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## IV.E. HYDROLOGY AND WATER QUALITY

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The following section presents the information provided in the hydrology report prepared by Sukow Engineering. Supporting hydrology data from this report is included in Appendix F.<sup>1</sup> The hydrology analysis was performed based on the Los Angeles County Rational Method. Input for this method was based on the following: 1) rainfall zone and soil type per the County Hydrology/Sedimentation Manual, 2) proportions of impervious soil based on available existing and proposed development drawings, and 3) computations based on the 50-year rainfall frequency for all subareas.

### ENVIRONMENTAL SETTING

The existing topography at the project site divides the property and the surrounding properties into five watershed areas (i.e., areas flowing to a common point) as shown in Figure IV.E-1. Watershed 1, a 3.0 acre watershed includes residential units A and B within the project site, the western part of the paved driveway, residential lots A, B, C, D and E, and the northern slopes as shown in Figure IV.E-1. Runoff from the northern slopes and roof drains is intercepted by the paved driveway and drains to the northeast along the driveway and then south via existing concrete drowndrains to Castellammare Drive. This runoff sheet flows across Castellammare Drive and is intercepted by an existing catch basin located at the intersection of Castellammare Drive and Sunset Boulevard. Then it is conveyed via a 27" RCP lateral to a major storm drain (12'-3"Wx7'-9"H RC Box) in Sunset Boulevard.

Watershed 2, a 1.2 acre watershed includes residential unit C, the north-eastern part of the paved driveway and a part of an adjacent property located just north of the property line. Runoff from the watershed flows to the northeast via the paved driveway to Tramonto Drive, then via Tramonto Drive to a catch basin located at the intersection of Tramonto Drive and Los Liones Drive. Intercepted by the catch basin the flow is conveyed to the 12'-3"Wx7'-9"H RC Box in Sunset Boulevard then to an existing 24" RCP along Tramonto Drive and then to the existing 4'-6"Wx7'-6"H RC Box along Los Liones Drive.

Watershed 3, a 0.4 acre watershed includes steep slopes located south of the existing residential units A and C. This watershed drains via existing concrete swales to Castellammare Drive and proceeds together with Watershed 1 along the same route to the major storm drain (12'-3"Wx7'-9"H RC Box) in Sunset Boulevard.

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<sup>1</sup> Sukow Engineering, *Hydrology Report for 17331-17333 Tramonto Drive, City of Los Angeles, June 26, 2002.*

**Figure IV.E-1 Hydrology Map - Condition Prior to Landslide**

Watershed 4, a 0.4 acre watershed also includes steep slopes located south of the residential unit C and drains via sheet flow to Sunset Boulevard.

Watershed 5, a 0.2 acre watershed also includes steep slopes located between the existing residential units and the adjacent property at Castellammare Drive. This small watershed drains to Castellammare Drive, then via Castellammare Drive to the existing catch basin located at intersection of Castellammare Drive and Sunset Boulevard.

In 1965 a landslide occurred within the area between Castellammare Drive and Revello Drive. This landslide affected the western portion of the project site, adjacent properties, and a portion of Revello Drive. Prior to the landslide, runoff from Revello Drive and the tributary area north of Revello Drive was conveyed by the street to the west away from the analyzed watershed. To maintain the same drainage pattern after the landslide, the City constructed a 36" steel pipe along Revello Drive.

The project site currently has 1.2 percent impermeable surface area. Paved areas and building footprints are considered impermeable, while landscaping or natural vegetation areas are considered permeable. Impermeable surface areas occur in Watershed 1 and 2. In Watershed 1 there is a total of 0.485 percent impermeable surfaces and in Watershed 2 there is a total of 0.749 percent impermeable surfaces. Impermeable surfaces are relevant since they inhibit soil absorption of precipitation and, thus, increase runoff. Table IV.E-1 located in the Project Impacts section of this Hydrology and Water Quality Section provides a comparison between the existing and proposed runoff from the watersheds.

The project site is not located in a 100-year flood plain area or a 500-year flood plain area.<sup>2</sup> In addition, there are no areas of potential flooding at the project site according to the Federal Emergency Management Association. Therefore, the potential for flooding to affect the project site and adjacent properties is considered low.

### **Regulatory Framework**

The 1987 amendments to the Federal Water Pollution Control Act, or Clean Water Act added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the National Pollution Discharge Elimination System (NPDES) program. Subsequently, the EPA published final regulations that establish requirements for applications for storm water permits for specified categories of industrial and construction activities of 5 acres or more.

