



## PROPOSED MITIGATED NEGATIVE DECLARATION

New Single-Family Residence  
3132 Charing Cross Road  
Variance Case No. PVAR1802906

The following Mitigated Negative Declaration has been prepared in accordance with the California Environmental Quality Act of 1970 as amended, the State Guidelines, and the Environmental Guidelines and Procedures of the City of Glendale.

|                                   |  |                 |   |
|-----------------------------------|--|-----------------|---|
| <b>Project Title/Common Name:</b> | New Single-Family Residence  |                 |   |
| <b>Project Location:</b>          | 3132 Charing Cross Road, Glendale, Los Angeles County  |                 |   |
| <b>Project Description:</b>       | <p>The proposed project involves a variance request to allow the construction of a new three-story, 2,764 SF single-family house, with an attached 453 SF garage on a vacant 6,069 SF hillside lot with an average current slope of 50 percent. As proposed, the new residence will require approval of variances from the Zoning Ordinance as follows: 1) To construct a new single-family dwelling on a vacant 6,069 SF hillside lot, which is less than the code-required 7,500 SF minimum lot size in the "R1R" – Restricted Residential Zone, 2) To reduce the required interior setback to zero along the north side of the property, where a minimum 10-foot interior setback is required for the building and new five-foot high retaining walls within five feet of the interior setback, 3) Reduce ungraded open space to 31.8 percent where a minimum 40 percent ungraded open space is required on a lot with an average current slope greater than 30 percent, and 4) To increase the total floor area ratio (FAR) to 0.52 where the maximum allowed is 0.30 on a lot with an average current slope greater than 40 percent. Total proposed grading for the entire site is 2,091 cubic yards (cut). There are five oak trees identified on or within 20 feet of the subject site. Out of the five, three are located on the subject site, and two are located on the adjacent parcels. Two out of the five trees are six or less inches in diameter. Existing protected oak trees will be preserved. Future residential development on the newly created lots will require approval by the Design Review Board.</p> |                 |   |
| <b>Project Type:</b>              | <input checked="" type="checkbox"/>  | Private Project | <input type="checkbox"/> Public Project |
| <b>Project Applicant:</b>         | Garo Nazarian c/o Domus Design<br>109 E. Harvard Street, #306<br>Glendale, CA 91205<br>Phone: (818) 500-3966   |                 |   |
| <b>Findings:</b>                  | The Director of the Community Development, on <b>OCTOBER 31, 2021</b> , after considering an Initial Study prepared by the Planning Division, found that the above referenced project would not have a significant effect on the environment as mitigated and instructed that a Mitigated Negative Declaration be prepared.  |                 |   |
| <b>Mitigation Measures:</b>       | See attached Mitigation Monitoring and Reporting Program (MMRP)  |                 |   |
| <b>Attachments:</b>               | MMRP; Initial Study Checklist  |                 |   |
| <b>Contact Person:</b>            | Milca Toledo, Senior Planner<br>City of Glendale Community Development Department<br>633 East Broadway Room 103<br>Glendale, CA 91206-4386   |                 |   |

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|--|--|
|  | Tel: (818) 548-2140; Fax: (818) 240-0392 |
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### MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

The following mitigation measure shall apply to the proposed residential development located at 3132 Charing Cross Road to reduce identified impacts to less than significant levels.

#### BIOLOGICAL RESOURCES

- MM-1 The applicant shall comply with all Recommendations and Construction Impact Guidelines for Pre-Construction, During-Construction and Post Construction included in the arborist report prepared by McKinley and Associates, dated August 25, 2020 and updated report submitted by the applicant on December 8, 2020.
- MM-2 An Indigenous Tree Permit shall be obtained prior to building permit issuance. The approved Indigenous Tree Permit shall be maintained on the project site at all times and shall be presented upon request to any City official.
- MM-3 That three new coast live oak trees be planted as indicated the project's landscape plan dated February 2020.
- MM-4 All landscaping adjacent to the new oak trees should be oak compatible, and to the satisfaction of Urban Forestry.

The following Monitoring Action, Timing and Responsibility applies to all Biological Resource MMs 1-4

|                          |   |
|--------------------------|---|
| <b>Monitoring Action</b> | Plan review; site inspection  |
| <b>Timing:</b>           | Prior to Building Permit issuance;<br>During all site preparation and construction activities |
| <b>Responsibility:</b>   | Director of Public Works; Project applicant   |

#### CULTURAL RESOURCES

- MM-5 If human remains or funerary objects are encountered during activities associated with the project, work in the immediate vicinity (within a 60-foot buffer of the find) shall cease and the County coroner shall be contacted. If the human remains prove to be Native American in origin by the County Coroner, the applicant shall immediately notify the lead agency and all consulting Tribes.

|                           |   |
|---------------------------|---|
| <b>Monitoring Action:</b> | Site inspection   |
| <b>Timing:</b>            | During all site preparation and construction activities |
| <b>Responsibility:</b>    | Community Development Department; Project Applicant     |

- MM-6 In the event that Native American cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archeologist meeting Secretary of Interior standards shall assess the find. The Gabrielino Indian Tribe Band of Mission Indians shall be contracted to consult if any such find occurs. The archaeologist shall complete all relevant California State Department of Parks and Recreation (DPR) 523 Series forms to document the find and submit this documentation to the applicant, Lead Agency and the FTBMI. If the Native American cultural resource is determined to be significant, as defined by consulting Tribes, a Native American monitor procured by the Gabrielino Indian Tribe Band of Mission Indians shall be present for all ground disturbing activities that occur within the proposed project area.

- The archaeologist and Tribal monitor will have the authority to request ground disturbing activities cease within the area of a discovery to assess and document potential finds in real time.
- The Lead Agency and/or applicant shall, in good faith, consult with Gabrielino Indian Tribe Band of Mission Indians on the disposition and treatment of any artifacts or other cultural materials encountered during the project.

|                           |   |
|---------------------------|---|
| <b>Monitoring Action:</b> | Site inspection   |
| <b>Timing:</b>            | During all site preparation and construction activities |
| <b>Responsibility:</b>    | Community Development Department; Project Applicant     |

## GEOLOGY AND SOILS

MM-7      That the development shall comply with all recommendations of the Geologic and Soils Engineering Exploration report dated September 20, 2019 and in their (email) memo dated June 8, 2021.

|                          |   |
|--------------------------|---|
| <b>Monitoring Action</b> | Plan review; site inspection  |
| <b>Timing:</b>           | Prior to Building Permit issuance;<br>During all site preparation and construction activities |
| <b>Responsibility:</b>   | Director of Public Works; Project applicant   |



## INITIAL STUDY CHECKLIST

New Single-Family Residence  
3132 Charing Cross Road  
Variance Case No. PVAR1802906

|    |  |
|----|--|
| 1. | <b>Project Title:</b> New Single-Family Residence  |
| 2. | <b>Lead Agency Name and Address:</b><br>City of Glendale Community Development Department<br>Planning Division<br>633 East Broadway, Room 103<br>Glendale, CA 91206  |
| 3. | <b>Contact Person and Phone Number:</b><br>Milca Toledo, Senior Planner<br>Tel: (818) 937-8181<br>Fax: (818) 240-0392  |
| 4. | <b>Project Location:</b> 3132 Charing Cross Road, Glendale, Los Angeles County   |
| 5. | <b>Project Sponsor's Name and Address:</b><br>Garo Nazarian c/o Domus Design<br>109 E. Harvard Street, #306<br>Glendale, CA 91205<br>Phone: (818) 500-3966   |
| 6. | <b>General Plan Designation:</b> Very Low Density Residential  |
| 7. | <b>Zoning:</b> R1R, Restricted Residential Zone, Floor Area Ratio District II  |
| 8. | <b>Project Description:</b> The proposed project involves a variance request to allow the construction of a new three-story, 2,764 SF single-family house, with an attached 453 SF garage on a vacant 6,069 SF hillside lot with an average current slope of 50 percent. As proposed, the new residence will require approval of variances from the Zoning Ordinance as follows: 1) To construct a new single-family dwelling on a vacant 6,069 SF hillside lot, which is less than the code-required 7,500 SF minimum lot size in the "R1R" – Restricted Residential Zone, 2) To reduce the required interior setback to zero along the north side of the property, where a minimum 10-foot interior setback is required for the building and new five-foot high retaining walls within five feet of the interior setback, 3) Reduce ungraded open space to 31.8 percent where a minimum 40 percent ungraded open space is required on a lot with an average current slope greater than 30 percent, and 4). To increase the total floor area ratio (FAR) to 0.52 where the maximum allowed is 0.30 on a lot with an average current slope greater than 40 percent. Total proposed grading for the entire site is 2,091 cubic yards (cut). There are five oak trees identified on or within 20 feet of the subject site. Out of the five, three are located on the subject site, and two are located on the adjacent parcels. Two out of the five trees are six or less inches in diameter. Existing protected oak trees will be preserved. Future residential development on the newly created lots will require approval by the Design Review Board. |
| 9. | <b>Surrounding Land Uses and Setting:</b><br><u>North:</u> Residential – Single-family home(s)<br><u>South:</u> Residential – Single-family home(s)<br><u>East:</u> Residential – Vacant lot (SR Zone)   |

Case No. PVAR 1802906  
3132 CHARING CROSS ROAD

|   |
|---|
| <u>West:</u> Residential – Single-family home(s)  |
| <b>10. Other public agencies whose approval is required (e.g., permits, financing approval or participation agreement).</b><br>None |
|   |



**11. Environmental Factors Potentially Affected:**

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                  | <input type="checkbox"/> Agriculture and Forest Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources        | <input type="checkbox"/> Cultural Resources               | <input type="checkbox"/> Energy                             |
| <input type="checkbox"/> Geology / Soils             | <input type="checkbox"/> Greenhouse Gas Emissions         | <input type="checkbox"/> Hazards / Hazardous Materials      |
| <input type="checkbox"/> Hydrology / Water Quality   | <input type="checkbox"/> Land Use / Planning              | <input type="checkbox"/> Mineral Resources                  |
| <input type="checkbox"/> Noise                       | <input type="checkbox"/> Population / Housing             | <input type="checkbox"/> Public Services                    |
| <input type="checkbox"/> Recreation                  | <input type="checkbox"/> Transportation                   | <input type="checkbox"/> Tribal Cultural Resources          |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Wildfire                         | <input type="checkbox"/> Mandatory Findings of Significance |

**LEAD AGENCY DETERMINATION:**


On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Prepared by: 

10-31-2021

Signature of Director of Community Development or his or her designee authorizing the release of environmental document for public review and comment.

  
Director of Community Development:

Date: 

**A. AESTHETICS**

| Except as provided in Public Resources Code Section 21099, would the project:   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Have a substantial adverse effect on a scenic vista?   |                                |   |                              | X         |
| 2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?  |                                |   |                              | X         |
| 3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? |                                |   | X                            |           |
| 4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?   |                                |   | X                            |           |

**1) Have a substantial adverse effect on a scenic vista?**

**No Impact.** The surrounding area is developed with single-family hillside residences. Presently, the property addressed as 3132 Charing Cross Road is vacant. No scenic vistas, as identified in the Open Space and Conservation Element (January 1993), exist within or in proximity to the project site. Development of the property with a new residence will require approval of the Design Review Board.

The subject property is not located on a primary ridgeline. No scenic vistas exist within, or in proximity to the project site. Therefore, no impacts on a scenic vista would occur.

**Mitigation Measures:** No mitigation measures are required.

**2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

**No Impact.** No state scenic highway is located adjacent to or within view of the project site. No impacts to scenic resources within a State scenic highway would occur.

**Mitigation Measures:** No mitigation measures are required.

**3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

**Less Than Significant Impact.**

The project site is located in an urbanized residential area of the city. The property is zoned R1R II (Restricted Residential, Floor Area Ratio District II). The area surrounding the project site includes vacant lands and single-family residences including a vacant parcel located northeast of the subject property. The existing residences along Charing Cross Road were constructed between the 1940's and 1960's.

The building footprint for the proposed residence is situated towards the front of the property set back approximately 15 feet for the property located at 3132 Charing Cross Road. The residence will be located in the lower elevations and built into the natural slope. The new residence will require approval of variances from the Zoning Ordinance as follows: to allow the construction of a single-family development on a 6,069 SF vacant lot, where the minimum required is 7,500 square feet, reduced setback to zero along the north side where a minimum 10 feet is required, increase the total

floor area ratio (FAR) to 0.52 where the maximum allowed is 0.30, and reduce the total ungraded open space to 31% where 40% is the minimum on a lot exceeding an average current slope of 30% in the R1R zone. There are five oak trees identified on or within 20 feet of the subject site. Out of the five, three are located on the subject site, and two are located on the adjacent parcels. Two out of the five trees are six or less inches in diameter. Per Urban Forestry, oak tree #1 referenced in the tree report should be removed from the site due to its poor conditions, and three (3) new coast live oak trees shall be planted and shown on the site landscape plan. and no other protected trees are proposed for removal. The design of the new home will require Design Review Board approval. The Board will review the site planning, mass and scale, architecture, materials and landscaping to ensure the project's design is compatible with the surrounding built environment.

The property has many other tree species and native shrubs and grasses. Some trees that are not protected by the Indigenous Tree ordinance will be removed. Oak trees located on the neighboring properties are outside the development footprint of the proposed residences and will be preserved. The City's urban forester reviewed plans and the arborist report prepared for the project. The applicant will be required to comply with all Recommendations and Construction Impact Guidelines for Pre-Construction, During-Construction and Post Construction included in the arborist report prepared by McKinley and Associates, dated August 25, 2020 and updated report submitted by the applicant on December 8, 2020. Existing protected oak trees on and within 20 feet of the site will be preserved. Impacts to visual character and quality of the site caused by the construction of the residence would be less than significant. No significant impacts associated with zoning or other regulations governing scenic quality are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**4) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?**

**Less than Significant Impact.** The site is currently vacant. The project proposes the development of a new single-family residence on a 6,069 SF lot. The proposed development is located within a developed residential area and new light sources associated with the project are not expected to significantly increase the existing ambient lighting in the area. As such, impacts associated with increased ambient lighting affecting nighttime views in the project area are considered less than significant.

**Mitigation Measures:** No mitigation measures are required.

**B. AGRICULTURE AND FOREST RESOURCES**

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

| Would the project:   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? |                                |   |                              | X         |

| Would the project:   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 2. Conflict with existing zoning for agricultural use, or a Williamson Act contract?   |                                |   |                              | X         |
| 3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? |                                |   |                              | X         |
| 4. Result in the loss of forest land or conversion of forest land to non-forest use?   |                                |   |                              | X         |
| 5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?   |                                |   |                              | X         |

**1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

**No Impact.** There is no prime farmland, unique farmland, or farmland of statewide importance within or adjacent to the proposed project site, and no agricultural activities take place on the project site. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?**

**No Impact.** No portion of the project site is proposed to include agricultural zoning designations or uses, nor do any such uses exist within the City under the current General Plan and zoning. There are no Williamson Act contracts in effect for the project site or surrounding vicinity. No conflicts with existing zoning for agricultural use or Williamson Act contracts would result. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?**

**No Impact.** There is no existing zoning of forest land or timberland in the City. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**4) Result in the loss of forest land or conversion of forest land to non-forest use?**

**No Impact.** There is no forestland within the City of Glendale. No forest land would be converted to non-forest use under the proposed project. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.



5) ***Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use?***

**No Impact.** There is no farmland or forest land in the vicinity of or on the project site. No farmland would be converted to non-agricultural use and no forest land would be converted to non-forest use under the proposed project. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

### C. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.

| Would the project:  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Conflict with or obstruct implementation of the applicable air quality plan?   |                                |   |                              | X         |
| 2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? |                                |   | X                            |           |
| 3. Expose sensitive receptors to substantial pollutant concentrations?  |                                |   | X                            |           |
| 4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?   |                                |   | X                            |           |

1) ***Conflict with or obstruct implementation of the applicable air quality plan?***

**No Impact.** The project site is located within the City of Glendale, which is part of the South Coast Air Basin (Basin) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is the agency responsible for preparing the Air Quality Management Plan (AQMP) for the Basin. Since 1979, a number of AQMPs have been prepared. The most recent comprehensive plan fully approved by the U.S. Environmental Protection Agency (U.S. EPA) is the 2016 Air Quality Management Plan (AQMP), which includes a variety of strategies and control measures.

The AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumption used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Projects that are consistent with the projections of employment and population forecasts identified in the Growth Management Chapter of the Regional Comprehensive Plan and Guide (RCPG) are considered consistent with the AQMP growth projections, since the Growth Management Chapter forms the basis of the land use and transportation control portions of the AQMP.

The project would not increase population figures over those that have been planned for the area or cause growth in Glendale to exceed the SCAG forecast. Consequently, implementation of the proposed project would be consistent with AQMP attainment forecasts. Therefore, the project would be consistent with the air quality-related regional plans, and would not jeopardize attainment of state and federal ambient air quality standards in the region. No impact would occur with relation to a conflict with, or obstruction of, the implementation of the SCAQMD AQMP.

**Mitigation Measures:** No mitigation measures are required.

**2) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?***

**Less Than Significant Impact.**

Emission estimates were done using the California Emissions Estimator Model® (CalEEMod) which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California Air Districts. The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The proposed project involves the construction of a new single-family residence on a vacant, 6,069 square-foot lot. Only minimal construction impacts are expected with grading and construction of a new house. The average current slope for the property is 50%. Total proposed grading for the entire site is 2,091 cubic yards (cut), and the average current slope of the building footprint area is 45.1%. The proposed project would not result in any significant increase in criteria pollutants or contribute to an existing air quality violation or exceed SCAQMD threshold. The California Emissions Estimator Model (CalEEMod version 2016.3.2) was used to estimate air quality impacts during the construction and operation stages of the project. Results from the model indicate that the proposed project would not exceed thresholds for construction, area, or operational impacts. A summary of the results is attached. No significant impacts are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**3) *Expose sensitive receptors to substantial pollutant concentrations?***

**Less Than Significant Impact.** Sensitive receptors are defined as schools, hospitals, resident care facilities, daycare centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. The proposed project is located within a residential area with no known sensitive receptors located nearby. In addition, as indicated in the model run performed for this project, no construction or operational impacts are anticipated. The project would not expose sensitive receptors to a substantial pollutant concentration and therefore, impacts are considered less than significant.

The project would be required to adhere to the South Coast Air Quality Management District (SCAQMD) Rule 403-Fugitive Dust, which would further reduce the less than significant impact related to construction impacts identified in Response C.2 above and comply with all applicable rules that govern construction related impacts. In addition, as indicated in the air quality model run described above, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant. The project would not expose sensitive receptors to a substantial pollutant concentration and therefore, impacts are considered less than significant.

**4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

**Less Than Significant Impact.** The type of facilities that are typically associated with objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The construction of a new single-family home with private attached garage would not result in the types of odors generated by the aforementioned land uses. During construction, equipment exhaust would temporarily generate odors. Any construction- and operation-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the equipment. By the time such emissions reach any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Therefore, impacts associated with operation- and construction-generated odors would be less than significant, and no mitigation measures are required.

**Mitigation Measures:** No mitigation measures are required.

**D. BIOLOGICAL RESOURCES**

| <i>Would the project:</i>  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? |                                |   | X                            |           |
| 2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?   |                                |   |                              | X         |
| 3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?   |                                |   |                              | X         |
| 4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   |                                |   | X                            |           |
| 5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?  |                                | X   |                              |           |
| 6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?   |                                |   |                              | X         |

**1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

**Less Than Significant Impact.** The project site is not located within any significant vegetation community, including chaparral areas, oak woodlands and southern oak riparian as shown in Map 4-

9 of the City's Open Space and Conservation Element. Also, the project site is not located within any Significant Ecological Area (SEA) as shown in Map 4-12 of the Element. Therefore, the project is not anticipated to have a significant impact on biological resources.

**Mitigation Measures:** No mitigation measures are required.

**2) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

**No Impact.** No riparian habitat and/or other sensitive natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service are present onsite or adjacent to the project site. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

**3) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***

**No Impact.** The project site is neither in proximity to, nor does it contain, wetland habitat or a blue-line stream. Therefore, the proposed project implementation would not have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (CWA), through direct removal, filling, hydrological interruption, or other means. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**4) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?***

**Less Than Significant Impact.** The project site is located in a developed area where there are many constraints to wildlife movement. Existing and proposed development and associated fencing severely limit wildlife movement. Consequently, wildlife movement on the project site is limited to local movement of wildlife within the immediate vicinity. Construction of a single-family residence would not result in any significant barrier to wildlife moving through the area and therefore, no adverse effect on regional movement corridors would occur.

**Mitigation Measures:** No mitigation measures are required.

**5) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

**Less Than Significant Impact with Mitigation Incorporated.** According to the Indigenous Tree Report submitted by the applicant for this project and prepared by McKinley and Associates, dated August 25, 2020, and updated report submitted by the applicant December 8, 2020, there are five oak trees identified on or within 20 feet of the subject site. Out of the five, three are located on the subject site, and two are located on the adjacent parcels. Two out of the five trees are six or less inches in diameter, and are not protected by the City's Indigenous Tree Protection Ordinance. Per Urban Forestry (refer to their revised memo dated June 22, 2021), three new coast live oak trees are proposed and shown on the project's landscape plan, all landscaping adjacent to the new and existing oak trees should be compatible per the Urban Forestry Guidelines, the project must comply with the tree protection measures proposed and included in the updated Indigenous Tree Report, and the applicant shall contact Urban Forestry to obtain an Indigenous Tree Permit during the plan check process. The landscape plan and tree protection plan will be reviewed for compliance with these conditions at that time.

