1. INTRODUCTION

This section identifies and evaluates geologic and soils conditions at the Wilshire Boulevard Temple Master Plan Project site that could affect, or be affected by, implementation of the proposed Project. This section incorporates and summarizes information contained in the Comprehensive Geotechnical Engineering Exploration Update #2 investigation prepared by Byer Geotechnical, Inc, dated June 18, 2010, which is provided in Appendix IV.D.

2. REGULATORY FRAMEWORK

a. Federal Regulations

i. Flood Insurance Rate Maps

Flood Insurance Rate Maps are prepared by the Federal Insurance Administration of the Department of Housing and Urban Development (HUD) after a risk study for a community has been completed and the risk premium rates have been established. The maps indicate the risk premium zones applicable in the community and when those rates are effective. They are used in making flood plain determinations and to determine if a proposed action is located in the base or critical action flood plain, as appropriate.

ii. General Permit for Discharges of Storm Water Associated with Construction Activity

Because the proposed Project is over 1 acre in size, a General Permit for Discharges of Storm Water Associated with Construction Activity is required by the Los Angeles Regional Water Quality Control Board (LARWQCB), as part of the National Pollution Discharge Elimination System (NPDES), to control erosion and pollution during construction. The permit requires the project applicant to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to be administered throughout Project construction. The SWPPP must list Best Management Practices (BMPs) that the discharger (Project applicant) will be used to protect storm water runoff.
b. State Regulations

i. Seismic Hazards Mapping Act

Under the Seismic Hazards Mapping Act of 1990, the State Geologist is responsible for identifying and mapping seismic hazards zones as part of the California Geological Survey (CGS). The Geological Survey provides zoning maps of non-surface rupture earthquake hazards (including liquefaction and seismically induced landslides) to local governments for planning purposes. These maps are intended to protect the public from risks involved with strong ground shaking, liquefaction, landslides or other ground failure, and other hazards caused by earthquakes. For projects within seismic hazard zones, the Seismic Hazards Mapping Act requires developers to conduct geological investigations and incorporate appropriate mitigation measures into project designs before building permits are issued. Most of the Southern California region has been mapped.

ii. Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (the APEFZ) was enacted in response to the 1971 San Fernando earthquake, which caused extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. The APEFZ, which has since been amended 11 times, establishes policies and criteria to assist cities, counties, and state agencies in the siting of buildings near active faults, or those that demonstrate surface displacement within the last 11,000 years.

The APEFZ requires that geologic studies be conducted to locate and assess any active fault traces in and around known active fault areas prior to development of buildings for human occupancy. The APEFZ only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The law requires the State Geologist to establish regulatory zones (Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps of these zones, known as Alquist-Priolo Maps, to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local cities and counties must regulate certain development projects within the Earthquake Fault Zones, generally by issuing building permits only after geologic investigations demonstrate that development sites are not threatened by future surface displacement. Projects subject to these regulations include all land divisions and most buildings intended for human occupancy.

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1 California Public Resources Code-Section 2690–2699.6: “Seismic Hazards Mapping Act,”
3 A surface trace, also referred to as a fault trace or surface rupture, is the usually linear surface expression of the intersection of a fault plane with the Earth’s surface. Surface traces may be marked by visible horizontal or vertical displacement of the underlying rock and soil units on either side, abrupt elevation differentials, the emergence of springs, or other indicative features.
iii. California Building Code

The California Building Code has been codified in the California Code of Regulations Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for administering California's building codes, including adopting, approving, publishing, and implementing codes and standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the California Building Code is to establish minimum standards for safeguarding public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction.

The California Building Standards Code is based on the International Building Code, with the addition of necessary California amendments based on the American Society of Civil Engineers Minimum Design Standards 7-05. The California Building Standards Code establishes requirements for general structural design and methods for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion in building codes. The provisions of the California Building Standards Code apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. The 2007 California Building Standards Code is based on the 2006 International Building Code.

Earthquake design requirements take into account the occupancy category of a structure, site class, soil classifications, and various seismic coefficients, which are used to determine the appropriate Seismic Design Category for a project. The Seismic Design Category is a classification system that combines occupancy categories with the level of expected ground motions at the site and ranges from Seismic Design Category A (very small seismic vulnerability) to Seismic Design Category E/F (very high seismic vulnerability and near a major fault). Design specifications for the structure are then determined according to the applicable Seismic Design Category.

c. Regional and Local Regulations

i. The South Coast Air Quality Management District’s Rule 403 – Fugitive Dust

The South Coast Air Quality Management District’s Rule 403 – Fugitive Dust requires projects to comply with specific actions to prevent, reduce, or mitigate fugitive dust emissions during excavation, demolition, and other construction activities.
ii. City of Los Angeles General Plan

The primary regulatory document for the City of Los Angeles is the Safety Element of the City of Los Angeles General Plan (1996). The objective of the Safety Element is to better protect occupants and equipment during various types and degrees of seismic events. In the Safety Element, specific guidelines are included for the evaluation of liquefaction, seismicity, nonstructural elements, fault rupture zones, and engineering investigation reports. The City’s Emergency Operations Organization helps to administer geological policies and provisions of the Safety Element, and is a City department comprised of all City agencies, pursuant to City Administrative Code, Division 8, Chapter 3. The Administrative Code, Emergency Operations Organization Master Plan, and associated Emergency Operations Organization plans establish the chain of command, protocols, and programs for integrating all of the City’s emergency operations, including earthquakes and other geological hazards, into one unified operation. Each City agency in turn has operational protocols, as well as plans and programs, to implement Emergency Operations Organization protocols and programs related to geological hazard emergencies. A geological hazard emergency triggers a particular set of protocols that are addressed by implementing plans and programs. The City’s emergency operations program encompasses all of these protocols, plans, and programs. Therefore, its programs are not contained in one comprehensive local or City document. The Safety Element goals, objectives, and policies are broadly stated to reflect the comprehensive scope of the Emergency Operations Organization. These include the following:

Goal 1: A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City of Los Angeles due to fire, water related hazard, seismic event, geologic conditions or release of hazardous materials disasters is minimized.

Objective 1.1: Implement comprehensive hazard mitigation plans and programs that are integrated with each other and with the City’s comprehensive emergency response and recovery plans and programs.

Policy 1.1.1: Coordinate information gathering, program formulation and program implementation between City agencies, other jurisdictions and appropriate public and private entities to achieve the maximum mutual benefit with the greatest efficiency of funds and staff.

Policy 1.1.2: Reduce, to the greatest extent feasible and within the resources available, potential critical facility, governmental functions,
infrastructure and information resource disruption due to natural disaster.