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<sup>2</sup> *Flood Insurance Rate Map (FIRM) Website <http://mapserver2.esri.com/cgi-bin/hazard.adol?s=0&c=-118.554214,34.040213&p=1&cd=z&d=0>. Base map data is from the GDT Dymamap/2000 data set. Website <http://www.esri.com/hazards/index.html>, July 1, 2002.*

In 1992, the California State Water Resources Control Board (SWRCB) adopted the General Construction Activity Storm Water Permit (GCASP) which is "...required for all storm water discharges associated with construction activity where clearing, grading, and excavation results in a land disturbance of 5 or more acres." Since the proposed project site is 3.98 acres, a permit is not required from the SWRCB prior to the start of construction.

The City of Los Angeles Ordinance No. 172,176 provides for Stormwater and Urban Runoff Pollution Control in hillside areas and requires the application of Best Management Practices (BMPs) to minimize water quality degradation. In addition, Chapter IX, Division 70 of the Los Angeles Municipal Code addresses BMPs to minimize storm water pollution associated with grading, excavations and fills. All grading activities require grading permits from the Department of Building and Safety. Additionally, provisions are required for grading activities within hillside areas.

## **ENVIRONMENTAL IMPACTS**

### **Thresholds of Significance**

In accordance with CEQA Guidelines Appendix G, the surface hydrology impacts of the proposed project would be considered significant if the project results in:

- Violation of any water quality standards or waste discharge requirements;
- Substantial depletion of groundwater supplies or interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantial alteration of the existing drainage pattern of the site or area in a manner which would result in substantial erosion or siltation on-or off-site;
- Substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- Substantial degradation of water quality.

Where applicable, the thresholds from the City's CEQA Thresholds Guide are provided in the EIR because they address potential environmental impacts that are not entirely addressed by Appendix G of the CEQA Guidelines. Based on the City of Los Angeles CEQA Thresholds Guide, the proposed

project would also result in a significant surface water hydrology impact if it exceeds any of the following thresholds.

- Cause flooding during the projected 50-year developed storm event which would have the potential to harm people or damage property or sensitive biological resources;
- Substantially reduce or increase the amount of surface water in a water body; or
- Result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

A project would also have a significant impact on surface water quality if discharges associated with the project would create pollution, contamination or nuisance as defined in Section 13050 of the California Water Code (CWC) or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body.

### **Proposed Project Drainage**

The proposed project will consist of five watersheds which maintain the existing flow pattern, as shown in Figure IV.E-2.

Watershed 1, a 3.0 acre watershed will include the western part of proposed residential units and driveway, and residential lots A, B, C, D and E. Runoff from the residential lots A, B, C, D, and E will be intercepted by a concrete swale along the northern property line and conveyed to a proposed on-site storm drain. The proposed storm drain will be sized to accommodate 50-year storm water runoff from the watershed as well as a 6 cfs "emergency" flow in case the inlet to the 36" steel pipe in Revello Drive is obstructed. "Emergency" flow was estimated based on the capacity of the 36" pipe flowing at a normal depth (see Appendix F). The on-site storm drain will convey the runoff along the western and southern property lines to Castellammare Drive. To avoid sheet flow across Castellammare Drive a catch basin and a storm drain lateral will be constructed connecting the on-site storm drain with the existing 27" lateral. Then the flow will be conveyed via the existing 27" RCP lateral to the 12'-3"Wx7'-9"H RC Box in Sunset Boulevard.

Watershed 2, a 1.6 acre watershed will include the northeast part of proposed residential units, part of the proposed paved driveway and a part of an adjacent property located just north of the property line. The contributing watershed area will slightly increase from 1.2 acres in existing conditions to 1.6 acres due to a larger building area. The runoff from the watershed will flow to the northeast via a paved driveway toward Tramonto Drive. At the northern end of the driveway the flow will be intercepted by the proposed catch basins. The basins will be connected by a proposed lateral to the existing storm drain in Tramonto Drive. Then flow will be conveyed to the 12'-3"Wx7'-9"H RC Box in Sunset

**Figure IV.E-2 Hydrology Map - Proposed Conditions**

Boulevard via the existing 24" RCP along Tarmonto Way and via the existing 4'-6"Wx7'-6"H RC Box along Los Liones Drive.

Watershed 3, a 0.2 acre watershed includes steep slopes located south of the proposed residential units. The contributing area of the watershed is slightly reduced relative to the existing conditions. The drainage pattern of the watershed remains the same. The watershed drains via the existing concrete swales to Castellammare Drive. The flow then will be intercepted by the proposed catch basin at Castellammare Drive and via the proposed lateral and existing 27" RCP which is conveyed to the 12'-3"Wx7'-9"H RC Box in Sunset Boulevard.

Watershed 4, a 0.3 acre watershed is slightly reduced compared to the existing watershed, without changes in the flow pattern. It includes steep slopes located south of the existing residential units and drains via sheet flow to Sunset Boulevard.

