The existing site is generally flat and fully developed with a parking structure and an asphalt surface parking lot, therefore the entire site is fully impervious. This site has been used as a parking structure and surface parking lot prior to the enforcement of storm water quality BMP design, implementation and maintenance. In compliance with LID requirements, the proposed project will implement new BMPs which are anticipated to improve the quality of post-construction storm water discharge from the site.

Proposed Water Quality Management - Construction

Within the State of California, the National Pollutant Discharge Elimination System (NPDES) requirements mandate that storm water BMPs are implemented during project construction. The requirements are enforced through the City's plan review and approval process. Plans and specifications are reviewed to ensure that the appropriate BMPs are incorporated to address storm water pollution prevention goals.

Best Management Practices (BMPs) implemented during project construction will be identified on the Erosion Control Plan. The Erosion Control plan displays how the project can effectively prevent erosion and prohibit the entry of pollutants into the public storm drain system during construction.

Proposed Water Quality Management - Project Operation

The City's Watershed Protection Division has adopted the LID Ordinance as issued by the Los Angeles Regional Water Quality Control Board (LARWQCB) and amended by the City of Los Angeles Department of Public Works.

LID is a storm water management strategy with goals to mitigate the impacts of increased runoff and storm water pollution as close to its source as possible. LID promotes the use of natural infiltration systems, evapo-transpiration, and re-use of storm water. The goal is to remove pollutants such as nutrients, bacteria, and metals from storm water runoff while also reducing the quantity and intensity of storm water flows by minimizing impervious surface area and by the use of various infiltration and treatment strategies. Where infiltration is not feasible, the use of bio-retention/filtration, rain gardens, green roofs, and rain barrels; in order to store, evaporate, detain, and treat runoff may be used.

LID prioritizes the selection of BMPs in the following order:

1. Infiltration Systems
2. Storm water Capture and Use
3. High Efficiency Bio-filtration/Bio-retention Systems
4. Combination of Any of the Above

The intent of the City of Los Angeles LID standards is to:

- Encourage the beneficial use of rainwater and urban runoff;
- Reduce storm water/urban runoff while improving water quality;
- Promote rainwater harvesting;

- Reduce offsite runoff and provide increased groundwater recharge;
- Reduce erosion and hydrologic impacts downstream; and
- Enhance the recreational and aesthetic values in our communities.

Based on a Geotechnical Engineering Investigation by Geotechnologies Inc. for the project, dated November 8, 2018 we understand that the project site is suitable for the use of infiltration as a stormwater BMP. Therefore, infiltration is planned as a potential post-construction BMP. Although the drainage pattern of the site will be altered, it will not result in erosion or siltation on or off-site.

Existing Groundwater

Based on geotechnical explorations at the site, encountered fill materials ranged from 3 to 6 feet. The fill material consisted primarily of silty sands and sandy silts. The underlying natural soils beneath the site consist of silty sands and gravelly sands. Groundwater was encountered on the site at a depth of 130 feet below the existing site grade. Infiltration will not occur within 10 feet of the existing ground water level, therefore groundwater supplies will not be depleted nor will water quality be degraded. This site does not lie within mapped inundation boundaries and therefore is not susceptible to inundation.

Preliminary Earthwork Volume Estimate

The Entitlement Package dated October 30, 2018 shows three levels of subterranean parking. Per the design team, the conservative bottom of footing elevation is assumed to be 63' 0" below the existing grade. The estimated earthwork volume was calculated to be 89,750 cubic yards. This volume includes an additional 10% factor for swell of the material and contingency.