**Policy 1.1.3:** Provide redundancy (back-up) systems and strategies for continuation of adequate critical infrastructure systems and services so as to assure adequate circulation, communications, power, transportation, water, and other services for emergency response in the event of disaster related systems distributions.

**Policy 1.1.4:** Protect the public and workers from the release of hazardous materials and protect City water supplies and resources from contamination resulting from accidental release or intrusion resulting from a disaster event, including protection of the environment and public from potential health and safety hazards associated with program implementation.

**Policy 1.1.5:** Reduce potential risk hazards due to natural disaster to the greatest extent feasible with the resources available, including provision of information and training.

**Policy 1.1.6:** Assure compliance with applicable state and federal planning and development regulations, e.g., A-P Earthquake Fault Zoning Act, State Mapping Act and Cobey-Alquist Flood Plain Management Act.

### iii. City of Los Angeles Building Code

The City of Los Angeles also regulates building design in specific geologic hazard areas in the City of Los Angeles through the Los Angeles Building Code. The Los Angeles Building Code adopts the California Building Code by reference and makes further building design regulations for special hazard areas. These documents include specific requirements for construction, grading, excavations, slope stability, use of fill and foundation work, including type of materials, geologic investigations and reports, soil and rock testing, groundwater, and seismic design and procedures, which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. The City Department of Building and Safety is responsible for implementing the provisions of the Building Code.
3. EXISTING CONDITIONS

a. Regional and Local Geologic Setting

The Project site consists of an approximately 3.9-acre rectangle within 15 relatively level contiguous lots in the Wilshire Center section of the city of Los Angeles, California. The Project site is bounded by 6th Street to the north, Wilshire Boulevard to the south, Harvard Boulevard to the east, and Hobart Boulevard to the west. The Project site is located approximately 1.75 miles north of the Santa Monica (10) Freeway, and approximately 1.4 miles southwest of the Hollywood (101) Freeway. Several structures exist on the Project site, including a historic Sanctuary Building and associated Piness Auditorium. Administration buildings occupy the southwestern portion of the Project site, the Camino Neuvo Charter Academy elementary school occupies the east-central portion of the Project site, an existing two-story office building and an associated parking area are located on the northeastern corner of 6th Street and Harvard Boulevard, and the remaining portions of the Project site are developed with surface parking, children’s playgrounds, paved areas, and landscaping. A two-story apartment building previously existed north of the existing administration building, and was demolished and removed from the Project site. The surrounding area has been developed with multi-story commercial buildings on both sides of Wilshire Boulevard, and single- and multi-family residential buildings.

The project site is located in a relatively flat area of the Los Angeles Basin. The elevation at the site is approximately 220 feet above sea level. No distinctive natural landforms are located in the immediate vicinity of the Project site. The Santa Monica Mountain range is located approximately 3 miles north of the Project site.

Past grading on the Project site consisted of placement of fill and backfill during construction of the Sanctuary and school buildings, office building and former apartment building. Vegetation on the Project site consists of manicured planter areas, and several scattered mature trees. Surface drainage on the Project site is by sheetflow runoff down the contours of the land generally to the south.

b. Soil and Geologic Conditions

The earth materials underlying the Project site consist of uncertified fill and older alluvium. Brief descriptions of each of the earth units that were encountered during subsurface explorations and information obtained from the referenced report are provided below.
IV.D Geologic Hazards

i. Uncertified Fill

The Project site is underlain by a layer of uncertified fill in areas of previous site grading. The uncertified fill reaches a maximum depth of 11 feet in the northwestern portion of the existing parking lot along Wilshire and Harvard Boulevards. Deeper fill may occur between borings and on other parts of the Project site that were not directly explored. The uncertified fill generally consists of brown to dark brown sandy clay, characterized as slightly moist to moist, and stiff to very stiff.

ii. Older Alluvium

The artificial fill is underlain by older alluvial deposits, typical for the Wilshire Community Plan area in Los Angeles. The older alluvial deposits were encountered at depths between zero and 11 feet below ground surface. The older alluvium generally consists of stratified layers of sandy clay and clayey sand that are brown to reddish-brown. These layers ranged from slightly moist to moist, becoming wet below groundwater level. The clay layers were characterized as stiff to hard, and the sand layers were characterized as medium dense to dense. A detailed description of the subsurface soils on site is included in the enclosed Log of Borings and Log of Test Pits contained within Appendix V of the geotechnical report provided in Appendix IV.D.

c. Groundwater

Groundwater was encountered in the borings and Cone Penetration Testing (CPT) soundings at the Project site from 28 to 45 feet below existing grade (elevations of 174 to 186 feet above sea level). The California Geological Survey (CGS) has estimated the historically highest groundwater level at the Project site was approximately 20 feet below ground surface. Seasonal fluctuations in groundwater levels occur due to variations in climate, irrigation, development, and other factors not evident at the time of the exploration. Groundwater levels may also vary beneath the Project site.

d. Geologic Hazards

i. Surface Fault Rupture

Southern California faults are classified as “active” or “potentially active.” Faults from past geologic period of mountain building that do not display evidence of recent offset are considered “potentially active.” Faults that have historically produced earthquakes or show evidence of movement within the
past 11,000 years are known as “active faults.” No known active faults cross the Project site, and the Project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone.\textsuperscript{4}

Within the past 39 years, Southern California and the vicinity have experienced an increase in seismic activity beginning with the San Fernando earthquake in 1971. In 1987, a moderate (magnitude 5.9) earthquake struck the Whittier area, which is located on a previously unknown fault. Ground shaking from this event caused substantial damage to the City of Whittier, and surrounding cities. Additionally, on January 17, 1994, the Northridge (magnitude 6.7) earthquake was initiated along a previously unknown fault below the San Fernando Valley. The energy released by the earthquake propagated to the southeast, northwest, and northeast in the form of shear and compression waves, which caused strong ground shaking in portions of the San Fernando Valley, Simi Valley, City of Santa Clarita, and City of Santa Monica.

The nearest known potentially active fault is the Hollywood Fault, which is mapped approximately 3.3 miles to the north of the Project site. According to the California Building Code (CBC) the Hollywood Fault is classified as a Type “B” fault. Type “B” faults are defined as faults having a slip rate between two and five millimeters (0.08 to 0.20 inch) per year and are capable of producing earthquakes with moment magnitude between 6.7 and 7.1.