Watershed 5, a 0.2 acre watershed remains unchanged. It includes steep slopes located between the existing residential units and the adjacent property at Castellammare Drive. This small watershed drains to Castellammare Drive, then via Castellammare Drive to the existing catch basin located at intersection of Castellammare Drive and Sunset Boulevard, and then to a 27" RCP lateral that is conveyed to the major storm drain (12'-3"Wx 7'-9"H RC Box) in Sunset Boulevard.

### **Project Impacts**

As presented in Table IV.E-1, only Watersheds 1 and 2 produce a slightly increased flow in the proposed conditions (0.3 cfs from Watershed 1 and 1.5 cfs from Watershed 2). This increase is attributable to the slightly larger area for Watershed 2 and the increased imperviousness of Watershed 1. The flow is immediately accepted by the proposed on-site storm drains and conveyed to the existing storm drains located in public streets. Surface flow from Watersheds 1 and 2 will decrease. In order to comply with the water quality standards of the City and the Clean Water Act, runoff from Watersheds 1 and 2 will be treated prior to being discharged into the public storm drain.

Runoff from the Watersheds 3 and 4 will be decreased (0.7 cfs decrease from Watershed 3 and 0.4 cfs decreased from Watershed 4) thus reducing impacts on the adjacent properties and streets. Runoff from Watershed 5 would not change. Therefore impacts on the adjacent properties as a result of this watershed would remain the same as the existing baseline.

**Table IV.E-1  
Runoff from the Watersheds**

	Prior to Landslide				Proposed Conditions			
	Watershed Area (acres)	Percent Impervious	Tc (min)	Q50 (cfs)	Watershed Area (acre)	Percent Impervious	Tc (min)	Q50 (cfs)
Watershed # 1	3.0	0.485	5.3	11.3	3.0	0.638	4.9	11.6
Watershed # 2	1.2	0.749	3.0	4.7	1.6	0.71	2.5	6.2
Watershed # 3	0.4	0	2.6	1.4	0.2	0	2.7	0.7
Watershed # 4	0.4	0	1.2	1.4	0.3	0	0.9	1.0
Watershed # 5	0.2	0	1.3	0.7	0.2	0	1.3	0.7
<b>Total</b>	<b>5.2</b>			<b>19.5</b>	<b>5.3</b>			<b>20.2</b>
<i>Source: Sukow Engineering, Hydrology Report for 17331-17333 Tramonto Drive, City of Los Angeles, June 26, 2002.</i>								

Proposed improvements will significantly decrease erosion of the slopes which is observed in the present conditions. Additionally, proposed improvements will eliminate sheet flow across Castellammare Drive, increasing public safety. Providing additional capacity of the on-site storm drain to accommodate "emergency" flow from the Revello Drive protects adjacent properties and provides benefits to public safety. The runoff from the entire watershed in existing and proposed conditions drains to the existing storm drain in Sunset Boulevard. Total increase in runoff due to the proposed development is 0.7 cfs. This increase is negligible and will not change flow conditions in the main line 12'-3"Wx7'-9"HRC Box in Sunset Boulevard. Therefore, no significant impacts to adjacent properties would occur as a result of the runoff from the watersheds on the project site.

#### **Water Quality - Construction Related Impacts**

Construction of the proposed project has the potential to affect the quality of storm water runoff. Typically, runoff picks up pollutants as it flows over the ground or paved areas and carries these pollutants into the storm drain system or directly into natural drainages. There are three general sources of short-term construction-related stormwater pollution associated with the proposed project: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth moving activities which, when not controlled, may generate soil erosion.



The project construction site will contain a variety of construction materials that are potential sources of stormwater pollution, such as adhesives, cleaning agents, landscaping, plumbing, painting, heat/cooling, masonry materials, floor and wall coverings; and demolition debris. Construction material spills can also be a source of stormwater pollution and/or soil contamination.

According to the Los Angeles City Bureau of Engineering, routine safety precautions for handling and storing toxic and hazardous materials, and maintaining construction equipment in proper working condition, may effectively control the potential pollution of stormwater by these materials. These same types of common sense, "good housekeeping" procedures can also be extended to non-hazardous stormwater pollutants such as sawdust and other solid wastes.

Soil erosion is the process by which soil particles are removed from the land surface, by wind, water and/or gravity. Soil particles removed by stormwater runoff are pollutants that when deposited in local watercourses, can have negative impacts on downstream conditions. Grading and brush clearing activities can greatly increase erosion processes. Two general strategies are typically required to prevent construction silt from entering drainage courses. First, the amount of exposed soil is typically limited and erosion control procedures are implemented for those areas that must be exposed. Appropriate dust suppression techniques, such as watering or tarping, are used in areas that must be exposed. The Bureau of Engineering indicates that many of the common mitigation measures for controlling fugitive dust emissions, such as covering truck loads and street sweeping, are also effective in controlling stormwater. Second, the construction area is secured to control off-site migration of pollutants. Erosion control devices, including temporary diversion dikes/berms, drainage swales, and siltation basins, are typically required around construction areas to insure that sediment is trapped and properly removed. When properly designed and implemented, these BMP's will ensure that short-term construction related water quality impacts are not significant.