The applicant will be required to comply with all Recommendations and Construction Impact Guidelines for Pre-Construction, During-Construction and Post Construction included in the arborist



report prepared McKinley and Associates, dated August 25, 2020 and updated report submitted by the applicant on December 8, 2020. Further, the City's urban forester recommends that all tree protection measures recommended by the Arborist of Record shall be followed throughout construction, and three new coast live oak trees shall be planted as shown on the site landscape plan. Also, Forestry requires landscaping adjacent to the new and existing oak trees to be oak compatible per the guidelines. Mitigation measures have been added to the project to further reduce impacts to less than significant.

**Mitigation Measures:** The following mitigation measure would reduce impacts to less than significant levels.

MM-1 The applicant shall comply with all Recommendations and Construction Impact Guidelines for Pre-Construction, During-Construction and Post Construction included in the arborist report prepared by McKinley and Associates, dated August 25, 2020 and updated report submitted by the applicant on December 8, 2020.

MM-2 An Indigenous Tree Permit shall be obtained prior to building permit issuance. The approved Indigenous Tree Permit shall be maintained on the project site at all times and shall be presented upon request to any City official.

MM-3 That three new coast live oak trees be planted as shown on the project's landscape plan dated February 2020.

MM-4 All landscaping adjacent to the new oak trees should be oak compatible, and to the satisfaction of Urban Forestry.

**6) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?***

**No Impact.** No adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plan has been adopted to include the project site. Therefore, the project would not conflict with any such plans. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**E. CULTURAL RESOURCES**

| <i>Would the project:</i>   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?      |                                |   |                              | X         |
| 2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? |                                | X   |                              |           |
| 3. Disturb any human remains, including those interred outside of formal cemeteries?                          |                                | X   |                              |           |

**1) *Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?***

**No Impact.** Currently, the subject 6,069 SF lot is vacant, and will be developed a single-family residence. The proposed development would not cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5 of the State CEQA Guidelines. No historic resources have been identified on this site and the property is not within a historic district. No impact to a historical resource would occur.

**Mitigation Measures:** No mitigation measures are required.

2) ***Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?***

**Less than Significant Impact with Mitigation Incorporated.** Prehistoric and historic archaeological sites are not known to exist within the project area. The City's Open Space and Conservation Element indicate that no significant archaeological sites have been identified in this area of Glendale. Nonetheless, construction activities associated with project implementation would have the potential to unearth undocumented resources. In the event that archaeological resources are unearthed during project subsurface activities, all earth-disturbing work within a 100-meter radius must be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume. Implementation of mitigation measures MM-5 and MM-6 identified below would reduce potentially significant impacts to less than significant.

**Mitigation Measures:** Refer to mitigation measures MM-5 and MM-6 below.

3) ***Disturb any human remains, including those interred outside of formal cemeteries?***

**Less than Significant Impact with Mitigation Incorporated.** Notice was given to the Fernandeno Tataviam Band of Mission Indians (FYBMI), Soboba Band of Luiseno Indians and Gabrielino-Tongva on January 6, 2021, as required by AB 52 and codified in Public Resources Code Section 21080.3.1 et seq. Consultation was not requested by any of the three tribal governments within 30-days of the notice.

The project site and surrounding area are characterized by features typical of residential land uses. No known burial sites exist within the vicinity of the project site or surrounding area. If human remains were to be encountered during excavation and grading activities, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County coroner has made the necessary findings as to origin and disposition, pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will then contact the most likely descendant of the deceased Native American, who will then serve as a consultant on how to proceed with the remains (i.e., avoid removal or rebury).

**Mitigation Measures:** The following mitigation measure would reduce potential impacts to a less than significant level.

MM – 5 If human remains or funerary objects are encountered during activities associated with the project, work in the immediate vicinity (within a 60-foot buffer of the find) shall cease and the County coroner shall be contacted. If the human remains provide to be Native American in origin by the County Coroner, the applicant shall immediately notify the lead agency and all consulting Tribes.

MM – 6 In the event that Native American cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archeologist meeting Secretary of Interior standards shall assess the find. The Gabrielino-Tongva Tribe shall be contracted to consult if any such find occurs. The archaeologist shall complete all relevant California State Department of Parks and Recreation (DPR) 523 Series forms to document the find and submit this documentation to the applicant, Lead Agency and the Gabrielino-Tongva Tribe. If the Native American cultural resource is determined to be significant, as defined by consulting Tribes, a Native American monitor procured by the Gabrielino-Tongva Tribe shall be present for all ground disturbing activities that occur within the proposed project area.

- The archaeologist and Tribal monitor will have the authority to request ground disturbing activities cease within the area of a discovery to assess and document potential finds in real time.
- The Lead Agency and/or applicant shall, in good faith, consult with Gabrielino-Tongva Tribe on the disposition and treatment of any artifacts or other cultural materials encountered during the project.

## F. ENERGY

| <i>Would the project:</i>   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? |                                |   | X                            |           |
| 2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?   |                                |   | X                            |           |

**1) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?***

**Less Than Significant Impact.** The construction of the project would require consumption of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil, natural gas, and gasoline) for automobiles and construction equipment, and other resources including, but not limited to, lumber, sand, gravel, asphalt, metals, and water. Construction would include energy used by construction equipment and other activities at the project site (e.g., building demolition, excavation, paving), in addition to the energy used to manufacture the equipment, materials, and supplies and transport them to the project site. Energy for maintenance activities would include day-to-day upkeep of equipment and systems, as well as energy embedded in any replacement equipment, materials, and supplies. It is expected that nonrenewable energy resources would be used efficiently during construction and maintenance activities given the financial implications of inefficient use of such resources. Therefore, the amount and rate of consumption of such resources during construction and maintenance activities would not result in the unnecessary, inefficient, or wasteful use of energy resources.

Operation of the project would involve consumption of electricity and natural gas; however, these resources are already consumed on the project site, and an incremental increase in the consumption of these resources associated with the project operation would not represent unnecessary, inefficient, or wasteful use of resources. Furthermore, the project would be designed to comply with Title 24 Building, Energy, and Green Buildings Standards (California Building Code, Title 24, Parts 4, 6 and 11); therefore, the project consumption of energy resources would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**2) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?***

**Less Than Significant Impact.** As described above, the new building's energy efficiency would, at a minimum, comply with the California Energy Code and the California Building Code. As such,

the project would not conflict with or obstruct state or local plan for renewable energy or energy efficiency.

**Mitigation Measures:** No mitigation measures are required.

## G. GEOLOGY AND SOILS

| <b><i>Would the project:</i></b>   | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|--|---------------------------------------|--|-------------------------------------|------------------|
| 1. Directly or indirectly cause 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. |                                       |  | X                                   |                  |
| ii) Strong seismic ground shaking?   |                                       |  | X                                   |                  |
| iii) Seismic-related ground failure, including liquefaction?   |                                       |  |                                     | X                |
| iv) Landslides?  |                                       |  | X                                   |                  |
| 2. Result in substantial soil erosion or the loss of topsoil?  |                                       |  | X                                   |                  |
| 3. 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?  |                                       | X  |                                     |                  |
| 4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?  |                                       |  | X                                   |                  |
| 5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?   |                                       |  |                                     | X                |
| 6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?  |                                       |  | X                                   |                  |

1) ***Directly or indirectly cause 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.***

**Less Than Significant Impact.** The project site is located and mapped in a fault hazard management zone for critical facilities only (Sycamore Canyon Fault) as shown in the City's Safety Element. However, the project is not considered a critical facility and therefore, is not restricted on this site. According to the Geologic and Soils Engineering Exploration report prepared by Applied Earth Sciences dated September 20, 2019, the subject property is located within an active seismic region. The site is situated in the San Rafael Hills, east of the Verdugo Mountains, part of the Transverse Ranges Geomorphic Province of California. The local rock in this area consists of Cretaceous-age medium-grained crystalline granitic bedrock, known as quartz diorite based on its



mineralogy. The site is located approximately two miles north of the inferred location of the Eagle Rock Fault, which extends east-west along the southern foot of the San Rafael Hills. This fault is an extension of the Verdugo fault, which according to the Southern California Earthquake Center, is considered active, particularly the northwest portion near Sun Valley. However, the site is not located within a currently-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2000) and does not represent a fault rupture hazard to the proposed development. Based on the available geologic data, active or potentially active faults with the potential for surface fault rupture are not known to be located directly beneath or projecting toward the project site. Therefore, the potential for surface rupture as a result of fault plane displacement is less than significant.

**Mitigation Measures:** No mitigation measures are required.

**ii) Strong seismic ground shaking?**

**Less than Significant Impact.** The project site could be subject to strong ground shaking in the event of an earthquake originating along one of the faults listed as active or potentially active in the Southern California area. This hazard exists throughout Southern California and could pose a risk to public safety and property by exposing people, property, or infrastructure to potentially adverse effects, including strong seismic ground shaking. Compliance with applicable building codes would minimize structural damage to buildings and ensure safety in the event of a moderate or major earthquake. Therefore, impacts related to strong seismic ground shaking would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**iii) Seismic-related ground failure, including liquefaction?**

**No Impact.** The project site is not located within an area prone to liquefaction as indicated in the City's Safety Element (August 2003). Therefore, no impacts associated with liquefaction would occur.

**Mitigation Measures:** No mitigation measures are required.

**iv) Landslides?**

**Less Than Significant Impact.** The project site is not located within a mapped landslide prone area and the California Geologic Survey has not designated the property within a state zone requiring seismic landslide investigation per Public Resources Code, Section 2693 (c). There are neither known landslides near the project site nor is the project site in the path of any known or potential landslides. Therefore, impacts related to landslides would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**2) Result in substantial soil erosion or the loss of topsoil?**

**Less than Significant Impact.** Construction activities associated with the proposed development of the site may result in wind- and water-driven erosion of soils due to grading activities if soil is stockpiled or exposed during construction. However, this impact is considered short-term in nature because the site would expose small amounts of soil only during construction activities, and would then be covered with the proposed building and landscaping upon completion of construction. Soils on the project site would only be exposed for a limited amount of time during site preparation activities; thus, substantial erosion is not expected to occur. An erosion control plan, subject to review and approval by the City Engineer, will be required prior to any construction-related activities. Further, as part of the proposed project, the applicant would be required to adhere to conditions

under the Glendale Municipal Code Section 13.42.060 to prepare and administer a plan that effectively provides for a minimum stormwater quality protection throughout project construction. The plan would incorporate Best Management Practices (BMPs) to ensure that potential water quality impacts from water-driven erosion during construction would be reduced to less than significant. In addition, the applicant would be required to adhere to South Coast Air Quality Management District (SCAQMD) Rule 403—Fugitive Dust, which would further reduce the impact related to soil erosion to less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 3) ***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 an on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?***

**Less Than Significant Impact with Mitigation Incorporated.** As identified in the City's Safety Element (August 2003), the project site is not located within a mapped liquefaction hazard zone. Per the Geologic and Soils Engineering Exploration report prepared by Applied Earth Sciences dated September 20, 2019, the site has relatively shallow bedrock under the ground surfaced throughout the building area. Additionally, the engineer provided a memo dated 6-8-2021 indicating that according to the California State Hazards Map, the site does fall within a liquefaction zone, however, due to the soil contained on the site (bedrock), and not groundwater, a liquefaction analysis would not be necessary. The report indicates site does not have gross slope stability issues; no landslides were mapped on the site. Further, the report indicates, that from an engineering-geologic point of view, the proposed construction of a new residential dwelling may be made as planned, provided the new structure is founded in granitic bedrock to sufficient depth, and with proper drainage; surface water runoff on the site is controlled; and preventive slope maintenance is regularly performed. According to the report, the results of the Engineer's analysis indicated that the subject lot, with the planned grading work, will remain grossly stable with respect to deep-seated slope instability (having a factor of safety of greater than 1.5). The report includes recommendations for temporary excavations, site grading, site drainage, foundations, lateral design, grade slabs, retaining wall, and observations during construction. In order to minimize damage due to geologic hazards, design and construction of the proposed project would comply with applicable building codes. Therefore, impacts related to exposure to hazards including landslides, lateral spreading, subsidence, liquefaction and collapse would be less than significant.

**Mitigation Measures:** Compliance with Mitigation measures MM-7 identified below will reduce potentially significant impacts to less than significant.

MM-7 That the development shall comply with all recommendations of Geologic and Soils Engineering Exploration report prepared by Applied Earth Sciences dated September 20, 2019 and in their memo dated June 8, 2021.

- 4) ***Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating direct or indirect substantial risks to life or property?***

**Less Than Significant Impact.** As part of the Geologic and Soils Engineering Exploration report dated September 20, 2019, because of granular nature of the site materials, soil expansion will not be an issue of this site. According to the report, grade slabs may be cast directly over bedrock, or properly compacted fill soils. Where grade slabs span between soil and bedrock, the bedrock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at optimum moisture content). This will create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements. The grade slabs for this project, however, should be at least 5 inches thick and be reinforced with # 3 bars. Based on above, impacts related to expansive soil would be less than significant. Development of the project will be required to comply with applicable building codes

which would minimize structural damage to buildings and ensure safety in the event of a moderate or major earthquake. No significant impacts would occur as a result of the proposed project.

**Mitigation Measures:** No mitigation measures are required.

**5) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

**No Impact.** Septic tanks will not be used for the proposed project. The proposed project would connect to and use the existing sewage conveyance system. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**6) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?**

**Less than Significant Impact.** Plant and animal fossils are typically found within sedimentary rock deposits. Most of the City of Glendale consists of igneous and metamorphic rock, and the local area is not known to contain paleontological resources. Nonetheless, paleontological resources may possibly exist at deep levels and could be unearthed with implementation of the project. In the event that paleontological resources are unearthed during the project-related subsurface activities, all earth-disturbing work within a 100-meter radius must be temporarily suspended or redirected until a paleontologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume. With implementation of this standard requirement, no significant impact would occur.

**Mitigation Measures:** No mitigation measures are required.

## H. GREENHOUSE GAS EMISSIONS

| <i>Would the project:</i>   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?       |                                |   | X                            |           |
| 2. Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? |                                |   | X                            |           |

**1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**Less Than Significant Impact.** Greenhouse Gas (GHG) Emissions are said to result in an increase in the earth's average surface temperature commonly referred to as global warming. This rise in global temperature is associated with long-term changes in precipitation, temperature, wind patterns and other elements of the earth's climate system, known as climate change. These changes are now broadly attributed to GHG emissions, particularly those emissions that result from the human production and use of fossil fuels.

Climate changes resulting from GHG emissions could produce an array of adverse environmental impacts including water supply shortages, severe drought, increased flooding, sea level rise, air pollution from increased formation of ground level ozone and particulate matter, ecosystem changes,

increased wildfire risk, agricultural impacts, ocean and terrestrial species impacts, among other adverse effects.

In 2006, the State passed the Global Warming Solutions Act of 2006, commonly referred to as AB 32, which set the greenhouse gas emissions reduction goal for the State of California into law. GHG as defined under AB 32 includes: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the California Air Resources Board (CARB), the State agency charged with regulating statewide air quality, adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020 through reductions in greenhouse gas emissions from significant sources via regulation, market mechanisms, and other actions.

Senate Bill 375 (SB 375), passed in 2008, links transportation and land use planning with global warming. It requires the California Air Resources Board (ARB) to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles. Under this law, if regions develop integrated land use, housing and transportation plans that meet SB 375 targets, new projects in these regions can be relieved of certain review requirements under CEQA. The Southern California Association of Governments (SCAG) has prepared the region's Sustainable Communities Strategy (SCS), which is part of the Regional Transportation Plan (RTP). Glendale has an adopted Greener Glendale Plan which meets regional greenhouse gas reduction targets, as established by SCAG and adopted by the ARB. The Greener Glendale Plan uses land use development patterns, transportation infrastructure investments, transportation measures and other policies that are determined to be feasible to reduce GHG.

At this time no air agency, including the SCAQMD, has adopted applicable project-level significance thresholds for GHGs emissions. AB 32 did not set a significance threshold for GHG emissions, although EPA, CARB or another agency may issue regulations at some point which may set forth significance criteria for CEQA analysis. In the interim, none of the CEQA Guidelines, the CEQA Air Quality Handbook, the Air Quality Management Plan, or the SCAQMD set forth applicable significance thresholds for GHG emissions.

Due to the complex physical, chemical and atmospheric mechanisms involved in global climate change, there is no basis for concluding that the project's very small and essentially temporary (primarily from construction) increase in emissions could cause a measurable increase in global GHG emissions necessary to force global climate change.

CEQA Guidelines Section 15130(f) clarifies that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis. CEQA Guidelines Section 15064.4 recommends consideration of qualitative factors that may be used in the determination of significance, including the extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs. Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. Examples of such programs include "plans or regulations for the reduction of greenhouse gas emissions."

Since this project is consistent with Greener Glendale Strategies to reduce GHGs and the SCS prepared by SCAG consequently, this project would result in a less than cumulatively considerable impact on GHG emissions and no mitigation is required.

**Mitigation Measures:** No mitigation measures are required.



2) **Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**Less than significant impact.** For the reasons discussed in Response H.1 above, the project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. No significant impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

I. **HAZARDS AND HAZARDOUS MATERIALS**

| <b><i>Would the project:</i></b>  | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| 1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?   |                                       |  | X                                   |                  |
| 2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?   |                                       |  | X                                   |                  |
| 3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?   |                                       |  |                                     | X                |
| 4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?  |                                       |  |                                     | X                |
| 5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? |                                       |  |                                     | X                |
| 6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?   |                                       |  |                                     | X                |
| 7. Expose people or structures, either directly or indirectly, to a significantly risk of loss, injury or death involving wildland fires?   |                                       |  | X                                   |                  |

1) **Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

**Less Than Significant Impact.** Searches of the Department of Toxic Substance Control (DTSC) EnviroStor database and California State Water Resources Control Board GeoTracker database indicated no contamination on the project site. The federal government banned consumer use of lead-based paint (LBP) in 1978 and many, but not all, asbestos-containing materials (ACM) were banned in construction products in 1989. The existing site is vacant, and does not contain buildings on-site. The project would be required to comply with all applicable rules established by the SCAQMD, including Rule 403 and 402, during the construction phase of the project that would prevent dust from migrating beyond the project site. Compliance with the applicable rules and regulations would ensure that no significant impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

- 2) ***Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

**Less Than Significant Impact.** The project site is currently vacant, and there are no structures/buildings on-site proposed for demolition. Project construction would be required to comply with applicable state regulations regarding LBP work practices, including testing and abatement. The removal of ACMs would be subject to the South Coast Air Quality Management District (SCAQMD) Rule 1403, which governs work practice requirements for asbestos in all renovation and demolition activities. Rule 1403 includes an onsite survey and notification requirements prior to beginning a project, as well as work practice standards and disposal requirements.

Additionally, under California law, fluorescent lamps cannot be disposed as municipal waste. Fluorescent tubes and bulbs may be managed as universal wastes under Title 22, Chapter 23 of the California Code of Regulations and are typically recycled. With adherence to applicable regulations, project impacts related to removal of hazardous materials during demolition would be less than significant.

- 3) ***Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

**No Impact.** There are no schools located within ¼ mile of the project site. Further, development of a single-family residential use does not involve the routine use, transport, or disposal of significant amounts of hazardous materials. Therefore, the project would not emit any new hazardous emissions or handle hazardous materials since residential uses are proposed. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

- 4) ***Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

**No Impact.** The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

- 5) ***For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?***

**No Impact.** The project site is not located within an airport land use plan or within two miles of a public airport or public use airport. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**No Impact.** The project site is not located within an airport land use plan or within two miles of a public airport or public use airport. No impact would occur.