\textit{ii. Seismicity}

As with all of Southern California, the Project site is located in an active seismic region. Moderate to strong earthquakes can occur on numerous local faults. Governmental agencies now require structures to be earthquake resistant. The purpose of seismic-design parameters within codes is to prevent collapse during strong ground shaking. The proposed Project is within Seismic Design Category D, which is has a high seismic vulnerability.

\textit{iii. Ground Motion}

Ground motion could occur at the Project site during the design life of the proposed Project. As such, it is likely that the Project area would be shaken by future earthquakes produced in Southern California. However, secondary effects such as surface rupture, lurching, and consolidation should not occur at the Project site.

The principal seismic hazard in the Project area is strong ground shaking from earthquakes produced by local faults. Modern, well-constructed buildings are designed to resist ground shaking through the use of

\textsuperscript{4} Byer Geotechnical, Inc., \textit{Comprehensive Geotechnical Engineering Exploration Update #2} (June 18, 2010), 8.
shear panels, moment frames, and reinforcement. It is likely that the Project area would experience ground motion as a result of future earthquakes produced in Southern California.

iv. **Liquefaction and Land Subsidence**

Liquefaction involves a sudden loss in strength of saturated, cohesionless soils that are subject to ground vibration and results in temporary transformation of the soil to a fluid mass. If the liquefying layer is near the surface, the effects are much like that of quicksand for any structure located on it. If the layer is deeper in the subsurface, it may provide a sliding surface for the material above. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine- to medium-grained, primarily sand soil. In addition, ground acceleration and duration of an earthquake must also be of a significant level to induce liquefaction.

According to the California Geological Survey, the Project site is not within an area where historic occurrence of liquefaction or geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacement. The Project site is underlain by older alluvium (Pleistocene age), which is not considered to be subject to liquefaction. In addition, data from the previous explorations (2005, 2007, and 2009)\(^5\) on the Project site indicate that liquefaction is not expected to occur at the Project site. Therefore, neither liquefaction nor ground subsidence is expected to occur at the Project site.

v. **Slope Stability and Landslides**

According to the City of Los Angeles Seismic Safety Element, the Project site is not within an area identified as having a potential for slope instability. The Project site is not located near free-faces, slopes and canals. No slopes are present at the Project site or in the immediate vicinity and there is no risk of earthquake-induced landslides. Therefore, the potential for slope instability, landslides and lateral spreading at the Project site is very low.

vi. **Soil Percolation**

A shallow percolation test was excavated in the northwestern portion of the parking lot along Wilshire Boulevard and Harvard Boulevard to a depth of 4 feet below existing grade. A 6-inch-diameter, 12-inch-deep hole was then excavated in the bottom of the test pit and a perforated plastic can was inserted in the hole. The test consisted of ceasing the flow of water into the hole and measuring the drop of water surface during 10-minute intervals for 60 minutes. The test was repeated twice. The results of the tests indicate that the subsurface soils on the Project site have very low percolation characteristics with a

\(^5\) Byer Geotechnical, Inc., *Comprehensive Geotechnical Engineering Exploration Update #2* (June 18, 2010), 4.
hydraulic conductivity of 5 inches per hour or less. This value is reasonable for the older alluvial deposits underlying the Project site, consisting of hard clay and dense clayey sand.

**vii. Flooding**

According to the NavigateLA mapping system of the City of Los Angeles Department of Public Works, the Project site is not located within either a “100-year” or “500-year” flood zone as defined by the Federal Insurance Administration of the Department of Housing and Urban Development (HUD). As such, flooding is not expected to occur on the Project site.

**viii. Earthquake-Induced Flooding**

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. Based on a review of the Los Angeles County Seismic Safety Element, the Project site is not located within an inundation area. The probability of earthquake-induced inundation is considered very low.

**ix. Tsunamis and Seiches**

The elevation of the Project site is approximately 220 feet above sea level and the site is 11 miles from the Pacific Coast shoreline. Additionally, the City of Los Angeles Safety Element, Exhibit G, Inundation and Tsunami Hazard Areas in the City of Los Angeles, indicates that the Project site is not located within a mapped potential tsunami area. Therefore, tsunamis, seismic sea waves, do not pose a hazard at the Project site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately upgradient from the Project site. Additionally, the City of Los Angeles Safety Element, Exhibit G, Inundation and Tsunami Hazard Areas in the City of Los Angeles, indicates that the Project site is not located within a mapped potential inundation area due to dam failure. The potential for flooding from a seismically induced seiche is considered low.

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x. **Methane Potential**

The Project site is not located within a Methane Zone or Methane Buffer Zone as defined by the City of Los Angeles.\(^8\) Therefore, there is little or no potential for methane at the Project site.

4. **IMPACT ANALYSIS**

a. **Methodology**

Analysis of potential Project impacts related to geologic hazards is based on the information contained in the Comprehensive Geotechnical Engineering Exploration Update #2 prepared by Byer Geotechnical, Inc., dated June 18, 2010. The study is provided in Appendix IV.D. The study included the following elements:

- Review of prior geotechnical reports;
- Visual surface reconnaissance of the site;
- Field explorations;
- Laboratory testing and engineering analysis performed on selected soil samples obtained from subsurface explorations;
- Review of regional geologic and published geologic reports;
- Subsurface exploration, including four pits, 11 borings drilled using a hollow-stem auger drilling rig, and advancing four CPT soundings to approximate depths of 10.5 to 70 feet below existing grade; and
- Laboratory testing and engineering analysis performed on selected soil samples obtained from subsurface explorations.

b. **Significance Thresholds**

The *City of Los Angeles CEQA Thresholds Guide* states that a project would normally have a significant impact with respect to geology if it:

- Would cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury;
- Would constitute a geologic hazard to other properties by causing or accelerating instability from erosion;

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• Would accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition that would not be contained or controlled on site; or

• Would have one or more distinct and prominent geologic or topographic features destroyed, permanently covered, or materially and adversely modified. Such features may include, but are not limited to, hilltops, ridges, hill slopes, canyons, ravines, rock outcrops, water bodies, streambeds, and wetlands.