### **Water Quality - Long-Term Operational Impacts**

If not properly designed and constructed, the proposed project could increase the rate of urban pollutant introduction into stormwater runoff, and increase erosion, transport of sediment load and downstream siltation, all of which constitute avoidable impacts to surface water quality. In order to prevent these potential impacts, the project will be designed in compliance with the following: 1) Section 402 (p) of the Federal Water Pollution Control Act, or Clean Water Act; and 2) Order No. 90-079 of the Regional Water Quality Control Board, Los Angeles Region, which regulates the issuance of water discharge requirements to Los Angeles County and Cities tributary to the County under NPDES Permit No. CA0061654.

Two basic areas of concern related to the long-term operation of the proposed project are stormwater quality and quantity. BMPs, such as regular sweeping of paved areas, can be used to address quality

concerns. BMPs that address design considerations, such as channeling runoff from paved areas into landscaped areas, can effectively address both quality and quantity considerations. In general it is desirable to minimize the amount of paved area, use permeable types of paving materials whenever possible design on-site drainage to move water into landscaped areas, and grade landscaped areas to maximize the retention of runoff. BMPs to be implemented as a part of the proposed project are listed below in the Mitigation Measures section.

Compliance with the BMPs listed below and other NPDES requirements for controlling stormwater pollution will reduce the proposed project's impacts on water quality (both short-term construction impacts and long-term operational impacts) to insignificant levels. No additional mitigation is required.

### **CUMULATIVE IMPACTS**

Development of the proposed project in conjunction with the related projects listed in Section II.B would result in further "infilling" of residential land uses in the Pacific Palisades community. Related project No. 3 is located just east of the project site and related project No.4 is located immediately downslope of the project site. These related projects would not contribute runoff to the project site. However, similar to the proposed project, related project No. 3 would add runoff to the Los Lions storm drain, and runoff from related project No. 4 would add sheet flow to Castellammare Drive and then to the storm drain in Castellammare Drive. Sufficient capacity is available in these storm drains to accommodate the cumulative runoff conditions. Related projects Nos. 2 and 5-6 are also residential projects within the Pacific Palisades community and related project No. 1 is a museum project, all of which are outside of the watershed of the proposed project. As such, the increase runoff associated with the construction of the proposed project and the related projects would not exceed the capacities of local storm drains that were designed based on buildout of the City's General Plan. In addition, all of the related projects would be required to implement BMPs and to conform to the existing NPDES water quality program. Therefore, no cumulative hydrology or water quality impacts are anticipated.

### **MITIGATION MEASURES**

While the proposed project will be required to submit site drainage plans to the City Engineer and other responsible agencies for review and approval prior to development of any drainage improvements, no additional mitigation measures are required.

However, the project's required compliance with the NPDES program would further ensure that no significant water quality impacts will be generated by the proposed project.

- All waste shall be disposed of properly. Use appropriately labeled recycling bins to recycle construction materials including: solvents, water-based paints, vehicle fluids, broken asphalt and concrete; wood and vegetation. Non-recyclable materials/wastes must be taken to an

appropriate landfill, such as the Calabasas Sanitary Landfill, the Azusa Landfill, or the Bradley Landfill. Toxic wastes must be discarded at a licensed regulated disposal site.

- Clean up leaks, drips and spills immediately to prevent contamination soil on paved surfaces that can be washed away into the storm drains.
- Do not hose down pavement at material spills. Use dry cleanup methods whenever possible.
- Cover and maintain dumpsters. Place uncovered dumpsters under a roof or cover with tarps or plastic sheeting.
- Use gravel approaches where truck traffic is frequent to reduce soil compaction and limit the tracking of sediment into streets.
- Conduct all vehicle/equipment maintenance, repair, and washing away from storm drains. All major repairs are to be conducted off-site. Use drip pans or drop cloths to catch drips and spills.
- The project shall comply with Ordinance No. 172,176 to provide for Stormwater and Urban Runoff Pollution Control which requires the application of BMPs, including the following mitigation measures:
  - Any connection to the sanitary sewer must have authorization from the Bureau of Sanitation.
  - Reduce impervious surface area by using permeable pavement materials where appropriate, including: pervious concrete/asphalt; unit pavers, i.e. turf block; and granular materials, i.e. crushed aggregates, cobbles.

## **LEVEL OF SIGNIFICANCE AFTER MITIGATION**

No significant hydrology-related impacts are anticipated. Also, implementation of the BMPs listed above and compliance with the NPDES program will ensure that the proposed project does not create any significant water quality impacts.