- 6) ***Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

**No Impact.** There is a "City Disaster Response Route" located within close proximity to the subject site. The nearest designated street is Chevy Chase Drive, located approximately 100 feet northeast

of the project site - designated City Disaster Response Route. The proposed project does not involve any changes to Chevy Chase Drive, nor would the project result in the alteration of an adopted emergency response plan or evacuation plan. As such, no impacts to emergency response plans or emergency evacuation plans would occur as a result of the proposed project. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**7) *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?***

**Less Than Significant Impact.** The project is identified as a high fire risk site on the Very High Fire Hazard Severity Zone (VHFHSZ) on the Local Responsible Area (LRA) map, as recommended by CAL Fire and a High Fire Hazard Area as identified in the City of Glendale General Plan Safety Element. The Glendale Fire Department rates almost two-thirds of the City as highly susceptible to wildland fires, as the City's High Fire Hazard Area includes all areas with a medium, high or extreme brush fire hazard. California State law requires that fire hazard areas be disclosed in real estate transactions to ensure homeowners are informed of landscaping and structural requirements for fire safety. Additionally, hazard mitigation programs in fire hazards areas currently include fire prevention, vegetation management, legislated construction requirements, and public awareness. In order to minimize damage due to fire, the proposed project would be required to comply with applicable fire prevention, vegetation management, and construction requirements. The brush clearance requirements call for the removal of continuous stands of brush and all dead vegetation and specifically state that not all native shrubs are hazardous. The requirements implicitly state not to strip slopes to bare soil or take all cover off of steep hillsides in order to prevent actions that may accelerate soil erosion, which are prohibited by City ordinance. Therefore, impacts related to exposure to wildland fire hazards would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**J. HYDROLOGY AND WATER QUALITY**

| <i>Would the project:</i>  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface of groundwater quality?  |                                |   | X                            |           |
| 2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?                                |                                |   | X                            |           |
| 3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river or through the addition of impervious surfaces, in a manner which would: |                                |   |                              |           |
| i) result in substantial erosion or siltation on- or off-site;   |                                |   | X                            |           |
| ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;  |                                |   | X                            |           |
| iii) create or contribute runoff water which would exceed the capacity of existing or planned  |                                |   | X                            |           |

| <i>Would the project:</i>   | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| stormwater drainage systems or provide substantial additional sources of polluted runoff; or                            |                                       |  |                                     |                  |
| iv) impede or redirect flood flows?   |                                       |  | X                                   |                  |
| 4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?                     |                                       |  |                                     | X                |
| 5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? |                                       |  |                                     | X                |

**1) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface of groundwater quality?**

**Less than Significant Impact.** The project would be required to comply with all NPDES requirements including pre-construction, during construction and post-construction Best Management Practices (BMPs). In addition, the project will be required to submit an approved SUSMP (Standard Urban Stormwater Mitigation Plan) to be integrated into the design of the project. Impacts associated with water quality standards or waste discharge requirements are anticipated to be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

**Less than Significant Impact.** The City currently utilizes water from Glendale Water and Power (GWP), which relies on primarily importing water from the Metropolitan Water District, some local groundwater basins and from the San Fernando Basin. Consequently, implementation of the proposed project would result in development that could indirectly require a slight increased use of groundwater through the provision of potable water by GWP; however, as discussed in Response S-2 below, the proposed project's water demand is within water projections. As a result, implementation of the proposed project would not substantially deplete groundwater supplies.

Per the City's Open Space and Conservation Element, the north and easterly facing slopes of the Verdugo Mountains drain into the Arroyo Verdugo drainage basin and directly feed aquifers and wells reserved exclusively for the City of Glendale. The south-facing slopes of these mountains drain into the Los Angeles River basin which feed aquifers, ground water basins and wells shared by the Cities of Glendale, Burbank and Los Angeles. The largest flood control basin is the Verdugo basin, which is located adjacent to the Oakmont Country Club in the northern portion of the city. Maps 4-21 and 4-22 of the Open Space and Conservation Element show this, as well as the other basins, within the city. Per Maps 4-21 and 4-22, the subject property is not located on or within the watershed or aquifer recharge areas. No significant impacts would occur as a result of the proposed project.

**Mitigation Measures:** No mitigation measures are required.

**3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river or through the addition of impervious surfaces, in a manner which would:**



**i) result in substantial erosion or siltation on- or off-site;**

**Less than Significant Impact.** The applicant would be required to adhere to conditions under the NPDES (National Pollutant Discharge Elimination System) Permit set forth by the RWQCB (Regional Water Quality Control Board), and to prepare and submit a SWPPP (Storm Water Pollution Prevention Plan) to be administered throughout proposed project construction. The SWPPP would incorporate BMPs (Best Management Practices) to ensure that potential water quality impacts from water-driven erosion during construction would be reduced to a less than significant level.

The future development of a single-family residence would not change the existing drainage pattern of the site. All runoff would be conveyed via streets and gutters to storm drain locations around the project site. Development of the proposed project would not require any substantial changes to the existing drainage pattern of the site or the area, nor would it significantly affect the capacity of the existing storm drain system. In addition, in accordance with Chapter 13.42, of the Glendale Municipal Code, a Standard Urban Stormwater Mitigation Plan (SUSMP) containing design features and BMPs to reduce post-construction pollutants in stormwater discharges would be required as part of the project. Impacts are considered to be less than significant as a result of the conditions and measures required by the NPDES permit, SWPPP and SUSMP.

**Mitigation Measures:** No mitigation measures are required.

**ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;**

**Less than Significant Impact.** Please refer to Response J-3(i) above.

**Mitigation Measures:** No mitigation measures are required.

**iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**

**Less than Significant Impact.** Please refer to Response J-3(i) above.

With respect to water quality, as described above in Response J-1 and J-5, with implementation of BMPs mandated by the MS4 (municipal separate storm sewer systems) permit, SWQMP, and construction-related NPDES permit, water quality impacts associated with project construction and operation would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**iv) impede or redirect flood flows?**

**Less than Significant Impact.** According to Plate P-2 by the City's Safety Element, the project site is not located within a Dam Inundation Zone that would be inundated during the failure of an up-gradient water reservoir or dam. Additionally, FEMA Flood Maps do not identify the project site to be located within a 100-year flood zone. The project site is located with flood Zone X with a 0.2-percent annual chance of flooding or a 1-percent annual chance of flooding with an average depth of less than one foot. Therefore, less than significant flood related impacts would occur in association with construction and operation of the project.

**Mitigation Measures:** No mitigation measures are required.

4) ***In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?***

**No Impact.** Seiches are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other, causing the water to oscillate back and forth for hours or even days. The proposed project site is not located downslope of any large body of water that would produce a seiche. Tsunamis are large ocean waves generated by sudden water displacement caused by a submarine earthquake, landslide, or volcanic eruption. A review of the County of Los Angeles Flood and Inundation Hazards Map indicates that the site is not within the mapped tsunami inundation boundaries. Last, the project site is not located in an area susceptible to mudflow due to proximity to slopes. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

5) ***Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?***

**No Impact.** The project site is not located within a mapped groundwater basin. The project would be required to comply with the Phase 1 MS4 permit requiring runoff to be treated using low impact development (LID) treatment controls, such as bio-treatment facilities and other hydro-modification features, to improve stormwater quality, and NPDES requiring the development and implementation of a SWPPP, which describes BMPs to control erosion and water quality. Therefore, the project would have a less than significant impact as it would not conflict with a water quality control plan or a sustainable groundwater management plan.

**Mitigation Measures:** No mitigation measures are required.

**K. LAND USE AND PLANNING**

| <i>Would the project:</i>  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Physically divide an established community?   |                                |   |                              | X         |
| 2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? |                                |   | X                            |           |

1) ***Physically divide an established community?***

**No Impact.** The project site is located in the R1R-II (Restricted Residential, Floor Area Ratio District II) zone. Currently, the site is vacant. The proposal to develop the lot with a single-family house is a permitted use in the zone in which it is located. The project is consistent with the development pattern in the area and its proposed use (single-family residential) permitted in the R1R-II zone. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

2) ***Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?***

**Less than Significant Impact.** The current General Plan designation is Low Density Residential and the site is currently zoned R1R-II (Restricted Residential zone, Floor Area Ratio District II). The

proposed use complies with the Land Use Element of the General Plan. The proposed project involves construction of one new single-family dwelling. The use is consistent with the zoning and general plan designation of the property.

The applicant is requesting and will require approval of variances from the Zoning Ordinance as follows: 1) To construct a new single-family dwelling on a vacant 6,069 SF hillside lot, which is less than the code-required 7,500 SF minimum lot size in the "R1R" – Restricted Residential Zone; 2) To reduce the required interior setback to zero along the north side of the property, where a minimum 10-foot interior setback is required for the building and new five-foot high retaining walls within five feet of the interior setback; 3) Reduce ungraded open space to 31.8 percent where a minimum 40 percent ungraded open space is required on a lot with an average current slope greater than 40 percent; and 4) To increase the total floor area ratio (FAR) to 0.52 where the maximum allowed is 0.30 on a lot with an average current slope greater than 40 percent in the R1R zone. The proposed development will be located towards the lower elevations, and extend up the slope. Staff recommends that the applicant redesign the house by proposing a code-compliant project. However, variances are allowed by Code, provided that the Planning Hearing Officer is able to make the required findings pursuant to GMC Section 30.43.030 in support of all variances requested. The design of project will be reviewed pursuant to Glendale Municipal Code Section 30.47, to ensure compatibility with surrounding environment.

#### L. MINERAL RESOURCES

| <i>Would the project:</i>   | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| 1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?                                |                                       |  |                                     | X                |
| 2. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? |                                       |  |                                     | X                |

**1) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?***

**No Impact.** The Project site is located within Mineral Resource Zone-3 (MRZ-3), as defined in the City of Glendale General Plan Open Space and Conservation Element. The MRZ-3 zone is defined as an area where adequate information is not available to determine whether valuable mineral resources are deposited. The lot is undeveloped, and is zoned for residential uses and has been for several decades. Therefore, development within the project site would not result in the loss of availability of a known mineral resource. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

**2) *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?***

**No Impact.** As indicated in Response L-1 above, the project site is zoned for residential uses and has not been designated as a resource recovery site. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

**M. NOISE**

| <i>Would the project result in:</i>   | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| 1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?   |                                       |  | X                                   |                  |
| 2. Generation of excessive groundborne vibration or groundborne noise levels?   |                                       |  | X                                   |                  |
| 3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? |                                       |  |                                     | X                |

**1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

**Less than Significant Impact.** The proposed project involves the construction of a new single-family home. The proposed single-family residential use is permitted on the subject property zoned R1R-II. Surrounding land uses include single-family residences. Construction of a new single-family residence would not generate noise in excess of the limits contained in the Noise Element. As shown in the City's Noise Element, the project site is located within the 60-65 CNEL and over projected 2030 noise contours. The new project would be constructed to reduce interior noise to acceptable levels, as required by the building code. All development within the project site would be constructed consistent with the State of California Building Code and would be required to comply with the City of Glendale Noise Ordinance (Municipal Code Chapter 8.36), which prohibits construction activities to between the hours of 7:00 p.m. on one day and 7:00 a.m. of the next day or from 7:00 p.m. on Saturday to 7:00 a.m. on Monday or from 7:00 p.m. preceding a holiday. Compliance with the City's noise ordinance would ensure that noise impacts will be less than significant. In addition, short-term construction noise levels are not expected to exceed the standards established in the local general plan or noise ordinance. While the proposed building will produce a more intensive use than the existing condition, it is not anticipated to generate noise in excess of the limits contained in the Noise Element since only one additional single-family residence will be added to the area. No significant impacts are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**2) Generation of excessive groundborne vibration or groundborne noise levels?**

**Less than Significant Impact.** Excessive groundborne vibration is typically associated with activities such as blasting used in mining operations, or the use of pile drivers during construction. The proposed project would be constructed using typical construction techniques. No pile driving for construction would be necessary. Thus, significant vibration impacts would not occur.

Heavy construction equipment (e.g. bulldozer and excavator) would generate a limited amount of ground-borne vibration during construction activities at short distances away from the source. The



use of equipment would most likely be limited to a few hours spread over several days during site preparation/grading activities. Post-construction on-site activities would be limited to mechanical equipment (e.g., air handling unit and exhaust fans) that would not generate excessive ground-borne vibration or ground-borne noise. As such, ground-borne vibration and noise levels associated with the proposed project would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 3) ***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

**No Impact.** The Project site is neither located within an airport land use plan nor is it located within two miles of a public airport or public use airport. No impact would occur.

**Mitigation Measures:** No mitigation measures are required.

#### N. POPULATION AND HOUSING

| <i>Would the project:</i>   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? |                                |   | X                            |           |
| 2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?   |                                |   |                              | X         |

- 1) ***Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?***

**Less than Significant Impact.** Single-family residential uses are consistent with the existing zoning of the project site. The proposed project is also consistent with the General Plan and intended purpose to provide for low-density residential uses. In addition, as indicated in Section C-1 above, the project would not cause population growth in Glendale to exceed regional SCAG forecasts. Impacts would be less than significant.

Since the project site is located within an urban area and is currently served by existing circulation and utility infrastructure, no major extension of infrastructure is required as part of the proposed project. Additionally, no expansion to the existing service area of a public service provider is required. Therefore, development of the project site would not include substantial or unplanned population growth. Impacts would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 2) ***Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?***

**No Impact.** Please refer to Response N-1 above. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

**O. PUBLIC SERVICES**

| <i>Would the project:</i>   | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| 1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: |                                       |  |                                     |                  |
| a) Fire protection?   |                                       |  | X                                   |                  |
| b) Police protection?   |                                       |  | X                                   |                  |
| c) Schools?   |                                       |  | X                                   |                  |
| d) Parks?   |                                       |  | X                                   |                  |
| e) Other public facilities?   |                                       |  | X                                   |                  |

- 1) ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:***

a) ***Fire protection?***

**Less than Significant Impact.** The Glendale Fire Department (GFD) provides comprehensive emergency services for the City of Glendale, including fire, rescue, and emergency medical (paramedic) services, as well as fire prevention and code enforcement functions. The project site is located between two fire stations, Fire Station No. 23, is located at 3303 E. Chevy Chase Dr., approximately 0.2 miles northeast of the project site, and Fire Station No. 25, located at 353 N. Chevy Chase Dr., approximately 2.8 miles southwest of the project site. In the event that any of the units of Fire Station Nos. 23 or 25 are not available, other units would be available for dispatch from other GFD fire stations or adjacent jurisdictions.

The proposed project would add one additional single-family residence. This increase would not substantially affect provision of fire protection given that the project site is located close to existing fire stations. Furthermore, the project will be required to comply with the Uniform Fire Code, including installation of fire sprinklers for the new single-family residences and submit plans to the Glendale Fire Department at the time building plans are submitted for approval. Therefore, compliance with the applicable Fire Code and the Building Code provisions would minimize the project's impact on fire services. The future development of the newly created lots will be required to meet all code provisions. As a result, the proposed project would be adequately served by existing fire stations and would not require the provision of any new fire stations or the expansion of existing fire stations. Therefore, the overall need for fire protection services is not expected to substantially increase and therefore there will not be a need to provide new or physically altered Fire facilities in order to maintain acceptable service ratios, response times or performance objectives. Impacts to fire protection are anticipated to be less than significant.

**Mitigation Measures:** No mitigation measures are required.

b) ***Police protection?***

**Less than Significant Impact.** The Glendale Police Department (GPD) provides police protection services to the project site from its station at 131 North Isabel Street, approximately 3.5

miles to the southwest. The project can be adequately served by existing police protection services and is not anticipated to result in substantial adverse impacts. The overall need for police protection services is not expected to substantially increase as a result of the proposed project and therefore there will not be a need to provide new or physically altered Police facilities in order to maintain acceptable service ratios, response times or performance objectives. No significant impacts are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**c) Schools?**

**Less than Significant Impact.** Section 65995 of the Government Code provides that school districts can collect a fee on a per square foot basis for new residential units or additions to existing units to assist in the construction of or additions to schools. Pursuant to Section 65995, the project applicant is required to pay school impact fees to the Glendale Unified School District based on the current fee schedule prior to the issuance of building permits. Payment of the school impact fees would mitigate any indirect impacts to a less than significant level.

**Mitigation Measures:** No mitigation measures are required.

**d) Parks?**

**Less than Significant Impact.** The proposed project would not involve the development or displacement of a park. The proposed project involves construction of a new single-family residential dwelling. The subject site is zoned R1R-II (Restricted Residential, Floor Area Ratio District II). In accordance with the requirements of the City of Glendale Municipal Code (Ordinance No. 5820), the project applicant will be required to pay the Development Impact fee to the city based on the current fee schedule prior to the issuance of building permits. Payment of the impact would result in less than significant impact to park facilities.

**Mitigation Measures:** No mitigation measures are required.

**e) Other public facilities?**

**Less than Significant Impact.** The proposal is to construct a new single-family residential dwelling on a vacant hillside lot. In accordance with the requirements of the City of Glendale Municipal Code (Ordinance No. 5820), the project applicant will be required to pay the Development Impact Fee to the City based on the current fee schedule for residential developments prior to the issuance of building permits. Payment of the impact fees would result in less than significant impact to library facilities.

**Mitigation Measures:** No mitigation measures are required.

**P. RECREATION**

|  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? |                                |   | X                            |           |
| 2. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?                        |                                |   | X                            |           |

- 1) ***Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

**Less than Significant Impact.** The proposed construction of a new single-family residential dwelling is not expected to generate a substantial increase in demand for existing park or recreational facilities. As discussed in Response O-1(d), the project applicant will be required to pay the City's Park and Library Development Impact Fee to provide for park and recreational facilities based on the current fee schedule for residential development prior to the issuance of building permit. Payment of the impact fees would result in a less than significant impact to park and recreational facilities.

**Mitigation Measures:** No mitigation measures are required.

- 2) ***Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?***

**Less than Significant Impact.** As indicated in Response P-1 above, the project is not anticipated to significantly increase the demand on existing parks. No significant impacts to recreation resources are anticipated with implementation of the proposed project.

**Mitigation Measures:** No mitigation measures are required.

#### Q. TRANSPORTATION

| <i>Would the project:</i>  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?            |                                |   | X                            |           |
| 2. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?  |                                |   | X                            |           |
| 3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? |                                |   | X                            |           |
| 4. Result in inadequate emergency access?  |                                |   | X                            |           |

- 1) ***Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?***

**Less than Significant Impact.** Construction activities for the proposed project would generate additional traffic as a result of employee vehicle trips and construction trucks transporting equipment and building material during construction period. The increase in day time traffic is not considered substantial since the construction phase is short-term, approximately 18-24 months and will not exceed the capacity of the existing circulation system. No changes to the existing roadway network are proposed as a result of the project

To ensure all construction traffic impacts (including construction worker trips and truck traffic for material delivery and material import/export) are less than significant during construction, a Construction Traffic Management Plan shall be submitted to the City's Public Works Department for approval prior to any construction related activities. The Construction Traffic Management Plan will include a Construction Traffic Control Plan, a Construction Parking Plan, a Haul Routes Plan, and construction hours. As a result, construction traffic impacts would be less than significant.



The proposed project does not conflict with any program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities as the slight increase in the number of vehicles using the area streets resulting from the project is anticipated to create a less than significant impact. The project site will be served by Charing Cross Road, which is classified as a local street and is able to accommodate the traffic generated with the addition of one single-family dwelling unit. Therefore, no significant impacts are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**2) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?**

**Less than Significant Impact.** CEQA Guidelines Section 15064.3, (b) contains the criteria for Analyzing Transportation Impacts. Subsection (1) sets forth the criteria for Land Use Projects. It states that vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact. As discussed above in Response Q-1, the proposed project would not result in any significant increase in traffic on the area roadway network, would not exceed applicable thresholds for VMTs, and therefore will not conflict with and would be consistent with this Guidelines. Less than significant impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**Less Than Significant Impact.** As discussed in Q-1 above, the proposed project would not result in any significant increase in traffic on the area roadway network. A Construction Traffic Control plan approved by the Glendale Public Works Department will be required prior to construction. The plan is required to identify all traffic control measures, signs and delineators to be implemented by the construction contractor. The plan will also identify contractor information, hours of construction, construction worker parking information, as well as the proposed haul route. There would not be any access by the general public to the construction site and the disposal of demolition materials and export of soil/material will not interfere with public streets with implementation of an approved traffic control plan. In addition, the proposed project would not result in any changes to the existing roadway network. No significant impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

**4) Result in inadequate emergency access?**

**Less than Significant Impact.** No changes to the existing roadway network are proposed as a result of the project. Direct access to the property will be taken from Charing Cross Road, which is a Local Street in the City's Circulation Element. As indicated in Section Q-1 above, a traffic control plan will be required for the construction phase of the project. The plan will be reviewed and approved by the City's Engineering Division to ensure that emergency access is not impacted during construction. As a result, less than significant impacts to emergency access are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**R. TRIBAL CULTURAL RESOURCES**

| <i>Would the project:</i>   | <b>Potentially Significant Impact</b> | <b>Less Than Significant Impact With Mitigation Incorporated</b> | <b>Less Than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| 1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:  |                                       |  |                                     |                  |
| i) Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code Section 5020.1(k), or  |                                       | X  |                                     |                  |
| ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. |                                       | X  |                                     |                  |

- 1) ***Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and this is:***
- i) ***Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or***  
***Less than Significant Impact with Mitigation Incorporated.*** Written notice was given to the Fernandeno Tataviam Band of Mission Indians (FTBMI), Soboba Band of Luiseno Indians, and Gabrielino-Tongva Tribe as required by AB 52 and codified in Public Resources Code Section 21080.3.1 et seq. Consultation was not requested by any tribal government within the 30-days of notice.

As indicated in Response E-3 above, impacts would be potentially significant if human remains were to be encountered during excavation and grading activities. State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County coroner has made the necessary findings as to origin and disposition, pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will then contact the most likely descendant of the deceased Native American, who will then serve as a consultant on how to proceed with the remains (i.e., avoid removal or reburial). Mitigation measure MM-5 and MM-6 identified above would reduce any potential substantial adverse change in the significance of a tribal cultural resource to less than significant.