Appendix G of the *State CEQA Guidelines* provides sample checklist questions for use in an Initial Study to determine a project’s potential for environmental impacts. According to the questions contained in Appendix G under Section VI, Geology and Soils, a project would have a significant impact if it would:

VI. a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42)

   ii. Strong seismic ground shaking

   iii. Seismic-related ground failure, including liquefaction

   iv. Landslides

VI. b) Result in substantial soil erosion or the loss of topsoil;

VI. c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

VI. d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life and property; or

VI. e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

The thresholds used in the *City of Los Angeles CEQA Thresholds Guide* to determine significant geological impacts generally incorporate the checklist questions contained in Appendix G of the *State CEQA Guidelines*. Therefore, based on the *City of Los Angeles CEQA Thresholds Guide*, the proposed Project would have a significant impact with respect to geology if:

GEO-1 The Project would cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury;
GEO-2 The Project would constitute a geologic hazard to other properties by causing or accelerating instability from erosion;

GEO-3 The Project would accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition that would not be contained or controlled on site; or

GEO-4 The Project would have one or more distinct and prominent geologic or topographic features destroyed, permanently covered, or materially and adversely modified. Such features may include, but are not limited to, hilltops, ridges, hill slopes, canyons, ravines, rock outcrops, water bodies, streambeds, and wetlands.

c. Project Design Features

The Master Plan redefines the Project site as three districts, each containing specific facilities and uses: the Community District, School District, and Parking District. The Community District would contain the historic Sanctuary, Temple administration facilities, and Temple event/reception halls and spaces. The School District would contain the 1929 school wing, a Temple nursery school and parenting center, and a Temple elementary school for kindergarten through sixth grade. The Parking District would contain a parking structure with space for the Temple’s social services. Following Master Plan buildout, on-site development would total approximately 245,000 square feet, a net increase of approximately 121,000 square feet over existing conditions.

The first Project phase encompasses renovation of the Sanctuary and Auditorium Building, construction of the Parking Structure and Tikkum Olam, interior renovations to Piness Auditorium and Stalford Hall, and renovation of the existing 1929 school wing and construction of the new East School building. School District East would encompass the existing 1929 school wing, which would be retained, and a new approximately 46,000-square-foot, four-story East School building.

The second Project phase encompasses construction of the West School. School District West would contain a new approximately 59,000-square-foot, four-story elementary school building, which would house three levels of classrooms, school administration, and specialty program spaces and a fourth-floor gymnasium. The gymnasium would be connected to a rooftop play area on the top level of the parking structure proposed within the Parking District.

The third phase encompasses construction of the approximately 55,000-square-foot, five-story Administration and Event Building that would contain Temple administration offices, event/banquet space, intergenerational and other gathering spaces, and conference spaces.
Construction of the proposed Project would require grading over approximately 98,000 square feet and would cut approximately 46,000 cubic yards of fill (the majority for the subterranean parking structure), of which 10,000 cubic yards would be exported. Approximately 35,000 cubic yards of certified fill would be imported.

The building improvements proposed for implementation under the proposed Project would be designed and constructed in accordance with all applicable requirements, which are outlined in the most current addition of the California Building Code and the Los Angeles Uniform Building Code, including all applicable provisions of Chapter IX, Division 70 of the Los Angeles Municipal Code, which addresses grading, excavations and fills. Design and construction would also adhere to applicable requirements of the Department of the State Architect and federal building code requirements.

d. Project Impacts

i. Geologic Hazards

Would the Project cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury?

Based on Byer Geotechnical, Inc.'s Comprehensive Geotechnical Engineering Exploration Update #2 (2010), contained in Appendix IV.D, neither soil nor geologic conditions were encountered during the investigation that would preclude the construction of the proposed development provided that the recommendations presented in the report or any subsequent recommendations that are made by the Project's geotechnical engineers and/or the Department of Building and Safety are followed and implemented during construction.

Buildings proposed for implementation under the proposed Project would be designed and constructed in accordance with all applicable requirements contained in the most current editions of the CBC and the Los Angeles Uniform Building Code, as well as applicable provisions of Chapter IX, Division 70 of the Los Angeles Municipal Code, which addresses grading, excavation, and fill. Design and construction would also be required to adhere to applicable requirements of the Department of the State Architect and federal building code. Mitigation measure MM-GEO-1 is incorporated to ensure compliance with building and municipal code requirements pertaining to geological hazards. Additionally, with implementation of mitigation measures derived from recommendations in the geotechnical report, MM-GEO-2 through MM-GEO-40, or any subsequent recommendations that are made by the Project's geotechnical engineers and/or the Department of Building and Safety, impacts related to geologic hazards would be reduced to less than significant levels.
Soil Conditions

There is potential for cracking of slabs due to settlement foundations, stucco walls, and slabs-on-grade, which may exhibit some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. This occurrence would be reduced and/or controlled by limiting the slump of the concrete, properly placing and curing concrete, and by placing crack control joints at periodic intervals. Absent mitigation measures, impacts would be potentially significant. With incorporation of the mitigation measures MM-GEO-27 through MM-GEO-29, these impacts would be reduced to less than significant levels.

Groundwater

The proposed Project involves excavation of approximately 30 feet for three levels of subterranean parking. The Project site is not located within a groundwater basin. As discussed above, groundwater was encountered in some of the borings and CPT soundings on the Project site from depths of 28 to 45 feet below existing grade. Additionally, the estimated the historical groundwater high is approximately 20 feet below ground surface. Proper surface drainage of irrigation and precipitation is critical. Uncontrolled infiltration of irrigation excess and storm runoff into the supporting soils would adversely affect the performance of the proposed Project. Saturation of supporting soils could cause the soils to lose internal shear strength and increase their compressibility, resulting in a change in the designed engineering properties. Project site runoff and drainage would be collected and transferred to the street by a non-erosive drain. Project irrigation and drainage would be designed to resist ponding and contact with building foundations and footings. As such, proper drainage would be maintained at all times as incorporated by MM-GEO-20 through MM-GEO-22, MM-GEO-28 and MM-GEO-29, and MM-GEO-31 through MM-GEO-34. With incorporation of MM-GEO-20 through MM-GEO-22, MM-GEO-28 and MM-GEO-29, and MM-GEO-31 through MM-GEO-34, geological hazard impacts related to groundwater would be reduced to less than significant levels.

Surface Fault Rupture

No known active faults cross the Project site and the Project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. The nearest known potentially active fault is the Hollywood Fault, which is mapped approximately 3.3 miles to the north of the Project site. Therefore, impacts associated with surface fault rupture would be less than significant.

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9 Byer Geotechnical, Inc., Comprehensive Geotechnical Engineering Exploration Update #2 (June 18, 2010), 8.
Strong Seismic Ground Shaking

As described above, the Project site could be subject to moderate to strong ground shaking in the event of a major earthquake in Southern California. The risk of shaking at the Project site is considered comparable to the surrounding area. The proposed Project would be designed and built in accordance with the California Building Code, the Los Angeles Uniform Building Code, and applicable federal building codes, which, in general, are intended to prevent structural collapse during strong ground shaking in the event of the strong earthquake ground motions expected to occur in the Project site vicinity. Mitigation measure MM-GEO-1 is incorporated to ensure compliance with building and municipal code requirements pertaining to geological hazards. As such, the Project would result in less than significant impacts with regard to strong seismic ground shaking.