**Mitigation Measures:** Refer to mitigation measures MM-5 and MM-6 above.

- ii) ***A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public***

**Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

**Less than Significant Impact with Mitigation Incorporated.** As mentioned previously, no known burial sites are known to exist within the vicinity of the project site and surrounding area. In addition, no resources have been identified on the project site pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. Written notice was given to the FTBML, Soboba Band of Luiseno Indians, and Gabrielino-Tongva Tribe as required by AB 52 and codified in Public Resources Code Section 21080.3.1 et seq. Consultation was not requested by either tribe within the 30-days of notice. With the implementation of mitigation measures MM-5 and MM-6, potential impacts would be reduced to less than significant levels.

**Mitigation Measures:** Mitigation measure MM-5 and MM-6 identified above would address a potential substantial adverse change in the significance of a tribal cultural resource.

## S. UTILITIES AND SERVICE SYSTEMS

| <b><i>Would the project:</i></b>  | <b>Potentially Significant Impact</b> | <b>Less than Significant Impact with Mitigation Incorporated</b> | <b>Less than Significant Impact</b> | <b>No Impact</b> |
|---|---------------------------------------|--|-------------------------------------|------------------|
| 1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? |                                       |  |                                     | X                |
| 2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?   |                                       |  | X                                   |                  |
| 3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?   |                                       |  |                                     | X                |
| 4. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?   |                                       |  | X                                   |                  |
| 5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?  |                                       |  |                                     | X                |

### 1) ***Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

**No Impact.** Under Section 401 of the CWA, the RWQCB issues NPDES permits to regulate waste discharged to "waters of the nation," which includes reservoirs, lakes, and their tributary waters. Waste discharges include discharges of stormwater and construction related discharges. Construction projects are also required to prepare a SWPPP. In addition, the proposed project would be required to submit an SUSMP to mitigate urban stormwater runoff. Prior to the issuance of building permits, the project applicant would be required to satisfy the requirements related to the payment of fees and/or the provisions of adequate wastewater facilities. The proposed project would comply with the RWQCB-established waste discharge prohibitions and water quality objectives,

which will be incorporated into the proposed project as a project design feature. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation measures are required.

**2) *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?***

**Less than Significant Impact.** Construction activities associated with the proposed project would require the use of water for dust control and cleanup purposes. The use of water during construction would be short term and therefore, are not considered to result in a significant impact on the existing water system or available water supplies.

Future water demand in the city is based on projected development contained in the General Plan. The total water demand in 2020 in the City of Glendale is expected to be 28,182 acre feet per year (afy) with a total available supply of 39,540 afy.

**Normal Weather Conditions**

The City of Glendale has identified an adequate supply of water to meet future city demands under normal conditions. As indicated in the 2015 Urban Water Management Plan, a surplus exists that provides a reasonable buffer of approximately 1,500 to 2,500 afy of water. Future water demand in the city is based on projected development contained in the General Plan. For purposes of this assessment, the demand of the proposed project was assumed to have been included in this demand projection. Therefore, with the demand generated by the proposed project, there will be ample supply to meet remaining city demand under normal conditions.

**Dry Weather Conditions**

Water supplies from the San Fernando and Verdugo Basins and recycled water would potentially be affected by drought conditions. If there is a shortage in water supply from the Metropolitan Water District of Southern California (MWD), the City of Glendale's distribution system could be affected. However, MWD's completion of the Diamond Valley Reservoir near Hemet added to the reliability of MWD's supplies. This reservoir plus other MWD storage/banking operations increases the reliability of MWD to meet demands. MWD is also proposing contracts with its member agencies to supply water, including supply during drought conditions. These contracts would define the MWD's obligation to provide "firm" water supply to the city.

It is anticipated that during any 3-year drought, the city would have sufficient water supply to meet demand. According to the 2015 Urban Water Management Plan, the city would use less MWD water supplies in the future compared to its current use. With the city's reduction of dependency on imported water from MWD, GWP has a higher level of reliability in meeting water demands during drought conditions. Even with the additional demand generated by the proposed project, there is sufficient supply to meet city demand under drought conditions.

The proposed project will be required to comply with the provisions of Glendale's Mandatory Water Conservation Ordinance, as well as the 2016 California Green Building Standards (CAL Green) of the Glendale Green Building Code and the water conserving fixture and fittings requirements per the current California Plumbing Code. All new buildings must utilize higher efficiency plumbing fixtures (low-flush toilets, low-flow showerheads and faucets) and automatic irrigation system controllers based on water or soil moisture, and demonstrate an indoor net reduction in the consumption of potable water.



As indicated above, the city would continue to have adequate supply to meet citywide demand under normal and drought conditions with the proposed project. As a result, long-term impacts to water supply during operation of the proposed project under both normal and drought conditions would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 3) ***Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

**No Impact.** Sewage from the City of Glendale is treated by the City of Los Angeles Hyperion System, which includes the Los Angeles/Glendale Water Reclamation Plant (LAGWRP), located outside the Glendale City limits in Los Angeles, and the Hyperion Treatment Plant, located in Playa del Rey. The City of Glendale and the City of Los Angeles jointly own and share operating capacity of LAGWRP. The City of Glendale entered into an amalgamated treatment and disposal agreement (Amalgamated Agreement) with the City of Los Angeles, which eliminates entitlements and reduces limitations on the amount of sewage discharged into the Hyperion system. Any City of Glendale sewage not treated at the LAGWRP is treated at the Hyperion Treatment Plant (HTP).

The HTP has a dry-weather design capacity of 450 million gpd and is currently operating below that capacity, at 362 million gpd. As a result, adequate capacity exists to treat the proposed project-generated effluent. Therefore, the proposed project would not require the expansion or construction of sewage treatment facilities. No impact would result with regard to impacts to the available sewage treatment capacity.

**Mitigation Measures:** No mitigation measures are required.

- 4) ***Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?***

**Less Than Significant Impact.** The City of Glendale is closely monitoring SB 1383 compliance dates, and as a result, will be making significant changes to its solid waste program in order to comply with this regulation. The new result of these changes, and compliance with SB 1383, is expected to increase the life of the landfill due to a significant amount of previously disposed organics being diverted to organics process facilities. The City of Glendale's Zero Waste Action Plan (2011) contains zero waste policies to increase its diversion rate from landfills and incinerators from 615 in 2009 to 70% by 2015 of current disposal tonnage of the 262,058 tons per years, and if feasible, 90% by 2025. The year 2025 was selected as a target year because this is approximately when the landfill at Scholl Canyon is scheduled to close. By diverting more materials, the life of the existing landfill could be extended significantly, particularly if the communities that share Scholl Canyon implement similar Zero Waste resource management initiatives. Waste reduction strategies within this plan require new buildings to comply with the 2016 CALGreen Code, as well as promote Green Building Policy that provides incentives for construction materials that are more durable, have a longer lifespan, require no additional finishing on-site, have less frequent maintenance and repair cycles, and give credits for projects made from recycled content. Given the foregoing, the Project will not generate solid waste in excess of local standards or impair the attainment of solid waste reduction goals. As a result, less than significant impacts would occur.

Implementation of the proposed project would result in an increase in residential development onsite. Solid waste generated on the project site would be deposited at the Scholl Canyon Landfill, which is owned by the City of Glendale, or one of the landfills located within the County of Los Angeles. The annual disposal rate at the Scholl Canyon facility is approximately 340,000 tons per year. Combined with the increase in solid waste generated by the proposed project, the Scholl Canyon facility could accommodate the annual disposal amount. In addition, the proposed project would be required to

implement a waste-diversion program aimed at reducing the amount of solid waste disposed in the landfill. Examples of waste diversion efforts would include recycling programs for cardboard boxes, paper, aluminum cans, and bottles through the provision of recycling containers. As a result, no significant impacts are anticipated.

**Mitigation Measures:** No mitigation measures are required.

**5) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

**No Impact.** The project will comply with all federal, state, and local statutes and regulations related to solid waste. Construction debris will be minimal since the site is currently vacant; however, debris will be disposed of according to applicable federal, state, and local statutes, including Glendale Municipal Code Chapter 8.58. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

**T. WILDFIRE**

| If located in or near state responsibility area or lands classified as very high fire hazard severity zones, would the project:   | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------|---|------------------------------|-----------|
| 1. Substantially impair an adopted emergency response plan or emergency evacuation plan?  |                                |   | X                            |           |
| 2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from wildfire or the uncontrolled spread of a wildfire?  |                                |   | X                            |           |
| 3. Require the installation or maintenance of associated infrastructure (such as roads, fuel, breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? |                                |   | X                            |           |
| 4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?   |                                |   | X                            |           |

**1) Substantially impair an adopted emergency response plan or emergency evacuation plan?**

**Less Than Significant Impact.** The California Department of Forestry and Fire Protection (CAL FIRE) maps show areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors, pursuant to Public Resources Code 4201-4204 and Government Code 51175-51189. These areas are referred to as Fire Hazard Severity Zones (FHSZs) and are identified for areas where the state has financial responsibility for wildland fire protection (i.e., state responsibility areas, or SRAs), and areas where local governments have financial responsibility for wildland fire protection (i.e., local responsibility areas, or LRAs).

There are three FHSZ mapped for SRAs (moderate, high, and very high), while only lands zoned as very high are identified in LRAs (CAL FIRE 2007). The project site is located within a LRA and is located near a SRA or a very high FHSZ. In order to minimize damage due to fire, the proposed project would be required to comply with applicable fire prevention, vegetation management, and construction requirements. As a result, impacts related to wildfire hazards, including emergency response/evacuation, pollutants and uncontrolled wildfire spread, associated infrastructure, or post-fire effects would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 2) ***Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from wildfire or the uncontrolled spread of a wildfire?***

**Less Than Significant Impact.** As indicated in Response T-1 above, the project site is located within a LRA and is located near a SRA or a very high FHSZ. In order to minimize damage due to fire, the proposed project would be required to comply with applicable fire prevention, vegetation management, and construction requirements. Therefore, impacts related to exposure to wildfire hazards due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from wildfire or the uncontrolled spread of a wildfire would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 3) ***Require the installation or maintenance of associated infrastructure (such as roads, fuel, breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?***

**Less Than Significant Impact.** As indicated in Response T-1 above, project site is located within a LRA and is located near a SRA or a very high FHSZ. In order to minimize damage due to fire, the proposed project would be required to comply with applicable fire prevention, vegetation management, and construction requirements. The City's Fire Prevention staff reviewed the project and provided comments in their memo dated 1-20-2021, which listed general requirements (e.g., fire sprinklers, emergency access, fire prevention vegetation management, hazard abatement, and fuel modification/landscaping). Therefore, impacts related to the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

- 4) ***Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?***

**Less Than Significant Impact.** As indicated in Response T-1 above, project site is located within a LRA and is located near a SRA or a very high FHSZ. In order to minimize exposing people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes due to fire, the proposed project would be required to comply with applicable fire prevention, vegetation management, and construction requirements. Therefore, impacts related to exposure to wildland fire hazards would be less than significant. No impacts would occur.

**Mitigation Measures:** No mitigation measures are required.

## U. MANDATORY FINDINGS OF SIGNIFICANCE

|  | Potentially Significant Impact | Less than Significant Impact with Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
| 1. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? |                                | X   |                              |           |
| 2. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)   |                                |   | X                            |           |
| 3. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?  |                                |   | X                            |           |

- 1) ***Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?***

**Less Than Significant Impact with Mitigation Incorporated.** The proposed project would allow for the future development of a single-family residence in a single-family residential area. As described in Section D, Biological Resources, implementation of Mitigation Measures MM-1 through MM-4 would address protection of indigenous tree species such as the Coast Live Oak. As noted in Sections E and Q, Cultural Resources and Tribal Cultural Resources, no historical or archaeological resources were identified on site. Nevertheless, implementation of Mitigation Measures MM-5 and MM-6 would reduce impacts to unanticipated cultural resources to a less than significant level by providing a process for evaluating and, as necessary, avoiding impacts to any identified resources during construction. As described in Section G, Geology and Soils, implementation of Mitigation Measure MM-7 would require that the development comply with all recommendations of the Geologic and Soils Engineering Exploration report(s) prepared for the project. Impacts would be less than significant with the mitigation incorporated for Biological Resources, Cultural Resources, Geology and Soils and Tribal Cultural Resources.

In addition, no Habitat Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plans apply to the project site. As such, the proposed project would not have the potential to substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Furthermore, the proposed project would not have the potential to eliminate important examples of major periods of California history or prehistory, including historical, archeological, or paleontological resources. Therefore, the proposed project would not result in significant environmental impacts that have the potential to degrade the quality of the environment. No impacts would occur.

- 2) ***Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable***



***when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)***

**Less than Significant Impact.** Cumulative impacts may occur when the proposed project in conjunction with one or more related projects would yield an impact that is greater than what would occur with the development of only the proposed project. The proposed project involves the construction of a new single-family homes with attached garage. As a result, development of the proposed project will not substantially increase traffic nor would it result in a substantial increase in population, as this project will result in new single-family residential dwellings which are permitted in the R1R-II zone. The incremental effect of one residential homes is not cumulatively considerable. All environmental issues considered in this Initial Study were found to have either no impact, a less than significant impact or less than significant impact with mitigations incorporated. As discussed in Section H (Greenhouse Gas Emissions), the project would not exceed State or regional thresholds for the emission of criteria air pollutants or greenhouse gases. Development of the project will not substantially increase traffic nor would it result in a substantial increase in population. Public facilities are available to accommodate the proposed project. Therefore, no cumulative impact to these resources would occur. Impacts related to hazards and hazardous materials are generally confined to a specific site and do not affect off-site areas. Therefore, the proposed project would have not cumulatively considerable effects, and as such, cumulative impacts would not occur.

**3) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?**

**Less than Significant Impact.** Development of the proposed project would not create direct and indirect adverse effects on humans. Many of the less than significant impacts that were identified are considered short-term and no significant impacts are anticipated. The proposed project involves the construction of one single-family home. As mentioned in Response Q-1, the project will increase the number of vehicles using the area streets; However, the increase in day time traffic is not considered substantial since the construction phase is short-term, approximately 18-24 months and will not exceed the capacity of the existing circulation system. As discussed in Response N-1(d), the project applicant will be required to pay the City's Park and Library Development Impact Fee to provide for park and recreation facilities based on the current fee schedule prior to the issuance of building permit. Last, the development of one new homes is not considered growth inducing and will not directly or indirectly lead to increased population that would generate additional calls for fire, paramedic or police services. Development of the proposed Project would not create direct and indirect adverse effects on humans. Less than significant impact would occur.

**13. Earlier Analyses**

None

**14. Project References Used to Prepare Initial Study Checklist**

One or more of the following references were incorporated into the Initial Study by reference, and are available for review in the Planning Division Office, 633 E. Broadway, Rm. 103, Glendale, CA 91206-4386. Items used are referred to by number on the Initial Study Checklist.

1. The City of Glendale's *General Plan*, "Open Space and Conservation Element," as amended.
2. California Department of Conservation, *Farmland Mapping and Monitoring Program*, Los Angeles County Important Farmland 2010 (September 2011).
3. California Department of Conservation, Division of Mines and Geology, *Special Publication 42* (Revised 1997, Supplements 1 and 2 added 1999).
4. South Coast Air Quality Management District, *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* (May 2005).

5. City of Glendale, *General Plan*, "Safety Element" (2003).
6. California Governor's Office of Planning and Research, *State of California General Plan Guidelines* (2017).
7. City of Glendale Municipal Code, as amended.
8. City of Glendale, "Green Glendale Plan" (March 27, 2012).
9. City of Glendale, "Zero Waste Action Plan" (2011).
10. California Emissions Estimator Module (CalEEMod version 2016.3.2) Report.
11. Indigenous Tree Report prepared by McKinely & Associates (William R. McKinely, Consulting Arborist), dated August 25, 2020 and updated report submitted by the applicant on December 8, 2020.
12. Geological and Soils Engineering Exploration Report prepared by Applied Earth Sciences dated September 20, 2019 and (email) memo dated June 8, 2021.
13. Preliminary Hydrologic and Hydraulic Drainage Report, Dated November 15, 2019.

3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

### 3130 Charing Cross (SFR)

#### South Coast AQMD Air District, Summer

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|------|---------------|-------------|--------------------|------------|
| Single Family Housing | 1.00 | Dwelling Unit | 0.14        | 2,764.00           | 3          |

### 1.2 Other Project Characteristics

|                             |                        |                             |       |                             |       |
|-----------------------------|------------------------|-----------------------------|-------|-----------------------------|-------|
| Urbanization                | Urban                  | Wind Speed (m/s)            | 2.2   | Precipitation Freq (Days)   | 31    |
| Climate Zone                | 12                     |                             |       | Operational Year            | 2023  |
| Utility Company             | Glendale Water & Power |                             |       |                             |       |
| CO2 Intensity<br>(lb/MW hr) | 1115.33                | CH4 Intensity<br>(lb/MW hr) | 0.029 | N2O Intensity<br>(lb/MW hr) | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construct a new 3 story, 2,764 square-foot single-family residence with a 453 square-foot two-car garage. Total proposed grading for the entire site is 2,091 cubic yards (all export).

Land Use - Lot size is 6,069.5 square-feet (0.139 acre).

Construction Phase - Project involves 2,091 cubic yards (cut/all export)

Grading -

Energy Use -

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

| Table Name           | Column Name       | Default Value | New Value  |
|----------------------|-------------------|---------------|------------|
| tblConstructionPhase | NumDays           | 10.00         | 2.00       |
| tblConstructionPhase | NumDays           | 2.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | PhaseEndDate      | 12/20/2022    | 11/17/2022 |
| tblConstructionPhase | PhaseEndDate      | 12/6/2022     | 11/5/2022  |
| tblConstructionPhase | PhaseEndDate      | 7/14/2022     | 7/2/2022   |
| tblConstructionPhase | PhaseEndDate      | 7/19/2022     | 7/12/2022  |
| tblConstructionPhase | PhaseEndDate      | 12/13/2022    | 11/11/2022 |
| tblConstructionPhase | PhaseEndDate      | 7/15/2022     | 7/4/2022   |
| tblConstructionPhase | PhaseStartDate    | 12/14/2022    | 11/12/2022 |
| tblConstructionPhase | PhaseStartDate    | 7/20/2022     | 7/13/2022  |
| tblConstructionPhase | PhaseStartDate    | 7/16/2022     | 7/5/2022   |
| tblConstructionPhase | PhaseStartDate    | 12/7/2022     | 11/6/2022  |
| tblConstructionPhase | PhaseStartDate    | 7/15/2022     | 7/3/2022   |
| tblGrading           | MaterialExported  | 0.00          | 2,091.00   |
| tblLandUse           | LandUseSquareFeet | 1,800.00      | 2,764.00   |
| tblLandUse           | LotAcreage        | 0.32          | 0.14       |

## 2.0 Emissions Summary

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## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

|         | ROG    | NOx     | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |
|---------|--------|---------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| Year    | lb/day |         |        |        |               |              |            |                |               |             | lb/day   |            |            |        |        |            |
| 2022    | 3.6636 | 14.5032 | 9.6442 | 0.0392 | 1.4674        | 0.3719       | 1.8290     | 0.6086         | 0.3455        | 0.9542      | 0.0000   | 4,082.8295 | 4,082.8295 | 0.4021 | 0.0000 | 4,092.8812 |
| Maximum | 3.6636 | 14.5032 | 9.6442 | 0.0392 | 1.4674        | 0.3719       | 1.8290     | 0.6086         | 0.3455        | 0.9542      | 0.0000   | 4,082.8295 | 4,082.8295 | 0.4021 | 0.0000 | 4,092.8812 |

### Mitigated Construction

|         | ROG    | NOx     | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |
|---------|--------|---------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| Year    | lb/day |         |        |        |               |              |            |                |               |             | lb/day   |            |            |        |        |            |
| 2022    | 3.6636 | 14.5032 | 9.6442 | 0.0392 | 1.4674        | 0.3719       | 1.8290     | 0.6086         | 0.3455        | 0.9542      | 0.0000   | 4,082.8295 | 4,082.8295 | 0.4021 | 0.0000 | 4,092.8812 |
| Maximum | 3.6636 | 14.5032 | 9.6442 | 0.0392 | 1.4674        | 0.3719       | 1.8290     | 0.6086         | 0.3455        | 0.9542      | 0.0000   | 4,082.8295 | 4,082.8295 | 0.4021 | 0.0000 | 4,092.8812 |

[illegible]



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**2.2 Overall Operational****Unmitigated Operational**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O                | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |                    |                 |
| Area         | 0.3240        | 0.0217        | 0.5911        | 1.3000e-003        |               | 0.0769        | 0.0769        |                | 0.0769        | 0.0769        | 9.3669        | 18.1486         | 27.5155         | 0.0281        | 6.4000e-004        | 28.4069         |
| Energy       | 8.8000e-004   | 7.5300e-003   | 3.2000e-003   | 5.0000e-005        |               | 6.1000e-004   | 6.1000e-004   |                | 6.1000e-004   | 6.1000e-004   |               | 9.6140          | 9.6140          | 1.8000e-004   | 1.8000e-004        | 9.6711          |
| Mobile       | 0.0158        | 0.0691        | 0.2144        | 8.5000e-004        | 0.0720        | 5.8000e-004   | 0.0726        | 0.0193         | 5.4000e-004   | 0.0198        |               | 86.3106         | 86.3106         | 3.7600e-003   |                    | 86.4047         |
| <b>Total</b> | <b>0.3407</b> | <b>0.0983</b> | <b>0.8087</b> | <b>2.2000e-003</b> | <b>0.0720</b> | <b>0.0780</b> | <b>0.1500</b> | <b>0.0193</b>  | <b>0.0780</b> | <b>0.0973</b> | <b>9.3669</b> | <b>114.0732</b> | <b>123.4401</b> | <b>0.0320</b> | <b>8.2000e-004</b> | <b>124.4827</b> |