Seismicity

As described above, the Project site is not within a currently established Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards. Although the Project could be subjected to strong ground shaking in the event of an earthquake, this hazard is common in Southern California. The location of the Project site relative to known active or potentially active faults indicates that it is not exposed to a greater seismic risk than other sites in the vicinity. Moreover, the effects of ground shaking can be mitigated by proper engineering design and construction in conformance with current building codes and engineering practices. The proposed Project would be designed and built in accordance with the California Building Code, the Los Angeles Uniform Building Code, and applicable federal building codes, which, in general, ensure life safety for occupants in the event of the strong earthquake ground motions expected to occur in the Project site vicinity. Project impacts related to seismicity would be less than significant with adherence to applicable building codes. Mitigation measure MM-GEO-1 is incorporated to ensure compliance with applicable building code requirements governing seismicity.

Seismically Induced Settlement

As discussed above, dynamic compaction of the alluvial deposits is considered negligible and, given the well consolidated nature of the older alluvium underlying the Project site, appreciable seismically induced settlements are not expected within the older alluvium. The Project site is underlain by undocumented fill to depths as great as 11 feet, which are not considered suitable for direct or permanent support structural loads. Absent mitigation, a potentially significant impact could occur. The proposed Administration and Event Building and the new East and West School buildings would bear their weight on future certified compacted fill above the older alluvium. The proposed parking structure would be underlain and bear its weight on the firm natural undisturbed older alluvium. Temporary shoring is
recommended for support excavations for the subterranean parking structure. Conventional foundations may be used to support the proposed structures. Soils to be exposed at finished grade are expected to exhibit a very low to low expansion potential and therefore, impacts would be less than significant. Implementation of mitigation measures MM-GEO-2 through MM-GEO-20 would ensure that impacts related to seismically induced settlement remain less than significant level.

Other Geological Hazards

The potential for other geologic hazards such as peat oxidation, earthquake-induced flooding, tsunamis, seiches, liquefaction, and volcanic eruption affecting the Project is considered low.\(^{10}\) Therefore, impacts related to peat oxidation, earthquake-induced flooding, tsunamis, seiches, liquefaction, and volcanic eruption would be less than significant.

\[\text{ii. Sedimentation and Erosion}\]

- GEO-2 \(\text{Would the project constitute a geologic hazard to other properties by causing or accelerating instability from erosion?}\)

- GEO-3 \(\text{Would the project accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition that would not be contained or controlled on site?}\)

Soil Erosion or Loss of Topsoil

Construction Phase

Construction of the proposed Project would require grading over approximately 98,000 square feet and would cut approximately 46,000 cubic yards of fill, of which 10,000 cubic yards would be exported. Approximately 35,000 cubic yards of certified fill would be imported.

Construction activity associated with Project site development has the potential to result in wind and water driven soil erosion during Project grading activities due to exposure of slopes and/or stockpiled or exposed soils throughout Project construction. Since Project construction would be temporary, the potential for significant impacts associated with sedimentation and erosion would end upon completion of construction. Nevertheless, during Project construction, potentially significant impacts associated with sedimentation and erosion could result. As such, the proposed Project impacts would be potentially significant, absent mitigation.

\(^{10}\) Byer Geotechnical, Inc., Comprehensive Geotechnical Engineering Exploration Update #2 (June 18, 2010).
As part of Project implementation, the Project applicant would be required to adhere to standard requirements to control runoff, including satisfying the provisions of the NPDES, which includes preparation of an SWPPP prior to the issuance of grading permits, and compliance with the Stormwater and Urban Runoff Pollution Control provisions from the Los Angeles Municipal Code, which includes the preparation of a Standard Urban Stormwater Mitigation Plan (SUSMP). With adherence to these requirements, impacts related to sediment runoff and erosion would be less than significant. Nonetheless, mitigation measures MM-WQ-1 and MM-WQ-2 are incorporated to ensure compliance with water runoff and water quality regulations. Please refer to Section VII, Effects Found Not To Be Significant, for more information regarding state and federal requirements.

In addition, the Applicant would comply with SCAQMD’s Rule 403 – Fugitive Dust to minimize fugitive dust during construction activities, which would further prevent impacts associated with wind erosion. Compliance with Rule 403 contains best available control measures to minimize fugitive dust emissions and is mandatory for all construction projects. SCAQMD has determined that Rule 403 reduces dust generation between 30 and 85 percent depending on the source of the dust generation. Compliance with Rule 403 is required, and impacts would be less than significant. Nonetheless, mitigation measure MM-AIR-1 is incorporated to ensure compliance with SCAQMD Rule 403 (Fugitive Dust) in order to minimize fugitive dust generation. Please refer to Section IV.B, Air Quality, for more information regarding Rule 403.

All grading activities would require grading permits from the Department of Building and Safety, which include requirements and standards designed to limit potential impacts to acceptable levels. In addition, all on-site grading and site preparation would comply with applicable provisions of Chapter IX, Division 70 of the Los Angeles Municipal Code, which addresses grading, excavation and fills. Potential sedimentation and erosion impacts would be less than significant with adherence to these requirements, standards, and codes. Nonetheless, mitigation measure MM-GEO-1 is incorporated to ensure adherence to these requirements, standards, and codes.

The contractor would also ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations to maintain safety and the stability of adjacent existing improvements.

**Operation Phase**

As discussed above, the majority of the Project site is underlain by older alluvial soil. Hydro-consolidation is the tendency of a soil structure to collapse upon saturation resulting in the overall settlement of the effected soils and any overlying foundations or paving supported thereby. The Project
site would import certified fill for grading, which is compressible and may have a potential for settlement due to hydro-consolidation and/or ongoing general consolidation.

As discussed above, groundwater was encountered in the borings and CPT soundings at the subject site from 28 to 45 feet below existing grade. It is common for groundwater levels or flow rates to vary seasonally or for groundwater conditions to develop where none previously existed, especially in impermeable fine-grained silts, which are heavily irrigated, or after seasonal rainfall.

With incorporation of mitigation measures **MM-GEO-13** and **MM-GEO-31** through **MM-GEO-33**, potential impacts would be reduced to less than significant levels.