**Mitigated Operational**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O                | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |                    |                 |
| Area         | 0.3240        | 0.0217        | 0.5911        | 1.3000e-003        |               | 0.0769        | 0.0769        |                | 0.0769        | 0.0769        | 9.3669        | 18.1486         | 27.5155         | 0.0281        | 6.4000e-004        | 28.4069         |
| Energy       | 8.8000e-004   | 7.5300e-003   | 3.2000e-003   | 5.0000e-005        |               | 6.1000e-004   | 6.1000e-004   |                | 6.1000e-004   | 6.1000e-004   |               | 9.6140          | 9.6140          | 1.8000e-004   | 1.8000e-004        | 9.6711          |
| Mobile       | 0.0158        | 0.0691        | 0.2144        | 8.5000e-004        | 0.0720        | 5.8000e-004   | 0.0726        | 0.0193         | 5.4000e-004   | 0.0198        |               | 86.3106         | 86.3106         | 3.7600e-003   |                    | 86.4047         |
| <b>Total</b> | <b>0.3407</b> | <b>0.0983</b> | <b>0.8087</b> | <b>2.2000e-003</b> | <b>0.0720</b> | <b>0.0780</b> | <b>0.1500</b> | <b>0.0193</b>  | <b>0.0780</b> | <b>0.0973</b> | <b>9.3669</b> | <b>114.0732</b> | <b>123.4401</b> | <b>0.0320</b> | <b>8.2000e-004</b> | <b>124.4827</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00          | 0.00         | 0.00       | 0.00           | 0.00          | 0.00        | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

**3.0 Construction Detail****Construction Phase**

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date   | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 7/1/2022   | 7/2/2022   | 6             | 2        |                   |
| 2            | Site Preparation      | Site Preparation      | 7/3/2022   | 7/4/2022   | 6             | 1        |                   |
| 3            | Grading               | Grading               | 7/5/2022   | 7/12/2022  | 5             | 6        |                   |
| 4            | Building Construction | Building Construction | 7/13/2022  | 11/5/2022  | 6             | 100      |                   |
| 5            | Paving                | Paving                | 11/6/2022  | 11/11/2022 | 6             | 5        |                   |
| 6            | Architectural Coating | Architectural Coating | 11/12/2022 | 11/17/2022 | 6             | 5        |                   |

**Acres of Grading (Site Preparation Phase): 0.5****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 5,597; Residential Outdoor: 1,866; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |
| Paving                | Cement and Mortar Mixers  | 4      | 6.00        | 9           | 0.56        |
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Grading               | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Building Construction | Cranes                    | 1      | 4.00        | 231         | 0.29        |
| Building Construction | Forklifts                 | 2      | 6.00        | 89          | 0.20        |
| Site Preparation      | Graders                   | 1      | 8.00        | 187         | 0.41        |
| Paving                | Pavers                    | 1      | 7.00        | 130         | 0.42        |
| Paving                | Rollers                   | 1      | 7.00        | 80          | 0.38        |
| Demolition            | Rubber Tired Dozers       | 1      | 1.00        | 247         | 0.40        |
| Grading               | Rubber Tired Dozers       | 1      | 1.00        | 247         | 0.40        |
| Building Construction | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Demolition            | Tractors/Loaders/Backhoes | 2      | 6.00        | 97          | 0.37        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 6.00        | 97          | 0.37        |
| Paving                | Tractors/Loaders/Backhoes | 1      | 7.00        | 97          | 0.37        |
| Site Preparation      | Tractors/Loaders/Backhoes | 1      | 8.00        | 97          | 0.37        |

Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 4                       | 10.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Site Preparation      | 2                       | 5.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 4                       | 10.00              | 0.00               | 207.00              | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 5                       | 0.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 7                       | 18.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 0.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.1 Mitigation Measures Construction****3.2 Demolition - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Off-Road     | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        |          | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b> | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> |               | <b>0.3375</b> | <b>0.3375</b> |                | <b>0.3225</b> | <b>0.3225</b> |          | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.2 Demolition - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0396        | 0.0247        | 0.3484        | 1.0700e-003        | 0.1118        | 8.0000e-004        | 0.1126        | 0.0296         | 7.4000e-004        | 0.0304        |          | 106.7724        | 106.7724        | 2.6900e-003        |     | 106.8397        |
| <b>Total</b> | <b>0.0396</b> | <b>0.0247</b> | <b>0.3484</b> | <b>1.0700e-003</b> | <b>0.1118</b> | <b>8.0000e-004</b> | <b>0.1126</b> | <b>0.0296</b>  | <b>7.4000e-004</b> | <b>0.0304</b> |          | <b>106.7724</b> | <b>106.7724</b> | <b>2.6900e-003</b> |     | <b>106.8397</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Off-Road     | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        | 0.0000        | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b> | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> |               | <b>0.3375</b> | <b>0.3375</b> |                | <b>0.3225</b> | <b>0.3225</b> | <b>0.0000</b> | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.2 Demolition - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0396        | 0.0247        | 0.3484        | 1.0700e-003        | 0.1118        | 8.0000e-004        | 0.1126        | 0.0296         | 7.4000e-004        | 0.0304        |          | 106.7724        | 106.7724        | 2.6900e-003        |     | 106.8397        |
| <b>Total</b> | <b>0.0396</b> | <b>0.0247</b> | <b>0.3484</b> | <b>1.0700e-003</b> | <b>0.1118</b> | <b>8.0000e-004</b> | <b>0.1126</b> | <b>0.0296</b>  | <b>7.4000e-004</b> | <b>0.0304</b> |          | <b>106.7724</b> | <b>106.7724</b> | <b>2.6900e-003</b> |     | <b>106.8397</b> |

**3.3 Site Preparation - 2022****Unmitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category      | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Fugitive Dust |               |               |               |                    | 0.5303        | 0.0000        | 0.5303        | 0.0573         | 0.0000        | 0.0573        |          |                 | 0.0000          |               |     | 0.0000          |
| Off-Road      | 0.5797        | 6.9332        | 3.9597        | 9.7300e-003        |               | 0.2573        | 0.2573        |                | 0.2367        | 0.2367        |          | 942.5179        | 942.5179        | 0.3048        |     | 950.1386        |
| <b>Total</b>  | <b>0.5797</b> | <b>6.9332</b> | <b>3.9597</b> | <b>9.7300e-003</b> | <b>0.5303</b> | <b>0.2573</b> | <b>0.7876</b> | <b>0.0573</b>  | <b>0.2367</b> | <b>0.2940</b> |          | <b>942.5179</b> | <b>942.5179</b> | <b>0.3048</b> |     | <b>950.1386</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.3 Site Preparation - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2      | Total CO2      | CH4                | N2O | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                |                |                    |     |                |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Worker       | 0.0198        | 0.0124        | 0.1742        | 5.4000e-004        | 0.0559        | 4.0000e-004        | 0.0563        | 0.0148         | 3.7000e-004        | 0.0152        |          | 53.3862        | 53.3862        | 1.3500e-003        |     | 53.4198        |
| <b>Total</b> | <b>0.0198</b> | <b>0.0124</b> | <b>0.1742</b> | <b>5.4000e-004</b> | <b>0.0559</b> | <b>4.0000e-004</b> | <b>0.0563</b> | <b>0.0148</b>  | <b>3.7000e-004</b> | <b>0.0152</b> |          | <b>53.3862</b> | <b>53.3862</b> | <b>1.3500e-003</b> |     | <b>53.4198</b> |

**Mitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|-----------------|
| Category      | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |                 |
| Fugitive Dust |               |               |               |                    | 0.5303        | 0.0000        | 0.5303        | 0.0573         | 0.0000        | 0.0573        |               |                 | 0.0000          |               |     | 0.0000          |
| Off-Road      | 0.5797        | 6.9332        | 3.9597        | 9.7300e-003        |               | 0.2573        | 0.2573        |                | 0.2367        | 0.2367        | 0.0000        | 942.5179        | 942.5179        | 0.3048        |     | 950.1386        |
| <b>Total</b>  | <b>0.5797</b> | <b>6.9332</b> | <b>3.9597</b> | <b>9.7300e-003</b> | <b>0.5303</b> | <b>0.2573</b> | <b>0.7876</b> | <b>0.0573</b>  | <b>0.2367</b> | <b>0.2940</b> | <b>0.0000</b> | <b>942.5179</b> | <b>942.5179</b> | <b>0.3048</b> |     | <b>950.1386</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.3 Site Preparation - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2      | Total CO2      | CH4                | N2O | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                |                |                    |     |                |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Worker       | 0.0198        | 0.0124        | 0.1742        | 5.4000e-004        | 0.0559        | 4.0000e-004        | 0.0563        | 0.0148         | 3.7000e-004        | 0.0152        |          | 53.3862        | 53.3862        | 1.3500e-003        |     | 53.4198        |
| <b>Total</b> | <b>0.0198</b> | <b>0.0124</b> | <b>0.1742</b> | <b>5.4000e-004</b> | <b>0.0559</b> | <b>4.0000e-004</b> | <b>0.0563</b> | <b>0.0148</b>  | <b>3.7000e-004</b> | <b>0.0152</b> |          | <b>53.3862</b> | <b>53.3862</b> | <b>1.3500e-003</b> |     | <b>53.4198</b> |

**3.4 Grading - 2022****Unmitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Fugitive Dust |               |               |               |               | 0.7528        | 0.0000        | 0.7528        | 0.4138         | 0.0000        | 0.4138        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        |          | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b>  | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> | <b>0.7528</b> | <b>0.3375</b> | <b>1.0903</b> | <b>0.4138</b>  | <b>0.3225</b> | <b>0.7363</b> |          | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.4 Grading - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Hauling      | 0.2377        | 8.0647        | 1.8265        | 0.0261        | 0.6028        | 0.0233        | 0.6261        | 0.1652         | 0.0223        | 0.1875        |          | 2,828.1546        | 2,828.1546        | 0.1875        |     | 2,832.8414        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     | 0.0000            |
| Worker       | 0.0396        | 0.0247        | 0.3484        | 1.0700e-003   | 0.1118        | 8.0000e-004   | 0.1126        | 0.0296         | 7.4000e-004   | 0.0304        |          | 106.7724          | 106.7724          | 2.6900e-003   |     | 106.8397          |
| <b>Total</b> | <b>0.2773</b> | <b>8.0894</b> | <b>2.1749</b> | <b>0.0272</b> | <b>0.7146</b> | <b>0.0241</b> | <b>0.7387</b> | <b>0.1949</b>  | <b>0.0230</b> | <b>0.2178</b> |          | <b>2,934.9270</b> | <b>2,934.9270</b> | <b>0.1902</b> |     | <b>2,939.6811</b> |

**Mitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Fugitive Dust |               |               |               |               | 0.7528        | 0.0000        | 0.7528        | 0.4138         | 0.0000        | 0.4138        |               |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        | 0.0000        | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b>  | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> | <b>0.7528</b> | <b>0.3375</b> | <b>1.0903</b> | <b>0.4138</b>  | <b>0.3225</b> | <b>0.7363</b> | <b>0.0000</b> | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.4 Grading - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Hauling      | 0.2377        | 8.0647        | 1.8265        | 0.0261        | 0.6028        | 0.0233        | 0.6261        | 0.1652         | 0.0223        | 0.1875        |          | 2,828.1546        | 2,828.1546        | 0.1875        |     | 2,832.8414        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     | 0.0000            |
| Worker       | 0.0396        | 0.0247        | 0.3484        | 1.0700e-003   | 0.1118        | 8.0000e-004   | 0.1126        | 0.0296         | 7.4000e-004   | 0.0304        |          | 106.7724          | 106.7724          | 2.6900e-003   |     | 106.8397          |
| <b>Total</b> | <b>0.2773</b> | <b>8.0894</b> | <b>2.1749</b> | <b>0.0272</b> | <b>0.7146</b> | <b>0.0241</b> | <b>0.7387</b> | <b>0.1949</b>  | <b>0.0230</b> | <b>0.2178</b> |          | <b>2,934.9270</b> | <b>2,934.9270</b> | <b>0.1902</b> |     | <b>2,939.6811</b> |

**3.5 Building Construction - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Off-Road     | 0.6863        | 7.0258        | 7.1527        | 0.0114        |               | 0.3719        | 0.3719        |                | 0.3422        | 0.3422        |          | 1,103.9393        | 1,103.9393        | 0.3570        |     | 1,112.8652        |
| <b>Total</b> | <b>0.6863</b> | <b>7.0258</b> | <b>7.1527</b> | <b>0.0114</b> |               | <b>0.3719</b> | <b>0.3719</b> |                | <b>0.3422</b> | <b>0.3422</b> |          | <b>1,103.9393</b> | <b>1,103.9393</b> | <b>0.3570</b> |     | <b>1,112.8652</b> |



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.5 Building Construction - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |                        |
| Off-Road     | 0.6863        | 7.0258        | 7.1527        | 0.0114        |               | 0.3719        | 0.3719        |                | 0.3422        | 0.3422        | 0.0000        | 1,103.939<br>3         | 1,103.939<br>3         | 0.3570        |     | 1,112.865<br>2         |
| <b>Total</b> | <b>0.6863</b> | <b>7.0258</b> | <b>7.1527</b> | <b>0.0114</b> |               | <b>0.3719</b> | <b>0.3719</b> |                | <b>0.3422</b> | <b>0.3422</b> | <b>0.0000</b> | <b>1,103.939<br/>3</b> | <b>1,103.939<br/>3</b> | <b>0.3570</b> |     | <b>1,112.865<br/>2</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.5 Building Construction - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**3.6 Paving - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Off-Road     | 0.6469        | 5.9174        | 7.0348        | 0.0113        |               | 0.2961        | 0.2961        |                | 0.2758        | 0.2758        |          | 1,035.8246        | 1,035.8246        | 0.3017        |     | 1,043.3677        |
| Paving       | 0.0000        |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                   | 0.0000            |               |     | 0.0000            |
| <b>Total</b> | <b>0.6469</b> | <b>5.9174</b> | <b>7.0348</b> | <b>0.0113</b> |               | <b>0.2961</b> | <b>0.2961</b> |                | <b>0.2758</b> | <b>0.2758</b> |          | <b>1,035.8246</b> | <b>1,035.8246</b> | <b>0.3017</b> |     | <b>1,043.3677</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.6 Paving - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0713        | 0.0445        | 0.6270        | 1.9300e-003        | 0.2012        | 1.4400e-003        | 0.2026        | 0.0534         | 1.3200e-003        | 0.0547        |          | 192.1903        | 192.1903        | 4.8400e-003        |     | 192.3114        |
| <b>Total</b> | <b>0.0713</b> | <b>0.0445</b> | <b>0.6270</b> | <b>1.9300e-003</b> | <b>0.2012</b> | <b>1.4400e-003</b> | <b>0.2026</b> | <b>0.0534</b>  | <b>1.3200e-003</b> | <b>0.0547</b> |          | <b>192.1903</b> | <b>192.1903</b> | <b>4.8400e-003</b> |     | <b>192.3114</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Off-Road     | 0.6469        | 5.9174        | 7.0348        | 0.0113        |               | 0.2961        | 0.2961        |                | 0.2758        | 0.2758        | 0.0000        | 1,035.8246        | 1,035.8246        | 0.3017        |     | 1,043.3677        |
| Paving       | 0.0000        |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                   | 0.0000            |               |     | 0.0000            |
| <b>Total</b> | <b>0.6469</b> | <b>5.9174</b> | <b>7.0348</b> | <b>0.0113</b> |               | <b>0.2961</b> | <b>0.2961</b> |                | <b>0.2758</b> | <b>0.2758</b> | <b>0.0000</b> | <b>1,035.8246</b> | <b>1,035.8246</b> | <b>0.3017</b> |     | <b>1,043.3677</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.6 Paving - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0713        | 0.0445        | 0.6270        | 1.9300e-003        | 0.2012        | 1.4400e-003        | 0.2026        | 0.0534         | 1.3200e-003        | 0.0547        |          | 192.1903        | 192.1903        | 4.8400e-003        |     | 192.3114        |
| <b>Total</b> | <b>0.0713</b> | <b>0.0445</b> | <b>0.6270</b> | <b>1.9300e-003</b> | <b>0.2012</b> | <b>1.4400e-003</b> | <b>0.2026</b> | <b>0.0534</b>  | <b>1.3200e-003</b> | <b>0.0547</b> |          | <b>192.1903</b> | <b>192.1903</b> | <b>4.8400e-003</b> |     | <b>192.3114</b> |

**3.7 Architectural Coating - 2022****Unmitigated Construction On-Site**

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|-----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Archit. Coating | 3.4591        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.2045        | 1.4085        | 1.8136        | 2.9700e-003        |               | 0.0817        | 0.0817        |                | 0.0817        | 0.0817        |          | 281.4481        | 281.4481        | 0.0183        |     | 281.9062        |
| <b>Total</b>    | <b>3.6636</b> | <b>1.4085</b> | <b>1.8136</b> | <b>2.9700e-003</b> |               | <b>0.0817</b> | <b>0.0817</b> |                | <b>0.0817</b> | <b>0.0817</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0183</b> |     | <b>281.9062</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.7 Architectural Coating - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**Mitigated Construction On-Site**

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|-----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|-----------------|
| Category        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |                 |
| Archit. Coating | 3.4591        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.2045        | 1.4085        | 1.8136        | 2.9700e-003        |               | 0.0817        | 0.0817        |                | 0.0817        | 0.0817        | 0.0000        | 281.4481        | 281.4481        | 0.0183        |     | 281.9062        |
| <b>Total</b>    | <b>3.6636</b> | <b>1.4085</b> | <b>1.8136</b> | <b>2.9700e-003</b> |               | <b>0.0817</b> | <b>0.0817</b> |                | <b>0.0817</b> | <b>0.0817</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0183</b> |     | <b>281.9062</b> |



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**3.7 Architectural Coating - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

|             | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O | CO2e    |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|---------|
| Category    | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |             |     |         |
| Mitigated   | 0.0158 | 0.0691 | 0.2144 | 8.5000e-004 | 0.0720        | 5.8000e-004  | 0.0726     | 0.0193         | 5.4000e-004   | 0.0198      |          | 86.3106   | 86.3106   | 3.7600e-003 |     | 86.4047 |
| Unmitigated | 0.0158 | 0.0691 | 0.2144 | 8.5000e-004 | 0.0720        | 5.8000e-004  | 0.0726     | 0.0193         | 5.4000e-004   | 0.0198      |          | 86.3106   | 86.3106   | 3.7600e-003 |     | 86.4047 |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|-----------------------|-------------------------|----------|--------|-------------|------------|
|                       | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Single Family Housing | 9.52                    | 9.91     | 8.62   | 32,282      | 32,282     |
| Total                 | 9.52                    | 9.91     | 8.62   | 32,282      | 32,282     |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

## 4.4 Fleet Mix

| Land Use              | LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Single Family Housing | 0.550151 | 0.042593 | 0.202457 | 0.116946 | 0.015037 | 0.005825 | 0.021699 | 0.034933 | 0.002123 | 0.001780 | 0.004876 | 0.000710 | 0.000868 |

## 5.0 Energy Detail

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 Historical Energy Use: N

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

## 5.1 Mitigation Measures Energy

|                        | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e   |
|------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|--------|
| Category               | lb/day      |             |             |             |               |              |             |                |               |             | lb/day   |           |           |             |             |        |
| NaturalGas Mitigated   | 8.8000e-004 | 7.5300e-003 | 3.2000e-003 | 5.0000e-005 |               | 6.1000e-004  | 6.1000e-004 |                | 6.1000e-004   | 6.1000e-004 |          | 9.6140    | 9.6140    | 1.8000e-004 | 1.8000e-004 | 9.6711 |
| NaturalGas Unmitigated | 8.8000e-004 | 7.5300e-003 | 3.2000e-003 | 5.0000e-005 |               | 6.1000e-004  | 6.1000e-004 |                | 6.1000e-004   | 6.1000e-004 |          | 9.6140    | 9.6140    | 1.8000e-004 | 1.8000e-004 | 9.6711 |