### iii. Landform Alteration

**GEO-4** Would the project have one or more distinct and prominent geologic or topographic features destroyed, permanently covered, or materially and adversely modified. Such features may include, but are not limited to, hilltops, ridges, hill slopes, canyons, ravines, rock outcrops, water bodies, streambeds, and wetlands?

The Project site is located on flat land in an urbanized area of Los Angeles. The Project site is neither on nor near any unique or natural geologic or topographic features such as hilltops, ridges, hill slopes, canyons, ravines, rock outcrops, water bodies, streambeds, and/or wetlands. No distinctive natural landforms are located around the Project site. Therefore, no impacts related to landform alteration would occur.

### e. Mitigation Measures

The following mitigation measures are incorporated to reduce Project impacts to less than significant levels.

#### i. General

**MM-GEO-1** Individual buildings and improvements shall be designed and constructed in accordance with the requirements outlined in the most current edition of the California Building Code and the Los Angeles Uniform Building Code, as well as all applicable provisions of Chapter IX, Division 70 of the Los Angeles Municipal Code, which addresses grading, excavation, and fill, Department of the State Architect requirements, and federal building code requirements.

**MM-GEO-2** The areas to receive compacted fill on the Project site shall be prepared by removing all vegetation, demolition debris, existing fill, and soft or disturbed natural older alluvium. The exposed excavated area shall be observed by the soils engineer prior to placing
compacted fill. The exposed grade shall be scarified to a depth of 6 inches, moistened to optimum moisture content, and recompacted to 90 percent of the maximum dry density.

**MM-GEO-3** Areas of the proposed Administration and Event building, East School building, and West School building shall be excavated to a minimum depth of 3 feet below the bottom of all footings. The excavation shall extend beyond the edge of the exterior footing a minimum of 3 feet or to the depth of fill below the footing. The excavated areas shall be observed by the soils engineer prior to placing compacted fill.

**MM-GEO-4** Fill, consisting of soil approved by the soils engineer, shall be placed in horizontal lifts, moistened as required, and compacted in 6-inch layers with suitable compaction equipment. The excavated on-site materials are considered satisfactory for reuse in the controlled fills. Any imported fill shall be observed by the soils engineer prior to use in fill areas. Rocks larger than 6 inches in diameter shall not be used in the fill.

**MM-GEO-5** The moisture content of fill shall be near optimum moisture content. When the moisture content of fill is too wet or dry, fill shall be moisture conditioned and mixed until the proper moisture is obtained.

**MM-GEO-6** Fill shall be compacted to at least 90 percent of the maximum laboratory dry density for the material used. The maximum dry density shall be determined by ASTM D 1557-07, or equivalent.

**MM-GEO-7** Field observation and testing shall be performed by the soils engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until 90 percent relative compaction is obtained. A minimum of one compaction test is required for each 500 cubic yards or two vertical feet of fill placed.

### ii. Foundation Design

**Spread Footings**

**MM-GEO-8** Continuous and/or pad footings shall be used to support the proposed Administration and Event building and the East and West School buildings, provided they are founded in the future compacted fill. Continuous and/or pad footings shall be used to support the parking structure, provided they are founded in older alluvium. Continuous footings shall have a minimum of 12 inches in width. Pad footings shall be a minimum of
24-inches square. The following chart contains the design parameters for the proposed Project.

<table>
<thead>
<tr>
<th>Bearing Material</th>
<th>Minimum Embedment Depth of Footing (Inches)</th>
<th>Vertical Bearing (psf)</th>
<th>Coefficient of Friction</th>
<th>Passive Earth Pressure (pcf)</th>
<th>Maximum Earth Pressure (psf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future Compacted Fill</td>
<td>24</td>
<td>3,000</td>
<td>0.35</td>
<td>250</td>
<td>6,000</td>
</tr>
<tr>
<td>Older Alluvium</td>
<td>24</td>
<td>3,000</td>
<td>0.35</td>
<td>250</td>
<td>6,000</td>
</tr>
</tbody>
</table>

**MM-GEO-9**
Increases in the bearing value shall be allowable at a rate of 20 percent for each additional foot of footing width or depth to a maximum of 6,000 pounds-per-square-foot. For bearing calculations, the weight of the concrete in the footing may be neglected.

**MM-GEO-10**
The bearing values shown in the table in MM-GEO-8 are for the total of dead and frequently applied live loads, and may be increased by one-third for short duration loading, which includes the effects of wind or seismic forces. When combining passive and friction for lateral resistance, the passive component shall be reduced by one-third.

**MM-GEO-11**
Footings adjacent to retaining walls shall be deepened below a 1:1 plane from the bottom of nearby retaining walls, or the footings shall be designed as grade beams to bridge from the wall to the 1:1 plane.

**MM-GEO-12**
All continuous footings shall be reinforced with a minimum of four #4 steel bars: two placed near the top, and two near the bottom of the footings. Footings shall be cleaned of all loose soil, moistened, free of shrinkage cracks, and approved by the geotechnical engineer prior to placing forms, steel, or concrete.

**Foundation Settlement**

**MM-GEO-13**
Differential settlement of the foundation system that occurs on initial application of loading shall not exceed one-half inch.

**iii. Retaining Walls, General Design**

**MM-GEO-14**
Cantilever retaining walls up to 7-feet-high with a level backslope may be designed for an equivalent fluid pressure of 43 pounds-per-cubic-foot. Retaining walls up to 30 feet...
high are planned to support the excavation of the subterranean portion of the proposed parking structure. These walls, which shall be restrained, shall be designed for the average lateral earth pressure of 38H, where H is the height of the wall. The diagram illustrates the trapezoidal distribution of earth pressure. The design earth pressures assume that the walls are free draining. Where a traffic surcharge exists, defined by a 1:1 plane from the bottom of the excavation along the northern property line, adjacent to 6th Street, an additional horizontal force of 175 pounds-per-square-foot shall be applied laterally to the wall. Retaining walls should be provided with a subdrain or weepholes covered with a minimum of 12 inches of 0.75-inch crushed gravel. A sump pump shall be required for the subdrain system if it is deemed necessary by the Project geotechnical engineer.

iv. Backfill

MM-GEO-15 Retaining wall backfill shall be compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D 1557-07, or equivalent. Where access between the retaining wall and the temporary excavation prevents the use of compaction equipment, retaining walls shall be backfilled with 0.75-inch crushed gravel to within 2 feet of the ground surface. Where the area between the wall and the excavation exceeds 18 inches the gravel shall be vibrated or wheel-rolled, and tested for compaction. The upper 2 feet of backfill above the gravel shall consist of a compacted-fill blanket to the surface. Restrained walls shall not be backfilled until the restraining system is in place.

v. Foundation Design

MM-GEO-16 Retaining wall footings shall be founded in the older alluvium and may be sized per the “Spread Footings” section of the Comprehensive Geotechnical Engineering Exploration Update #2 prepared by Byer Geotechnical, Inc., contained in Appendix IV.D of the Draft EIR.
vi. Retaining Wall Deflection

MM-GEO-17 Non-restrained retaining walls can deflect up to 1 percent of their height in response to loading. This deflection is normal and results in lateral movement and settlement of the backfill toward the wall. The zone of influence is within a 1:1 plane from the bottom of the wall. Hard surfaces or footings placed on the retaining wall backfill shall be designed to avoid the effects of differential settlement from this movement. Decking that caps a retaining wall shall be provided with a flexible joint to allow for the normal deflection of the retaining wall. Decking that does not cap a retaining wall shall not be tied to the wall. The space between the wall and the deck shall be caulked to prevent moisture intrusion into the retaining wall backfill as deemed necessary by the geotechnical engineer.

vii. Temporary Excavations

MM-GEO-18 Temporary excavations shall be required during grading to construct the proposed buildings on the Project site. The excavations shall be up to 30 feet in height and will expose fill over older alluvium. The fill shall be trimmed to 1:1 for wall excavations. The older alluvium is capable of maintaining vertical excavations up to 5 feet high. Where vertical excavations in the older alluvium exceed 5 feet in height, the upper portion shall be trimmed to 1:1 (45 degrees).

MM-GEO-19 Vertical excavations adjacent to public right-of-way, or those removing support from adjacent footings, shall require the use of shoring. Temporary shoring shall be designed for an equivalent fluid pressure of 30 pounds-per-cubic-foot. Values can be found in the “Shoring Piles” mitigation measures MM-GEO-21 and MM-GEO-22, below.

MM-GEO-20 The Project geologist shall be present during grading on the Project site to inspect temporary slopes. All excavations shall be stabilized within 30 days of initial excavation. Water shall not be allowed to pond on top of the excavations nor to flow toward them. No vehicular surcharge shall be allowed within 3 feet of the top of the cut.

viii. Shoring Piles

MM-GEO-21 If drilled, cast-in-place concrete soldier piles are utilized as temporary shoring to support the excavations for the subterranean portion of the proposed parking structure, the piles shall be a minimum of 18 inches in diameter and a minimum of 8 feet into older alluvium and below the excavation. Piles may be assumed fixed at 3 feet into older alluvium and below the excavation. The piles shall be designed for a skin friction of 500 pounds-per-
square-foot for that portion of pile in contact with the older alluvium and below the excavation. Piles shall be spaced a maximum of 8 feet on center. Based upon the calculation (Calculation Sheet No. 2 located in Appendix V of the Comprehensive Geotechnical Engineering Exploration Update #2 prepared by Byer Geotechnical, Inc., in Appendix IV.D of the Draft EIR), the shoring piles shall be designed for an equivalent fluid pressure of 30 pounds-per-cubic-foot. The equivalent fluid pressure shall be multiplied by the pile spacing. The piles may be included in the permanent retaining wall. Where a combination of sloped embankment and shoring is used, the pressure will be greater and shall be determined for each combination.

Should groundwater be encountered in the pile excavations, it shall be pumped out, or the water may be displaced by pumping concrete from the bottom with a hose. The tip of the hose shall be kept at least 5 feet below the concrete surface during pumping. When concrete is placed below water, the mix shall be adjusted to achieve at least 1,000 pounds-per-square-inch more than the required strength.

ix. **Tieback Anchors**

Tieback anchors may be used to resist lateral loads. Conventional, drilled friction anchors or pressure-grouted anchors may be used. The active wedge adjacent to the shoring is defined by a plane drawn at 35 degrees with the vertical through the bottom of the excavation. The friction anchors shall extend at least 15 feet beyond the active wedge or to a greater length if necessary to develop the desired resistance. For design purposes, it is estimated that drilled friction anchors a minimum of 10 feet beyond the active wedge will develop an average friction value of 700 pounds per square foot. Only the frictional resistance developed beyond the active wedge will be effective in resisting lateral loads. If anchors are spaced no closer than 6 feet, on center, no reduction in the capacity of the anchors is necessary. The anchors may be installed at angles of 20 to 40 degrees below the horizontal. Tieback anchors shall be tested during installation in accordance with the specifications of the shoring engineer.

The friction value is for the total of dead and frequently applied live loads and may be increased by one-third for short duration loading, which includes the effects of wind or seismic forces. Resistance to lateral loading may be provided by passive earth pressure within the older alluvium below the excavation.
x. Lateral Design

MM-GEO-24 The maximum allowable earth pressure is 6,000 pounds per square foot. Passive earth pressure may be computed as an equivalent fluid having a density of 250 pounds per cubic foot. For design of isolated piles, the allowable passive and maximum earth pressures may be increased by 100 percent. Piles spaced more than 2.5-pile diameters on center shall be considered isolated.

xi. Lagging

MM-GEO-25 Continuous lagging is anticipated between the soldier piles. The soldier piles and anchors shall be designed for the full-anticipated lateral pressure. However, the pressure on the lagging will be less due to arching in the soils. Lagging shall be designed for the recommended earth pressure, but may be limited to a maximum value of 400 pounds per square foot.

xii. Deflection

MM-GEO-26 Some deflection of the shored embankment should be anticipated. Where shoring is planned adjacent to existing structures, lateral deflection shall not exceed one-half inch. For shoring not surcharged by a structure, the allowable deflection is deferred to the Project structural engineer. If greater deflection occurs during construction, additional bracing or anchors shall be utilized, as necessary, to minimize deflection. If it is necessary to reduce the deflection of the shoring, a greater active pressure could be used in the shoring design.

xiii. Floor Slabs

MM-GEO-27 Floor slabs shall be cast over approved compacted fill or older alluvium in accordance with the “Site Preparation - Removals” section of the Comprehensive Geotechnical Engineering Exploration Update #2 prepared by Byer Geotechnical, Inc., contained in Appendix IV.D of the Draft EIR or any subsequent recommendations that are made by the Project's geotechnical engineers and/or the Department of Building and Safety. Floor slabs shall be reinforced with a minimum of #4 bars on 16-inch centers, each way.

MM-GEO-28 Slabs that will be provided with a floor covering shall be protected by a polyethylene plastic vapor barrier. The barrier shall be sandwiched between the layers of sand, about 2 inches each, to prevent punctures and aid in the concrete cure. A low-slump concrete
may be used to minimize possible curling of the slab. The concrete shall be allowed to
cure properly before placing vinyl or other moisture sensitive floor covering.