## 5.2 Energy by Land Use - NaturalGas

Unmitigated

|                       | NaturalGas Use | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kBTU/yr        | lb/day             |                    |                    |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |                    |               |
| Single Family Housing | 81.7188        | 8.8000e-004        | 7.5300e-003        | 3.2000e-003        | 5.0000e-005        |               | 6.1000e-004        | 6.1000e-004        |                | 6.1000e-004        | 6.1000e-004        |          | 9.6140        | 9.6140        | 1.8000e-004        | 1.8000e-004        | 9.6711        |
| <b>Total</b>          |                | <b>8.8000e-004</b> | <b>7.5300e-003</b> | <b>3.2000e-003</b> | <b>5.0000e-005</b> |               | <b>6.1000e-004</b> | <b>6.1000e-004</b> |                | <b>6.1000e-004</b> | <b>6.1000e-004</b> |          | <b>9.6140</b> | <b>9.6140</b> | <b>1.8000e-004</b> | <b>1.8000e-004</b> | <b>9.6711</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**5.2 Energy by Land Use - NaturalGas****Mitigated**

|                       | NaturalGas Use | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kBTU/yr        | lb/day             |                    |                    |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |                    |               |
| Single Family Housing | 0.0817188      | 8.8000e-004        | 7.5300e-003        | 3.2000e-003        | 5.0000e-005        |               | 6.1000e-004        | 6.1000e-004        |                | 6.1000e-004        | 6.1000e-004        |          | 9.6140        | 9.6140        | 1.8000e-004        | 1.8000e-004        | 9.6711        |
| <b>Total</b>          |                | <b>8.8000e-004</b> | <b>7.5300e-003</b> | <b>3.2000e-003</b> | <b>5.0000e-005</b> |               | <b>6.1000e-004</b> | <b>6.1000e-004</b> |                | <b>6.1000e-004</b> | <b>6.1000e-004</b> |          | <b>9.6140</b> | <b>9.6140</b> | <b>1.8000e-004</b> | <b>1.8000e-004</b> | <b>9.6711</b> |

**6.0 Area Detail****6.1 Mitigation Measures Area**

|             | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O         | CO2e    |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|-------------|---------|
| Category    | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |        |             |         |
| Mitigated   | 0.3240 | 0.0217 | 0.5911 | 1.3000e-003 |               | 0.0769       | 0.0769     |                | 0.0769        | 0.0769      | 9.3669   | 18.1486   | 27.5155   | 0.0281 | 6.4000e-004 | 28.4069 |
| Unmitigated | 0.3240 | 0.0217 | 0.5911 | 1.3000e-003 |               | 0.0769       | 0.0769     |                | 0.0769        | 0.0769      | 9.3669   | 18.1486   | 27.5155   | 0.0281 | 6.4000e-004 | 28.4069 |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**6.2 Area by SubCategory****Unmitigated**

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| SubCategory           | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                |                |               |                    |                |
| Architectural Coating | 4.7400e-003   |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Consumer Products     | 0.0547        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Hearth                | 0.2620        | 0.0208        | 0.5086        | 1.3000e-003        |               | 0.0764        | 0.0764        |                | 0.0764        | 0.0764        | 9.3669        | 18.0000        | 27.3669        | 0.0279        | 6.4000e-004        | 28.2547        |
| Landscaping           | 2.4900e-003   | 9.5000e-004   | 0.0825        | 0.0000             |               | 4.6000e-004   | 4.6000e-004   |                | 4.6000e-004   | 4.6000e-004   |               | 0.1486         | 0.1486         | 1.4000e-004   |                    | 0.1521         |
| <b>Total</b>          | <b>0.3240</b> | <b>0.0217</b> | <b>0.5911</b> | <b>1.3000e-003</b> |               | <b>0.0769</b> | <b>0.0769</b> |                | <b>0.0769</b> | <b>0.0769</b> | <b>9.3669</b> | <b>18.1486</b> | <b>27.5155</b> | <b>0.0281</b> | <b>6.4000e-004</b> | <b>28.4068</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**6.2 Area by SubCategory****Mitigated**

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| SubCategory           | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                |                |               |                    |                |
| Architectural Coating | 4.7400e-003   |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Consumer Products     | 0.0547        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Hearth                | 0.2620        | 0.0208        | 0.5086        | 1.3000e-003        |               | 0.0764        | 0.0764        |                | 0.0764        | 0.0764        | 9.3669        | 18.0000        | 27.3669        | 0.0279        | 6.4000e-004        | 28.2547        |
| Landscaping           | 2.4900e-003   | 9.5000e-004   | 0.0825        | 0.0000             |               | 4.6000e-004   | 4.6000e-004   |                | 4.6000e-004   | 4.6000e-004   |               | 0.1486         | 0.1486         | 1.4000e-004   |                    | 0.1521         |
| <b>Total</b>          | <b>0.3240</b> | <b>0.0217</b> | <b>0.5911</b> | <b>1.3000e-003</b> |               | <b>0.0769</b> | <b>0.0769</b> |                | <b>0.0769</b> | <b>0.0769</b> | <b>9.3669</b> | <b>18.1486</b> | <b>27.5155</b> | <b>0.0281</b> | <b>6.4000e-004</b> | <b>28.4068</b> |

**7.0 Water Detail****7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

**10.0 Stationary Equipment**



3130 Charing Cross (SFR) - South Coast AQMD Air District, Summer

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|------------|-------------|-------------|-----------|
|----------------|--------|-----------|------------|-------------|-------------|-----------|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|----------------|--------|----------------|-----------------|---------------|-----------|
|----------------|--------|----------------|-----------------|---------------|-----------|

**User Defined Equipment**

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

**11.0 Vegetation**

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3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

### 3130 Charing Cross (SFR)

#### South Coast AQMD Air District, Winter

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|------|---------------|-------------|--------------------|------------|
| Single Family Housing | 1.00 | Dwelling Unit | 0.14        | 2,764.00           | 3          |

### 1.2 Other Project Characteristics

|                            |                        |                            |       |                            |       |
|----------------------------|------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                  | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 31    |
| Climate Zone               | 12                     |                            |       | Operational Year           | 2023  |
| Utility Company            | Glendale Water & Power |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 1115.33                | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construct a new 3 story, 2,764 square-foot single-family residence with a 453 square-foot two-car garage. Total proposed grading for the entire site is 2,091 cubic yards (all export).

Land Use - Lot size is 6,069.5 square-feet (0.139 acre).

Construction Phase - Project involves 2,091 cubic yards (cut/all export)

Grading -

Energy Use -

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

| Table Name           | Column Name       | Default Value | New Value  |
|----------------------|-------------------|---------------|------------|
| tblConstructionPhase | NumDays           | 10.00         | 2.00       |
| tblConstructionPhase | NumDays           | 2.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | PhaseEndDate      | 12/20/2022    | 11/17/2022 |
| tblConstructionPhase | PhaseEndDate      | 12/6/2022     | 11/5/2022  |
| tblConstructionPhase | PhaseEndDate      | 7/14/2022     | 7/2/2022   |
| tblConstructionPhase | PhaseEndDate      | 7/19/2022     | 7/12/2022  |
| tblConstructionPhase | PhaseEndDate      | 12/13/2022    | 11/11/2022 |
| tblConstructionPhase | PhaseEndDate      | 7/15/2022     | 7/4/2022   |
| tblConstructionPhase | PhaseStartDate    | 12/14/2022    | 11/12/2022 |
| tblConstructionPhase | PhaseStartDate    | 7/20/2022     | 7/13/2022  |
| tblConstructionPhase | PhaseStartDate    | 7/16/2022     | 7/5/2022   |
| tblConstructionPhase | PhaseStartDate    | 12/7/2022     | 11/6/2022  |
| tblConstructionPhase | PhaseStartDate    | 7/15/2022     | 7/3/2022   |
| tblGrading           | MaterialExported  | 0.00          | 2,091.00   |
| tblLandUse           | LandUseSquareFeet | 1,800.00      | 2,764.00   |
| tblLandUse           | LotAcreage        | 0.32          | 0.14       |

## 2.0 Emissions Summary

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3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

|         | ROG    | NOx     | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |
|---------|--------|---------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| Year    | lb/day |         |        |        |               |              |            |                |               |             | lb/day   |            |            |        |        |            |
| 2022    | 3.6636 | 14.5919 | 9.7378 | 0.0386 | 1.4674        | 0.3719       | 1.8293     | 0.6086         | 0.3459        | 0.9545      | 0.0000   | 4,023.1544 | 4,023.1544 | 0.4096 | 0.0000 | 4,033.3936 |
| Maximum | 3.6636 | 14.5919 | 9.7378 | 0.0386 | 1.4674        | 0.3719       | 1.8293     | 0.6086         | 0.3459        | 0.9545      | 0.0000   | 4,023.1544 | 4,023.1544 | 0.4096 | 0.0000 | 4,033.3936 |

### Mitigated Construction

|         | ROG    | NOx     | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |
|---------|--------|---------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| Year    | lb/day |         |        |        |               |              |            |                |               |             | lb/day   |            |            |        |        |            |
| 2022    | 3.6636 | 14.5919 | 9.7378 | 0.0386 | 1.4674        | 0.3719       | 1.8293     | 0.6086         | 0.3459        | 0.9545      | 0.0000   | 4,023.1544 | 4,023.1544 | 0.4096 | 0.0000 | 4,033.3936 |
| Maximum | 3.6636 | 14.5919 | 9.7378 | 0.0386 | 1.4674        | 0.3719       | 1.8293     | 0.6086         | 0.3459        | 0.9545      | 0.0000   | 4,023.1544 | 4,023.1544 | 0.4096 | 0.0000 | 4,033.3936 |

[illegible]

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**2.2 Overall Operational****Unmitigated Operational**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O                | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |                    |                 |
| Area         | 0.3240        | 0.0217        | 0.5911        | 1.3000e-003        |               | 0.0769        | 0.0769        |                | 0.0769        | 0.0769        | 9.3669        | 18.1486         | 27.5155         | 0.0281        | 6.4000e-004        | 28.4069         |
| Energy       | 8.8000e-004   | 7.5300e-003   | 3.2000e-003   | 5.0000e-005        |               | 6.1000e-004   | 6.1000e-004   |                | 6.1000e-004   | 6.1000e-004   |               | 9.6140          | 9.6140          | 1.8000e-004   | 1.8000e-004        | 9.6711          |
| Mobile       | 0.0149        | 0.0705        | 0.1996        | 8.0000e-004        | 0.0720        | 5.8000e-004   | 0.0726        | 0.0193         | 5.4000e-004   | 0.0198        |               | 81.7769         | 81.7769         | 3.7500e-003   |                    | 81.8706         |
| <b>Total</b> | <b>0.3398</b> | <b>0.0997</b> | <b>0.7939</b> | <b>2.1500e-003</b> | <b>0.0720</b> | <b>0.0780</b> | <b>0.1501</b> | <b>0.0193</b>  | <b>0.0780</b> | <b>0.0973</b> | <b>9.3669</b> | <b>109.5394</b> | <b>118.9063</b> | <b>0.0320</b> | <b>8.2000e-004</b> | <b>119.9486</b> |

**Mitigated Operational**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O                | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |                    |                 |
| Area         | 0.3240        | 0.0217        | 0.5911        | 1.3000e-003        |               | 0.0769        | 0.0769        |                | 0.0769        | 0.0769        | 9.3669        | 18.1486         | 27.5155         | 0.0281        | 6.4000e-004        | 28.4069         |
| Energy       | 8.8000e-004   | 7.5300e-003   | 3.2000e-003   | 5.0000e-005        |               | 6.1000e-004   | 6.1000e-004   |                | 6.1000e-004   | 6.1000e-004   |               | 9.6140          | 9.6140          | 1.8000e-004   | 1.8000e-004        | 9.6711          |
| Mobile       | 0.0149        | 0.0705        | 0.1996        | 8.0000e-004        | 0.0720        | 5.8000e-004   | 0.0726        | 0.0193         | 5.4000e-004   | 0.0198        |               | 81.7769         | 81.7769         | 3.7500e-003   |                    | 81.8706         |
| <b>Total</b> | <b>0.3398</b> | <b>0.0997</b> | <b>0.7939</b> | <b>2.1500e-003</b> | <b>0.0720</b> | <b>0.0780</b> | <b>0.1501</b> | <b>0.0193</b>  | <b>0.0780</b> | <b>0.0973</b> | <b>9.3669</b> | <b>109.5394</b> | <b>118.9063</b> | <b>0.0320</b> | <b>8.2000e-004</b> | <b>119.9486</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00          | 0.00         | 0.00       | 0.00           | 0.00          | 0.00        | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

**3.0 Construction Detail****Construction Phase**

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date   | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 7/1/2022   | 7/2/2022   | 6             | 2        |                   |
| 2            | Site Preparation      | Site Preparation      | 7/3/2022   | 7/4/2022   | 6             | 1        |                   |
| 3            | Grading               | Grading               | 7/5/2022   | 7/12/2022  | 5             | 6        |                   |
| 4            | Building Construction | Building Construction | 7/13/2022  | 11/5/2022  | 6             | 100      |                   |
| 5            | Paving                | Paving                | 11/6/2022  | 11/11/2022 | 6             | 5        |                   |
| 6            | Architectural Coating | Architectural Coating | 11/12/2022 | 11/17/2022 | 6             | 5        |                   |

**Acres of Grading (Site Preparation Phase): 0.5****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 5,597; Residential Outdoor: 1,866; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |
| Paving                | Cement and Mortar Mixers  | 4      | 6.00        | 9           | 0.56        |
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Grading               | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Building Construction | Cranes                    | 1      | 4.00        | 231         | 0.29        |
| Building Construction | Forklifts                 | 2      | 6.00        | 89          | 0.20        |
| Site Preparation      | Graders                   | 1      | 8.00        | 187         | 0.41        |
| Paving                | Pavers                    | 1      | 7.00        | 130         | 0.42        |
| Paving                | Rollers                   | 1      | 7.00        | 80          | 0.38        |
| Demolition            | Rubber Tired Dozers       | 1      | 1.00        | 247         | 0.40        |
| Grading               | Rubber Tired Dozers       | 1      | 1.00        | 247         | 0.40        |
| Building Construction | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Demolition            | Tractors/Loaders/Backhoes | 2      | 6.00        | 97          | 0.37        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 6.00        | 97          | 0.37        |
| Paving                | Tractors/Loaders/Backhoes | 1      | 7.00        | 97          | 0.37        |
| Site Preparation      | Tractors/Loaders/Backhoes | 1      | 8.00        | 97          | 0.37        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 4                       | 10.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Site Preparation      | 2                       | 5.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 4                       | 10.00              | 0.00               | 207.00              | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 5                       | 0.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 7                       | 18.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 0.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.1 Mitigation Measures Construction****3.2 Demolition - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Off-Road     | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        |          | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b> | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> |               | <b>0.3375</b> | <b>0.3375</b> |                | <b>0.3225</b> | <b>0.3225</b> |          | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.2 Demolition - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2      | Total CO2      | CH4                | N2O | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                |                |                    |     |                |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Worker       | 0.0434        | 0.0271        | 0.3125        | 1.0000e-003        | 0.1118        | 8.0000e-004        | 0.1126        | 0.0296         | 7.4000e-004        | 0.0304        |          | 99.8537        | 99.8537        | 2.5100e-003        |     | 99.9163        |
| <b>Total</b> | <b>0.0434</b> | <b>0.0271</b> | <b>0.3125</b> | <b>1.0000e-003</b> | <b>0.1118</b> | <b>8.0000e-004</b> | <b>0.1126</b> | <b>0.0296</b>  | <b>7.4000e-004</b> | <b>0.0304</b> |          | <b>99.8537</b> | <b>99.8537</b> | <b>2.5100e-003</b> |     | <b>99.9163</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Off-Road     | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        | 0.0000        | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b> | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> |               | <b>0.3375</b> | <b>0.3375</b> |                | <b>0.3225</b> | <b>0.3225</b> | <b>0.0000</b> | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.2 Demolition - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2      | Total CO2      | CH4                | N2O | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                |                |                    |     |                |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Worker       | 0.0434        | 0.0271        | 0.3125        | 1.0000e-003        | 0.1118        | 8.0000e-004        | 0.1126        | 0.0296         | 7.4000e-004        | 0.0304        |          | 99.8537        | 99.8537        | 2.5100e-003        |     | 99.9163        |
| <b>Total</b> | <b>0.0434</b> | <b>0.0271</b> | <b>0.3125</b> | <b>1.0000e-003</b> | <b>0.1118</b> | <b>8.0000e-004</b> | <b>0.1126</b> | <b>0.0296</b>  | <b>7.4000e-004</b> | <b>0.0304</b> |          | <b>99.8537</b> | <b>99.8537</b> | <b>2.5100e-003</b> |     | <b>99.9163</b> |

**3.3 Site Preparation - 2022****Unmitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category      | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Fugitive Dust |               |               |               |                    | 0.5303        | 0.0000        | 0.5303        | 0.0573         | 0.0000        | 0.0573        |          |                 | 0.0000          |               |     | 0.0000          |
| Off-Road      | 0.5797        | 6.9332        | 3.9597        | 9.7300e-003        |               | 0.2573        | 0.2573        |                | 0.2367        | 0.2367        |          | 942.5179        | 942.5179        | 0.3048        |     | 950.1386        |
| <b>Total</b>  | <b>0.5797</b> | <b>6.9332</b> | <b>3.9597</b> | <b>9.7300e-003</b> | <b>0.5303</b> | <b>0.2573</b> | <b>0.7876</b> | <b>0.0573</b>  | <b>0.2367</b> | <b>0.2940</b> |          | <b>942.5179</b> | <b>942.5179</b> | <b>0.3048</b> |     | <b>950.1386</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.3 Site Preparation - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2      | Total CO2      | CH4                | N2O | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                |                |                    |     |                |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Worker       | 0.0217        | 0.0135        | 0.1562        | 5.0000e-004        | 0.0559        | 4.0000e-004        | 0.0563        | 0.0148         | 3.7000e-004        | 0.0152        |          | 49.9268        | 49.9268        | 1.2500e-003        |     | 49.9582        |
| <b>Total</b> | <b>0.0217</b> | <b>0.0135</b> | <b>0.1562</b> | <b>5.0000e-004</b> | <b>0.0559</b> | <b>4.0000e-004</b> | <b>0.0563</b> | <b>0.0148</b>  | <b>3.7000e-004</b> | <b>0.0152</b> |          | <b>49.9268</b> | <b>49.9268</b> | <b>1.2500e-003</b> |     | <b>49.9582</b> |

**Mitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|-----------------|
| Category      | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |                 |
| Fugitive Dust |               |               |               |                    | 0.5303        | 0.0000        | 0.5303        | 0.0573         | 0.0000        | 0.0573        |               |                 | 0.0000          |               |     | 0.0000          |
| Off-Road      | 0.5797        | 6.9332        | 3.9597        | 9.7300e-003        |               | 0.2573        | 0.2573        |                | 0.2367        | 0.2367        | 0.0000        | 942.5179        | 942.5179        | 0.3048        |     | 950.1386        |
| <b>Total</b>  | <b>0.5797</b> | <b>6.9332</b> | <b>3.9597</b> | <b>9.7300e-003</b> | <b>0.5303</b> | <b>0.2573</b> | <b>0.7876</b> | <b>0.0573</b>  | <b>0.2367</b> | <b>0.2940</b> | <b>0.0000</b> | <b>942.5179</b> | <b>942.5179</b> | <b>0.3048</b> |     | <b>950.1386</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.3 Site Preparation - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2      | Total CO2      | CH4                | N2O | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                |                |                    |     |                |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000         | 0.0000         | 0.0000             |     | 0.0000         |
| Worker       | 0.0217        | 0.0135        | 0.1562        | 5.0000e-004        | 0.0559        | 4.0000e-004        | 0.0563        | 0.0148         | 3.7000e-004        | 0.0152        |          | 49.9268        | 49.9268        | 1.2500e-003        |     | 49.9582        |
| <b>Total</b> | <b>0.0217</b> | <b>0.0135</b> | <b>0.1562</b> | <b>5.0000e-004</b> | <b>0.0559</b> | <b>4.0000e-004</b> | <b>0.0563</b> | <b>0.0148</b>  | <b>3.7000e-004</b> | <b>0.0152</b> |          | <b>49.9268</b> | <b>49.9268</b> | <b>1.2500e-003</b> |     | <b>49.9582</b> |

**3.4 Grading - 2022****Unmitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Fugitive Dust |               |               |               |               | 0.7528        | 0.0000        | 0.7528        | 0.4138         | 0.0000        | 0.4138        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        |          | 1,147.9025        | 1,147.9025        | 0.2119        |     | 1,153.2001        |
| <b>Total</b>  | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> | <b>0.7528</b> | <b>0.3375</b> | <b>1.0903</b> | <b>0.4138</b>  | <b>0.3225</b> | <b>0.7363</b> |          | <b>1,147.9025</b> | <b>1,147.9025</b> | <b>0.2119</b> |     | <b>1,153.2001</b> |



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.4 Grading - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Hauling      | 0.2445        | 8.1510        | 1.9560        | 0.0256        | 0.6028        | 0.0236        | 0.6265        | 0.1652         | 0.0226        | 0.1878        |          | 2,775.398<br>3         | 2,775.398<br>3         | 0.1952        |     | 2,780.277<br>2         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     | 0.0000                 |
| Worker       | 0.0434        | 0.0271        | 0.3125        | 1.0000e-003   | 0.1118        | 8.0000e-004   | 0.1126        | 0.0296         | 7.4000e-004   | 0.0304        |          | 99.8537                | 99.8537                | 2.5100e-003   |     | 99.9163                |
| <b>Total</b> | <b>0.2879</b> | <b>8.1781</b> | <b>2.2685</b> | <b>0.0266</b> | <b>0.7146</b> | <b>0.0244</b> | <b>0.7391</b> | <b>0.1949</b>  | <b>0.0234</b> | <b>0.2182</b> |          | <b>2,875.252<br/>0</b> | <b>2,875.252<br/>0</b> | <b>0.1977</b> |     | <b>2,880.193<br/>5</b> |