MM-GEO-29 Prior to the placement of concrete slabs on expansive soils, the subgrade shall be pre-
moistened until the moisture content reaches at least 120 percent of the optimum
moisture content to a depth of 12 inches. The pre-moistened soils shall be tested and
verified to be 120 percent of optimum moisture content, prior to pouring.

ix. Exterior Concrete Decks

MM-GEO-30 Decking shall be cast over approved compacted fill placed in accordance with the “Site
Preparation - Removals” section of the Comprehensive Geotechnical Engineering
Exploration Update #2 prepared by Byer Geotechnical, Inc., contained in Appendix IV.D
of the Draft EIR or any subsequent recommendations that are made by the Project’s
geotechnical engineers and/or the Department of Building and Safety. Decking shall be
reinforced with a minimum of 43 bars placed 24 inches on center, each way. Decking that
caps a retaining wall shall be provided with a flexible joint to allow for the normal one to
2 percent deflection of the retaining wall. Decking that does not cap a retaining wall shall
not be tied to the wall. The space between the wall and the deck shall be periodically
caulked as determined by the geotechnical engineer to prevent moisture intrusion into
the retaining wall backfill. The subgrade shall be moistened prior to placing concrete.

xiv. Drainage

MM-GEO-31 Control of Project site drainage to optimize the performance of the proposed Project shall
be required. Pad and roof drainage shall be collected and transferred to the street or
approved location in non-erosive drainage devices. Drainage shall not be allowed to
pond on the pad or against any foundation or retaining wall. Planters located within
retaining wall backfill shall be sealed to prevent moisture intrusion into the backfill.
Planters located next to raised-floor-type construction also shall be sealed to the depth of
the footings. Drainage control devices shall be periodically cleaned, tested, and
maintained to remain effective.
Irrigation

MM-GEO-32 Irrigation water shall be controlled as a necessary part of Project site maintenance. Soggy ground and perched water may result if irrigation water is excessively applied. Irrigation systems shall be adjusted to provide the minimum water needed. Adjustments shall be made for changes in climate and rainfall.

Infiltration Pit

MM-GEO-33 The roof and pad drainage shall be conducted to the street in order to avoid geotechnical-related damage and because the fine-grained subsurface soils on the Project site have very low percolation characteristics.

xv. Waterproofing

MM-GEO-34 Interior and exterior retaining walls shall be waterproofed to avoid damage from moisture intrusion, seepage, and leakage. Waterproofing paints, compounds, or sheeting can be effective if properly installed. Equally important is the use of a subdrain that daylights to the atmosphere. The subdrain shall be covered with 0.75-inch crushed gravel to help the collection of water. Landscape areas above the wall shall be sealed or properly drained to prevent moisture contact with the wall or saturation of wall backfill.

xvi. Plan Review

MM-GEO-35 The geotechnical engineer shall review grading, foundation and shoring plans prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations in the Comprehensive Geotechnical Engineering Exploration Update #2 prepared by Byer Geotechnical, Inc., contained in Appendix IV.D of the Draft EIR or any subsequent recommendations that are made by the geotechnical engineer and/or the Department of Building and Safety, and to provide additional analyses or recommendations, if necessary.

xvii. Site Observations During Construction

MM-GEO-36 The Foundation excavations shall be observed and approved by the geotechnical engineer prior to placing steel, forms, and concrete. The engineer shall observe bottoms for fill, compaction of fill, pile excavations, slot cutting, subdrains, and retaining wall backfill. All fill that is placed shall be approved by the geotechnical engineer and the Los
Angeles Department of Building and Safety prior to use for support of structural footings and floor slabs.

MM-GEO-37 The geotechnical engineer shall be advised at least 24 hours prior to any required site visit to the Project site. The plans stamped by the Los Angeles Department of Building and Safety, the permits, and the geotechnical reports shall be located at the Project job site and available to the geotechnical engineer. The Project geotechnical engineer shall perform the observation and post a notice at the Project site with the findings. This notice shall be given to the City of Los Angeles Department of Building and Safety inspector.

xviii. Final Reports

MM-GEO-38 The geotechnical engineer shall prepare final compaction reports upon request. The project geologist shall prepare reports summarizing pile excavations.

xix. Construction Site Maintenance

MM-GEO-39 It shall be the responsibility of the contractor to maintain a safe construction site. The construction area on the Project site shall be fenced and warning signs posted. All excavations shall be covered and secured. Soil generated by foundation excavations shall be either removed from the Project site or placed as compacted fill. Soil shall not be spilled over any descending slope. Workers shall not be allowed to enter any unshored trench excavations over 5 feet deep. Water shall not be allowed to saturate open footing trenches.

xx. Plan Review

MM-GEO-40 The Project geologist shall review grading, foundation and shoring plans prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations in the Comprehensive Geotechnical Engineering Exploration Update #2 prepared by Byer Geotechnical, Inc., dated June 18, 2010 and provided in Appendix IV.D of the Draft EIR, and to provide additional analyses or recommendations, if necessary.

f. Unavoidable Significant Impacts

The proposed Project would be designed and constructed in accordance with all applicable requirements contained in the most current editions of the California Building Code and the Los Angeles Uniform Building Code, as well as applicable provisions of Chapter IX, Division 70 of the Los Angeles Municipal
IV.D Geologic Hazards

Code, which addresses grading, excavation, and fill. With implementation of mitigation measures MM-GEO-1 through MM-GEO-40 to mitigate potentially significant impacts associated with geologic hazards and sedimentation and erosion, impacts related to the construction and operation of the proposed Project would be less than significant.

g. Cumulative Impacts

As discussed in Section III, General Description of Environmental Setting, several related projects are proposed and/or planned within the vicinity of the Project site. Potential geologic hazards associated with the proposed Project are site-specific and would not contribute to cumulative impacts. Implementation of the proposed Project and other projects in the Southern California region would cumulatively increase the number of structures and people exposed to geologic- and seismic-related hazards. However, geologic impacts associated with individual sites do not add to geologic impacts on other sites. As long as design and construction of related projects occurs consistent with proper engineering practices and in accordance with the requirements outlined in the latest addition of the California Building Code and the Los Angeles Uniform Building Code, including all applicable provisions of Chapter IX, Division 70 of the Los Angeles Municipal Code, seismic and regional geologic hazards would not be considered cumulatively considerable. As such, it is anticipated that the proposed Project, considered together with related projects, would not result in cumulatively significant geologic hazard impacts.