**Mitigated Construction On-Site**

|               | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------------------------|
| Category      | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |                        |
| Fugitive Dust |               |               |               |               | 0.7528        | 0.0000        | 0.7528        | 0.4138         | 0.0000        | 0.4138        |               |                        | 0.0000                 |               |     | 0.0000                 |
| Off-Road      | 0.7094        | 6.4138        | 7.4693        | 0.0120        |               | 0.3375        | 0.3375        |                | 0.3225        | 0.3225        | 0.0000        | 1,147.902<br>5         | 1,147.902<br>5         | 0.2119        |     | 1,153.200<br>1         |
| <b>Total</b>  | <b>0.7094</b> | <b>6.4138</b> | <b>7.4693</b> | <b>0.0120</b> | <b>0.7528</b> | <b>0.3375</b> | <b>1.0903</b> | <b>0.4138</b>  | <b>0.3225</b> | <b>0.7363</b> | <b>0.0000</b> | <b>1,147.902<br/>5</b> | <b>1,147.902<br/>5</b> | <b>0.2119</b> |     | <b>1,153.200<br/>1</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.4 Grading - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Hauling      | 0.2445        | 8.1510        | 1.9560        | 0.0256        | 0.6028        | 0.0236        | 0.6265        | 0.1652         | 0.0226        | 0.1878        |          | 2,775.398<br>3         | 2,775.398<br>3         | 0.1952        |     | 2,780.277<br>2         |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     | 0.0000                 |
| Worker       | 0.0434        | 0.0271        | 0.3125        | 1.0000e-003   | 0.1118        | 8.0000e-004   | 0.1126        | 0.0296         | 7.4000e-004   | 0.0304        |          | 99.8537                | 99.8537                | 2.5100e-003   |     | 99.9163                |
| <b>Total</b> | <b>0.2879</b> | <b>8.1781</b> | <b>2.2685</b> | <b>0.0266</b> | <b>0.7146</b> | <b>0.0244</b> | <b>0.7391</b> | <b>0.1949</b>  | <b>0.0234</b> | <b>0.2182</b> |          | <b>2,875.252<br/>0</b> | <b>2,875.252<br/>0</b> | <b>0.1977</b> |     | <b>2,880.193<br/>5</b> |

**3.5 Building Construction - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Off-Road     | 0.6863        | 7.0258        | 7.1527        | 0.0114        |               | 0.3719        | 0.3719        |                | 0.3422        | 0.3422        |          | 1,103.939<br>3         | 1,103.939<br>3         | 0.3570        |     | 1,112.865<br>2         |
| <b>Total</b> | <b>0.6863</b> | <b>7.0258</b> | <b>7.1527</b> | <b>0.0114</b> |               | <b>0.3719</b> | <b>0.3719</b> |                | <b>0.3422</b> | <b>0.3422</b> |          | <b>1,103.939<br/>3</b> | <b>1,103.939<br/>3</b> | <b>0.3570</b> |     | <b>1,112.865<br/>2</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.5 Building Construction - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |                        |
| Off-Road     | 0.6863        | 7.0258        | 7.1527        | 0.0114        |               | 0.3719        | 0.3719        |                | 0.3422        | 0.3422        | 0.0000        | 1,103.939<br>3         | 1,103.939<br>3         | 0.3570        |     | 1,112.865<br>2         |
| <b>Total</b> | <b>0.6863</b> | <b>7.0258</b> | <b>7.1527</b> | <b>0.0114</b> |               | <b>0.3719</b> | <b>0.3719</b> |                | <b>0.3422</b> | <b>0.3422</b> | <b>0.0000</b> | <b>1,103.939<br/>3</b> | <b>1,103.939<br/>3</b> | <b>0.3570</b> |     | <b>1,112.865<br/>2</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.5 Building Construction - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**3.6 Paving - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Off-Road     | 0.6469        | 5.9174        | 7.0348        | 0.0113        |               | 0.2961        | 0.2961        |                | 0.2758        | 0.2758        |          | 1,035.8246        | 1,035.8246        | 0.3017        |     | 1,043.3677        |
| Paving       | 0.0000        |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                   | 0.0000            |               |     | 0.0000            |
| <b>Total</b> | <b>0.6469</b> | <b>5.9174</b> | <b>7.0348</b> | <b>0.0113</b> |               | <b>0.2961</b> | <b>0.2961</b> |                | <b>0.2758</b> | <b>0.2758</b> |          | <b>1,035.8246</b> | <b>1,035.8246</b> | <b>0.3017</b> |     | <b>1,043.3677</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.6 Paving - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0781        | 0.0487        | 0.5625        | 1.8000e-003        | 0.2012        | 1.4400e-003        | 0.2026        | 0.0534         | 1.3200e-003        | 0.0547        |          | 179.7366        | 179.7366        | 4.5100e-003        |     | 179.8494        |
| <b>Total</b> | <b>0.0781</b> | <b>0.0487</b> | <b>0.5625</b> | <b>1.8000e-003</b> | <b>0.2012</b> | <b>1.4400e-003</b> | <b>0.2026</b> | <b>0.0534</b>  | <b>1.3200e-003</b> | <b>0.0547</b> |          | <b>179.7366</b> | <b>179.7366</b> | <b>4.5100e-003</b> |     | <b>179.8494</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Off-Road     | 0.6469        | 5.9174        | 7.0348        | 0.0113        |               | 0.2961        | 0.2961        |                | 0.2758        | 0.2758        | 0.0000        | 1,035.8246        | 1,035.8246        | 0.3017        |     | 1,043.3677        |
| Paving       | 0.0000        |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                   | 0.0000            |               |     | 0.0000            |
| <b>Total</b> | <b>0.6469</b> | <b>5.9174</b> | <b>7.0348</b> | <b>0.0113</b> |               | <b>0.2961</b> | <b>0.2961</b> |                | <b>0.2758</b> | <b>0.2758</b> | <b>0.0000</b> | <b>1,035.8246</b> | <b>1,035.8246</b> | <b>0.3017</b> |     | <b>1,043.3677</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.6 Paving - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0781        | 0.0487        | 0.5625        | 1.8000e-003        | 0.2012        | 1.4400e-003        | 0.2026        | 0.0534         | 1.3200e-003        | 0.0547        |          | 179.7366        | 179.7366        | 4.5100e-003        |     | 179.8494        |
| <b>Total</b> | <b>0.0781</b> | <b>0.0487</b> | <b>0.5625</b> | <b>1.8000e-003</b> | <b>0.2012</b> | <b>1.4400e-003</b> | <b>0.2026</b> | <b>0.0534</b>  | <b>1.3200e-003</b> | <b>0.0547</b> |          | <b>179.7366</b> | <b>179.7366</b> | <b>4.5100e-003</b> |     | <b>179.8494</b> |

**3.7 Architectural Coating - 2022****Unmitigated Construction On-Site**

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|-----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Archit. Coating | 3.4591        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.2045        | 1.4085        | 1.8136        | 2.9700e-003        |               | 0.0817        | 0.0817        |                | 0.0817        | 0.0817        |          | 281.4481        | 281.4481        | 0.0183        |     | 281.9062        |
| <b>Total</b>    | <b>3.6636</b> | <b>1.4085</b> | <b>1.8136</b> | <b>2.9700e-003</b> |               | <b>0.0817</b> | <b>0.0817</b> |                | <b>0.0817</b> | <b>0.0817</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0183</b> |     | <b>281.9062</b> |



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.7 Architectural Coating - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**Mitigated Construction On-Site**

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|-----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|-----------------|
| Category        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |                 |
| Archit. Coating | 3.4591        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.2045        | 1.4085        | 1.8136        | 2.9700e-003        |               | 0.0817        | 0.0817        |                | 0.0817        | 0.0817        | 0.0000        | 281.4481        | 281.4481        | 0.0183        |     | 281.9062        |
| <b>Total</b>    | <b>3.6636</b> | <b>1.4085</b> | <b>1.8136</b> | <b>2.9700e-003</b> |               | <b>0.0817</b> | <b>0.0817</b> |                | <b>0.0817</b> | <b>0.0817</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0183</b> |     | <b>281.9062</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**3.7 Architectural Coating - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2     | Total CO2     | CH4           | N2O | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|---------------|---------------|---------------|-----|---------------|
| Category     | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |     |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000        | 0.0000        | 0.0000        |     | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

|             | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O | CO2e    |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|---------|
| Category    | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |             |     |         |
| Mitigated   | 0.0149 | 0.0705 | 0.1996 | 8.0000e-004 | 0.0720        | 5.8000e-004  | 0.0726     | 0.0193         | 5.4000e-004   | 0.0198      |          | 81.7769   | 81.7769   | 3.7500e-003 |     | 81.8706 |
| Unmitigated | 0.0149 | 0.0705 | 0.1996 | 8.0000e-004 | 0.0720        | 5.8000e-004  | 0.0726     | 0.0193         | 5.4000e-004   | 0.0198      |          | 81.7769   | 81.7769   | 3.7500e-003 |     | 81.8706 |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|-----------------------|-------------------------|----------|--------|-------------|------------|
|                       | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Single Family Housing | 9.52                    | 9.91     | 8.62   | 32,282      | 32,282     |
| Total                 | 9.52                    | 9.91     | 8.62   | 32,282      | 32,282     |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

## 4.4 Fleet Mix

| Land Use              | LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Single Family Housing | 0.550151 | 0.042593 | 0.202457 | 0.116946 | 0.015037 | 0.005825 | 0.021699 | 0.034933 | 0.002123 | 0.001780 | 0.004876 | 0.000710 | 0.000868 |

## 5.0 Energy Detail

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Historical Energy Use: N

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**5.1 Mitigation Measures Energy**

|                        | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e   |
|------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|--------|
| Category               | lb/day      |             |             |             |               |              |             |                |               |             | lb/day   |           |           |             |             |        |
| NaturalGas Mitigated   | 8.8000e-004 | 7.5300e-003 | 3.2000e-003 | 5.0000e-005 |               | 6.1000e-004  | 6.1000e-004 |                | 6.1000e-004   | 6.1000e-004 |          | 9.6140    | 9.6140    | 1.8000e-004 | 1.8000e-004 | 9.6711 |
| NaturalGas Unmitigated | 8.8000e-004 | 7.5300e-003 | 3.2000e-003 | 5.0000e-005 |               | 6.1000e-004  | 6.1000e-004 |                | 6.1000e-004   | 6.1000e-004 |          | 9.6140    | 9.6140    | 1.8000e-004 | 1.8000e-004 | 9.6711 |

**5.2 Energy by Land Use - NaturalGas****Unmitigated**

|                       | NaturalGas Use | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kBTU/yr        | lb/day             |                    |                    |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |                    |               |
| Single Family Housing | 81.7188        | 8.8000e-004        | 7.5300e-003        | 3.2000e-003        | 5.0000e-005        |               | 6.1000e-004        | 6.1000e-004        |                | 6.1000e-004        | 6.1000e-004        |          | 9.6140        | 9.6140        | 1.8000e-004        | 1.8000e-004        | 9.6711        |
| <b>Total</b>          |                | <b>8.8000e-004</b> | <b>7.5300e-003</b> | <b>3.2000e-003</b> | <b>5.0000e-005</b> |               | <b>6.1000e-004</b> | <b>6.1000e-004</b> |                | <b>6.1000e-004</b> | <b>6.1000e-004</b> |          | <b>9.6140</b> | <b>9.6140</b> | <b>1.8000e-004</b> | <b>1.8000e-004</b> | <b>9.6711</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**5.2 Energy by Land Use - NaturalGas****Mitigated**

|                       | NaturalGas Use | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kBTU/yr        | lb/day             |                    |                    |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |                    |               |
| Single Family Housing | 0.0817188      | 8.8000e-004        | 7.5300e-003        | 3.2000e-003        | 5.0000e-005        |               | 6.1000e-004        | 6.1000e-004        |                | 6.1000e-004        | 6.1000e-004        |          | 9.6140        | 9.6140        | 1.8000e-004        | 1.8000e-004        | 9.6711        |
| <b>Total</b>          |                | <b>8.8000e-004</b> | <b>7.5300e-003</b> | <b>3.2000e-003</b> | <b>5.0000e-005</b> |               | <b>6.1000e-004</b> | <b>6.1000e-004</b> |                | <b>6.1000e-004</b> | <b>6.1000e-004</b> |          | <b>9.6140</b> | <b>9.6140</b> | <b>1.8000e-004</b> | <b>1.8000e-004</b> | <b>9.6711</b> |

**6.0 Area Detail****6.1 Mitigation Measures Area**

|             | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O         | CO2e    |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|-------------|---------|
| Category    | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |        |             |         |
| Mitigated   | 0.3240 | 0.0217 | 0.5911 | 1.3000e-003 |               | 0.0769       | 0.0769     |                | 0.0769        | 0.0769      | 9.3669   | 18.1486   | 27.5155   | 0.0281 | 6.4000e-004 | 28.4069 |
| Unmitigated | 0.3240 | 0.0217 | 0.5911 | 1.3000e-003 |               | 0.0769       | 0.0769     |                | 0.0769        | 0.0769      | 9.3669   | 18.1486   | 27.5155   | 0.0281 | 6.4000e-004 | 28.4069 |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**6.2 Area by SubCategory****Unmitigated**

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| SubCategory           | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                |                |               |                    |                |
| Architectural Coating | 4.7400e-003   |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Consumer Products     | 0.0547        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Hearth                | 0.2620        | 0.0208        | 0.5086        | 1.3000e-003        |               | 0.0764        | 0.0764        |                | 0.0764        | 0.0764        | 9.3669        | 18.0000        | 27.3669        | 0.0279        | 6.4000e-004        | 28.2547        |
| Landscaping           | 2.4900e-003   | 9.5000e-004   | 0.0825        | 0.0000             |               | 4.6000e-004   | 4.6000e-004   |                | 4.6000e-004   | 4.6000e-004   |               | 0.1486         | 0.1486         | 1.4000e-004   |                    | 0.1521         |
| <b>Total</b>          | <b>0.3240</b> | <b>0.0217</b> | <b>0.5911</b> | <b>1.3000e-003</b> |               | <b>0.0769</b> | <b>0.0769</b> |                | <b>0.0769</b> | <b>0.0769</b> | <b>9.3669</b> | <b>18.1486</b> | <b>27.5155</b> | <b>0.0281</b> | <b>6.4000e-004</b> | <b>28.4068</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**6.2 Area by SubCategory****Mitigated**

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| SubCategory           | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                |                |               |                    |                |
| Architectural Coating | 4.7400e-003   |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Consumer Products     | 0.0547        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |               |                    | 0.0000         |
| Hearth                | 0.2620        | 0.0208        | 0.5086        | 1.3000e-003        |               | 0.0764        | 0.0764        |                | 0.0764        | 0.0764        | 9.3669        | 18.0000        | 27.3669        | 0.0279        | 6.4000e-004        | 28.2547        |
| Landscaping           | 2.4900e-003   | 9.5000e-004   | 0.0825        | 0.0000             |               | 4.6000e-004   | 4.6000e-004   |                | 4.6000e-004   | 4.6000e-004   |               | 0.1486         | 0.1486         | 1.4000e-004   |                    | 0.1521         |
| <b>Total</b>          | <b>0.3240</b> | <b>0.0217</b> | <b>0.5911</b> | <b>1.3000e-003</b> |               | <b>0.0769</b> | <b>0.0769</b> |                | <b>0.0769</b> | <b>0.0769</b> | <b>9.3669</b> | <b>18.1486</b> | <b>27.5155</b> | <b>0.0281</b> | <b>6.4000e-004</b> | <b>28.4068</b> |

**7.0 Water Detail****7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

**10.0 Stationary Equipment**

3130 Charing Cross (SFR) - South Coast AQMD Air District, Winter

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|------------|-------------|-------------|-----------|
|----------------|--------|-----------|------------|-------------|-------------|-----------|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|----------------|--------|----------------|-----------------|---------------|-----------|
|----------------|--------|----------------|-----------------|---------------|-----------|

**User Defined Equipment**

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

**11.0 Vegetation**

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## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

### 3130 Charing Cross (SFR)

#### South Coast AQMD Air District, Annual

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|------|---------------|-------------|--------------------|------------|
| Single Family Housing | 1.00 | Dwelling Unit | 0.14        | 2,764.00           | 3          |

### 1.2 Other Project Characteristics

|                                |                        |                                |       |                                  |       |
|--------------------------------|------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                  | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 31    |
| <b>Climate Zone</b>            | 12                     |                                |       | <b>Operational Year</b>          | 2023  |
| <b>Utility Company</b>         | Glendale Water & Power |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 1115.33                | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construct a new 3 story, 2,764 square-foot single-family residence with a 453 square-foot two-car garage. Total proposed grading for the entire site is 2,091 cubic yards (all export).

Land Use - Lot size is 6,069.5 square-feet (0.139 acre).

Construction Phase - Project involves 2,091 cubic yards (cut/all export)

Grading -

Energy Use -

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

| Table Name           | Column Name       | Default Value | New Value  |
|----------------------|-------------------|---------------|------------|
| tblConstructionPhase | NumDays           | 10.00         | 2.00       |
| tblConstructionPhase | NumDays           | 2.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | NumDaysWeek       | 5.00          | 6.00       |
| tblConstructionPhase | PhaseEndDate      | 12/20/2022    | 11/17/2022 |
| tblConstructionPhase | PhaseEndDate      | 12/6/2022     | 11/5/2022  |
| tblConstructionPhase | PhaseEndDate      | 7/14/2022     | 7/2/2022   |
| tblConstructionPhase | PhaseEndDate      | 7/19/2022     | 7/12/2022  |
| tblConstructionPhase | PhaseEndDate      | 12/13/2022    | 11/11/2022 |
| tblConstructionPhase | PhaseEndDate      | 7/15/2022     | 7/4/2022   |
| tblConstructionPhase | PhaseStartDate    | 12/14/2022    | 11/12/2022 |
| tblConstructionPhase | PhaseStartDate    | 7/20/2022     | 7/13/2022  |
| tblConstructionPhase | PhaseStartDate    | 7/16/2022     | 7/5/2022   |
| tblConstructionPhase | PhaseStartDate    | 12/7/2022     | 11/6/2022  |
| tblConstructionPhase | PhaseStartDate    | 7/15/2022     | 7/3/2022   |
| tblGrading           | MaterialExported  | 0.00          | 2,091.00   |
| tblLandUse           | LandUseSquareFeet | 1,800.00      | 2,764.00   |
| tblLandUse           | LotAcreage        | 0.32          | 0.14       |

## 2.0 Emissions Summary

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## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

## 2.1 Overall Construction

### Unmitigated Construction

|         | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e    |
|---------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|
| Year    | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |        |         |
| 2022    | 0.0493  | 0.4239 | 0.4201 | 7.4000e-004 | 5.2600e-003   | 0.0211       | 0.0264     | 2.0100e-003    | 0.0195        | 0.0215      | 0.0000   | 66.0972   | 66.0972   | 0.0184 | 0.0000 | 66.5564 |
| Maximum | 0.0493  | 0.4239 | 0.4201 | 7.4000e-004 | 5.2600e-003   | 0.0211       | 0.0264     | 2.0100e-003    | 0.0195        | 0.0215      | 0.0000   | 66.0972   | 66.0972   | 0.0184 | 0.0000 | 66.5564 |

### Mitigated Construction

|         | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e    |
|---------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|
| Year    | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |        |         |
| 2022    | 0.0493  | 0.4239 | 0.4201 | 7.4000e-004 | 5.2600e-003   | 0.0211       | 0.0264     | 2.0100e-003    | 0.0195        | 0.0215      | 0.0000   | 66.0972   | 66.0972   | 0.0184 | 0.0000 | 66.5563 |
| Maximum | 0.0493  | 0.4239 | 0.4201 | 7.4000e-004 | 5.2600e-003   | 0.0211       | 0.0264     | 2.0100e-003    | 0.0195        | 0.0215      | 0.0000   | 66.0972   | 66.0972   | 0.0184 | 0.0000 | 66.5563 |

[illegible]

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

| Quarter | Start Date | End Date  | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---------|------------|-----------|--|--|
| 1       | 7-1-2022   | 9-30-2022 | 0.3213                                       | 0.3213                                     |
|         |            | Highest   | 0.3213                                       | 0.3213                                     |

## 2.2 Overall Operational

Unmitigated Operational

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| Category     | tons/yr       |               |               |                    |               |                    |               |                    |                    |                    | MT/yr         |                |                |               |                    |                |
| Area         | 0.0144        | 3.8000e-004   | 0.0167        | 2.0000e-005        |               | 1.0100e-003        | 1.0100e-003   |                    | 1.0100e-003        | 1.0100e-003        | 0.1062        | 0.2210         | 0.3272         | 3.3000e-004   | 1.0000e-005        | 0.3377         |
| Energy       | 1.6000e-004   | 1.3700e-003   | 5.8000e-004   | 1.0000e-005        |               | 1.1000e-004        | 1.1000e-004   |                    | 1.1000e-004        | 1.1000e-004        | 0.0000        | 5.8094         | 5.8094         | 1.4000e-004   | 5.0000e-005        | 5.8283         |
| Mobile       | 2.5400e-003   | 0.0124        | 0.0353        | 1.4000e-004        | 0.0123        | 1.0000e-004        | 0.0124        | 3.2900e-003        | 9.0000e-005        | 3.3800e-003        | 0.0000        | 13.0589        | 13.0589        | 5.9000e-004   | 0.0000             | 13.0735        |
| Waste        |               |               |               |                    |               | 0.0000             | 0.0000        |                    | 0.0000             | 0.0000             | 0.2497        | 0.0000         | 0.2497         | 0.0148        | 0.0000             | 0.6186         |
| Water        |               |               |               |                    |               | 0.0000             | 0.0000        |                    | 0.0000             | 0.0000             | 0.0207        | 0.6601         | 0.6807         | 2.1400e-003   | 5.0000e-005        | 0.7502         |
| <b>Total</b> | <b>0.0171</b> | <b>0.0142</b> | <b>0.0525</b> | <b>1.7000e-004</b> | <b>0.0123</b> | <b>1.2200e-003</b> | <b>0.0135</b> | <b>3.2900e-003</b> | <b>1.2100e-003</b> | <b>4.5000e-003</b> | <b>0.3766</b> | <b>19.7492</b> | <b>20.1258</b> | <b>0.0180</b> | <b>1.1000e-004</b> | <b>20.6083</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**2.2 Overall Operational****Mitigated Operational**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| Category     | tons/yr       |               |               |                    |               |                    |               |                    |                    |                    | MT/yr         |                |                |               |                    |                |
| Area         | 0.0144        | 3.8000e-004   | 0.0167        | 2.0000e-005        |               | 1.0100e-003        | 1.0100e-003   |                    | 1.0100e-003        | 1.0100e-003        | 0.1062        | 0.2210         | 0.3272         | 3.3000e-004   | 1.0000e-005        | 0.3377         |
| Energy       | 1.6000e-004   | 1.3700e-003   | 5.8000e-004   | 1.0000e-005        |               | 1.1000e-004        | 1.1000e-004   |                    | 1.1000e-004        | 1.1000e-004        | 0.0000        | 5.8094         | 5.8094         | 1.4000e-004   | 5.0000e-005        | 5.8283         |
| Mobile       | 2.5400e-003   | 0.0124        | 0.0353        | 1.4000e-004        | 0.0123        | 1.0000e-004        | 0.0124        | 3.2900e-003        | 9.0000e-005        | 3.3800e-003        | 0.0000        | 13.0589        | 13.0589        | 5.9000e-004   | 0.0000             | 13.0735        |
| Waste        |               |               |               |                    |               | 0.0000             | 0.0000        |                    | 0.0000             | 0.0000             | 0.2497        | 0.0000         | 0.2497         | 0.0148        | 0.0000             | 0.6186         |
| Water        |               |               |               |                    |               | 0.0000             | 0.0000        |                    | 0.0000             | 0.0000             | 0.0207        | 0.6601         | 0.6807         | 2.1400e-003   | 5.0000e-005        | 0.7502         |
| <b>Total</b> | <b>0.0171</b> | <b>0.0142</b> | <b>0.0525</b> | <b>1.7000e-004</b> | <b>0.0123</b> | <b>1.2200e-003</b> | <b>0.0135</b> | <b>3.2900e-003</b> | <b>1.2100e-003</b> | <b>4.5000e-003</b> | <b>0.3766</b> | <b>19.7492</b> | <b>20.1258</b> | <b>0.0180</b> | <b>1.1000e-004</b> | <b>20.6083</b> |

|                          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2    | NBio-CO2    | Total CO2   | CH4         | N2O         | CO2e        |
|--------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Percent Reduction</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b>   | <b>0.00</b>  | <b>0.00</b> | <b>0.00</b>    | <b>0.00</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |

**3.0 Construction Detail****Construction Phase**

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| Phase Number | Phase Name            | Phase Type            | Start Date | End Date   | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 7/1/2022   | 7/2/2022   | 6             | 2        |                   |
| 2            | Site Preparation      | Site Preparation      | 7/3/2022   | 7/4/2022   | 6             | 1        |                   |
| 3            | Grading               | Grading               | 7/5/2022   | 7/12/2022  | 5             | 6        |                   |
| 4            | Building Construction | Building Construction | 7/13/2022  | 11/5/2022  | 6             | 100      |                   |
| 5            | Paving                | Paving                | 11/6/2022  | 11/11/2022 | 6             | 5        |                   |
| 6            | Architectural Coating | Architectural Coating | 11/12/2022 | 11/17/2022 | 6             | 5        |                   |

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 5,597; Residential Outdoor: 1,866; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0  
(Architectural Coating – sqft)

OffRoad Equipment

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| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |
| Paving                | Cement and Mortar Mixers  | 4      | 6.00        | 9           | 0.56        |
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Grading               | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Building Construction | Cranes                    | 1      | 4.00        | 231         | 0.29        |
| Building Construction | Forklifts                 | 2      | 6.00        | 89          | 0.20        |
| Site Preparation      | Graders                   | 1      | 8.00        | 187         | 0.41        |
| Paving                | Pavers                    | 1      | 7.00        | 130         | 0.42        |
| Paving                | Rollers                   | 1      | 7.00        | 80          | 0.38        |
| Demolition            | Rubber Tired Dozers       | 1      | 1.00        | 247         | 0.40        |
| Grading               | Rubber Tired Dozers       | 1      | 1.00        | 247         | 0.40        |
| Building Construction | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Demolition            | Tractors/Loaders/Backhoes | 2      | 6.00        | 97          | 0.37        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 6.00        | 97          | 0.37        |
| Paving                | Tractors/Loaders/Backhoes | 1      | 7.00        | 97          | 0.37        |
| Site Preparation      | Tractors/Loaders/Backhoes | 1      | 8.00        | 97          | 0.37        |

Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 4                       | 10.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Site Preparation      | 2                       | 5.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 4                       | 10.00              | 0.00               | 207.00              | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 5                       | 0.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 7                       | 18.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 0.00               | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.1 Mitigation Measures Construction****3.2 Demolition - 2022****Unmitigated Construction On-Site**

|              | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 7.1000e-004        | 6.4100e-003        | 7.4700e-003        | 1.0000e-005        |               | 3.4000e-004        | 3.4000e-004        |                | 3.2000e-004        | 3.2000e-004        | 0.0000        | 1.0414        | 1.0414        | 1.9000e-004        | 0.0000        | 1.0462        |
| <b>Total</b> | <b>7.1000e-004</b> | <b>6.4100e-003</b> | <b>7.4700e-003</b> | <b>1.0000e-005</b> |               | <b>3.4000e-004</b> | <b>3.4000e-004</b> |                | <b>3.2000e-004</b> | <b>3.2000e-004</b> | <b>0.0000</b> | <b>1.0414</b> | <b>1.0414</b> | <b>1.9000e-004</b> | <b>0.0000</b> | <b>1.0462</b> |



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**3.2 Demolition - 2022****Unmitigated Construction Off-Site**

|              | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10  | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |               |                    |               |                    |                    |               |                    | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 4.0000e-005        | 3.0000e-005        | 3.2000e-004        | 0.0000        | 1.1000e-004        | 0.0000        | 1.1000e-004        | 3.0000e-005        | 0.0000        | 3.0000e-005        | 0.0000        | 0.0921        | 0.0921        | 0.0000        | 0.0000        | 0.0922        |
| <b>Total</b> | <b>4.0000e-005</b> | <b>3.0000e-005</b> | <b>3.2000e-004</b> | <b>0.0000</b> | <b>1.1000e-004</b> | <b>0.0000</b> | <b>1.1000e-004</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>0.0921</b> | <b>0.0921</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0922</b> |

**Mitigated Construction On-Site**

|              | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 7.1000e-004        | 6.4100e-003        | 7.4700e-003        | 1.0000e-005        |               | 3.4000e-004        | 3.4000e-004        |                | 3.2000e-004        | 3.2000e-004        | 0.0000        | 1.0414        | 1.0414        | 1.9000e-004        | 0.0000        | 1.0462        |
| <b>Total</b> | <b>7.1000e-004</b> | <b>6.4100e-003</b> | <b>7.4700e-003</b> | <b>1.0000e-005</b> |               | <b>3.4000e-004</b> | <b>3.4000e-004</b> |                | <b>3.2000e-004</b> | <b>3.2000e-004</b> | <b>0.0000</b> | <b>1.0414</b> | <b>1.0414</b> | <b>1.9000e-004</b> | <b>0.0000</b> | <b>1.0462</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.2 Demolition - 2022****Mitigated Construction Off-Site**

|              | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10  | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |               |                    |               |                    |                    |               |                    | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 4.0000e-005        | 3.0000e-005        | 3.2000e-004        | 0.0000        | 1.1000e-004        | 0.0000        | 1.1000e-004        | 3.0000e-005        | 0.0000        | 3.0000e-005        | 0.0000        | 0.0921        | 0.0921        | 0.0000        | 0.0000        | 0.0922        |
| <b>Total</b> | <b>4.0000e-005</b> | <b>3.0000e-005</b> | <b>3.2000e-004</b> | <b>0.0000</b> | <b>1.1000e-004</b> | <b>0.0000</b> | <b>1.1000e-004</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>0.0921</b> | <b>0.0921</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0922</b> |

**3.3 Site Preparation - 2022****Unmitigated Construction On-Site**

|               | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|---------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category      | tons/yr            |                    |                    |               |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Fugitive Dust |                    |                    |                    |               | 2.7000e-004        | 0.0000             | 2.7000e-004        | 3.0000e-005        | 0.0000             | 3.0000e-005        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 2.9000e-004        | 3.4700e-003        | 1.9800e-003        | 0.0000        |                    | 1.3000e-004        | 1.3000e-004        |                    | 1.2000e-004        | 1.2000e-004        | 0.0000        | 0.4275        | 0.4275        | 1.4000e-004        | 0.0000        | 0.4310        |
| <b>Total</b>  | <b>2.9000e-004</b> | <b>3.4700e-003</b> | <b>1.9800e-003</b> | <b>0.0000</b> | <b>2.7000e-004</b> | <b>1.3000e-004</b> | <b>4.0000e-004</b> | <b>3.0000e-005</b> | <b>1.2000e-004</b> | <b>1.5000e-004</b> | <b>0.0000</b> | <b>0.4275</b> | <b>0.4275</b> | <b>1.4000e-004</b> | <b>0.0000</b> | <b>0.4310</b> |

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**3.3 Site Preparation - 2022****Unmitigated Construction Off-Site**

|              | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10  | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |               |                    |               |                    |                    |               |                    | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 1.0000e-005        | 1.0000e-005        | 8.0000e-005        | 0.0000        | 3.0000e-005        | 0.0000        | 3.0000e-005        | 1.0000e-005        | 0.0000        | 1.0000e-005        | 0.0000        | 0.0230        | 0.0230        | 0.0000        | 0.0000        | 0.0231        |
| <b>Total</b> | <b>1.0000e-005</b> | <b>1.0000e-005</b> | <b>8.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.0230</b> | <b>0.0230</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0231</b> |

**Mitigated Construction On-Site**

|               | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|---------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category      | tons/yr            |                    |                    |               |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Fugitive Dust |                    |                    |                    |               | 2.7000e-004        | 0.0000             | 2.7000e-004        | 3.0000e-005        | 0.0000             | 3.0000e-005        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 2.9000e-004        | 3.4700e-003        | 1.9800e-003        | 0.0000        |                    | 1.3000e-004        | 1.3000e-004        |                    | 1.2000e-004        | 1.2000e-004        | 0.0000        | 0.4275        | 0.4275        | 1.4000e-004        | 0.0000        | 0.4310        |
| <b>Total</b>  | <b>2.9000e-004</b> | <b>3.4700e-003</b> | <b>1.9800e-003</b> | <b>0.0000</b> | <b>2.7000e-004</b> | <b>1.3000e-004</b> | <b>4.0000e-004</b> | <b>3.0000e-005</b> | <b>1.2000e-004</b> | <b>1.5000e-004</b> | <b>0.0000</b> | <b>0.4275</b> | <b>0.4275</b> | <b>1.4000e-004</b> | <b>0.0000</b> | <b>0.4310</b> |

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**3.3 Site Preparation - 2022****Mitigated Construction Off-Site**

|              | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10  | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |               |                    |               |                    |                    |               |                    | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 1.0000e-005        | 1.0000e-005        | 8.0000e-005        | 0.0000        | 3.0000e-005        | 0.0000        | 3.0000e-005        | 1.0000e-005        | 0.0000        | 1.0000e-005        | 0.0000        | 0.0230        | 0.0230        | 0.0000        | 0.0000        | 0.0231        |
| <b>Total</b> | <b>1.0000e-005</b> | <b>1.0000e-005</b> | <b>8.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.0230</b> | <b>0.0230</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0231</b> |

**3.4 Grading - 2022****Unmitigated Construction On-Site**

|               | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category      | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Fugitive Dust |                    |               |               |                    | 2.2600e-003        | 0.0000             | 2.2600e-003        | 1.2400e-003        | 0.0000             | 1.2400e-003        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 2.1300e-003        | 0.0192        | 0.0224        | 4.0000e-005        |                    | 1.0100e-003        | 1.0100e-003        |                    | 9.7000e-004        | 9.7000e-004        | 0.0000        | 3.1241        | 3.1241        | 5.8000e-004        | 0.0000        | 3.1385        |
| <b>Total</b>  | <b>2.1300e-003</b> | <b>0.0192</b> | <b>0.0224</b> | <b>4.0000e-005</b> | <b>2.2600e-003</b> | <b>1.0100e-003</b> | <b>3.2700e-003</b> | <b>1.2400e-003</b> | <b>9.7000e-004</b> | <b>2.2100e-003</b> | <b>0.0000</b> | <b>3.1241</b> | <b>3.1241</b> | <b>5.8000e-004</b> | <b>0.0000</b> | <b>3.1385</b> |

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**3.4 Grading - 2022****Unmitigated Construction Off-Site**

|              | ROG                | NOx           | CO                 | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |                    |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 7.2000e-004        | 0.0249        | 5.6500e-003        | 8.0000e-005        | 1.7800e-003        | 7.0000e-005        | 1.8500e-003        | 4.9000e-004        | 7.0000e-005        | 5.6000e-004        | 0.0000        | 7.6367        | 7.6367        | 5.2000e-004        | 0.0000        | 7.6497        |
| Vendor       | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.2000e-004        | 8.0000e-005   | 9.7000e-004        | 0.0000             | 3.3000e-004        | 0.0000             | 3.3000e-004        | 9.0000e-005        | 0.0000             | 9.0000e-005        | 0.0000        | 0.2764        | 0.2764        | 1.0000e-005        | 0.0000        | 0.2766        |
| <b>Total</b> | <b>8.4000e-004</b> | <b>0.0250</b> | <b>6.6200e-003</b> | <b>8.0000e-005</b> | <b>2.1100e-003</b> | <b>7.0000e-005</b> | <b>2.1800e-003</b> | <b>5.8000e-004</b> | <b>7.0000e-005</b> | <b>6.5000e-004</b> | <b>0.0000</b> | <b>7.9131</b> | <b>7.9131</b> | <b>5.3000e-004</b> | <b>0.0000</b> | <b>7.9262</b> |

**Mitigated Construction On-Site**

|               | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category      | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Fugitive Dust |                    |               |               |                    | 2.2600e-003        | 0.0000             | 2.2600e-003        | 1.2400e-003        | 0.0000             | 1.2400e-003        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 2.1300e-003        | 0.0192        | 0.0224        | 4.0000e-005        |                    | 1.0100e-003        | 1.0100e-003        |                    | 9.7000e-004        | 9.7000e-004        | 0.0000        | 3.1241        | 3.1241        | 5.8000e-004        | 0.0000        | 3.1385        |
| <b>Total</b>  | <b>2.1300e-003</b> | <b>0.0192</b> | <b>0.0224</b> | <b>4.0000e-005</b> | <b>2.2600e-003</b> | <b>1.0100e-003</b> | <b>3.2700e-003</b> | <b>1.2400e-003</b> | <b>9.7000e-004</b> | <b>2.2100e-003</b> | <b>0.0000</b> | <b>3.1241</b> | <b>3.1241</b> | <b>5.8000e-004</b> | <b>0.0000</b> | <b>3.1385</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.4 Grading - 2022****Mitigated Construction Off-Site**

|              | ROG                | NOx           | CO                 | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |                    |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 7.2000e-004        | 0.0249        | 5.6500e-003        | 8.0000e-005        | 1.7800e-003        | 7.0000e-005        | 1.8500e-003        | 4.9000e-004        | 7.0000e-005        | 5.6000e-004        | 0.0000        | 7.6367        | 7.6367        | 5.2000e-004        | 0.0000        | 7.6497        |
| Vendor       | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.2000e-004        | 8.0000e-005   | 9.7000e-004        | 0.0000             | 3.3000e-004        | 0.0000             | 3.3000e-004        | 9.0000e-005        | 0.0000             | 9.0000e-005        | 0.0000        | 0.2764        | 0.2764        | 1.0000e-005        | 0.0000        | 0.2766        |
| <b>Total</b> | <b>8.4000e-004</b> | <b>0.0250</b> | <b>6.6200e-003</b> | <b>8.0000e-005</b> | <b>2.1100e-003</b> | <b>7.0000e-005</b> | <b>2.1800e-003</b> | <b>5.8000e-004</b> | <b>7.0000e-005</b> | <b>6.5000e-004</b> | <b>0.0000</b> | <b>7.9131</b> | <b>7.9131</b> | <b>5.3000e-004</b> | <b>0.0000</b> | <b>7.9262</b> |

**3.5 Building Construction - 2022****Unmitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |               |               |                |
| Off-Road     | 0.0343        | 0.3513        | 0.3576        | 5.7000e-004        |               | 0.0186        | 0.0186        |                | 0.0171        | 0.0171        | 0.0000        | 50.0739        | 50.0739        | 0.0162        | 0.0000        | 50.4787        |
| <b>Total</b> | <b>0.0343</b> | <b>0.3513</b> | <b>0.3576</b> | <b>5.7000e-004</b> |               | <b>0.0186</b> | <b>0.0186</b> |                | <b>0.0171</b> | <b>0.0171</b> | <b>0.0000</b> | <b>50.0739</b> | <b>50.0739</b> | <b>0.0162</b> | <b>0.0000</b> | <b>50.4787</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.5 Building Construction - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr       |               |               |               |               |               |               |                |               |               | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**Mitigated Construction On-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |               |               |                |
| Off-Road     | 0.0343        | 0.3513        | 0.3576        | 5.7000e-004        |               | 0.0186        | 0.0186        |                | 0.0171        | 0.0171        | 0.0000        | 50.0738        | 50.0738        | 0.0162        | 0.0000        | 50.4787        |
| <b>Total</b> | <b>0.0343</b> | <b>0.3513</b> | <b>0.3576</b> | <b>5.7000e-004</b> |               | <b>0.0186</b> | <b>0.0186</b> |                | <b>0.0171</b> | <b>0.0171</b> | <b>0.0000</b> | <b>50.0738</b> | <b>50.0738</b> | <b>0.0162</b> | <b>0.0000</b> | <b>50.4787</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.5 Building Construction - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr       |               |               |               |               |               |               |                |               |               | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**3.6 Paving - 2022****Unmitigated Construction On-Site**

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 1.6200e-003        | 0.0148        | 0.0176        | 3.0000e-005        |               | 7.4000e-004        | 7.4000e-004        |                | 6.9000e-004        | 6.9000e-004        | 0.0000        | 2.3492        | 2.3492        | 6.8000e-004        | 0.0000        | 2.3663        |
| Paving       | 0.0000             |               |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| <b>Total</b> | <b>1.6200e-003</b> | <b>0.0148</b> | <b>0.0176</b> | <b>3.0000e-005</b> |               | <b>7.4000e-004</b> | <b>7.4000e-004</b> |                | <b>6.9000e-004</b> | <b>6.9000e-004</b> | <b>0.0000</b> | <b>2.3492</b> | <b>2.3492</b> | <b>6.8000e-004</b> | <b>0.0000</b> | <b>2.3663</b> |



## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.6 Paving - 2022****Unmitigated Construction Off-Site**

|              | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10  | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |               |                    |               |                    |                    |               |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.8000e-004        | 1.3000e-004        | 1.4500e-003        | 0.0000        | 4.9000e-004        | 0.0000        | 5.0000e-004        | 1.3000e-004        | 0.0000        | 1.3000e-004        | 0.0000        | 0.4146        | 0.4146        | 1.0000e-005        | 0.0000        | 0.4149        |
| <b>Total</b> | <b>1.8000e-004</b> | <b>1.3000e-004</b> | <b>1.4500e-003</b> | <b>0.0000</b> | <b>4.9000e-004</b> | <b>0.0000</b> | <b>5.0000e-004</b> | <b>1.3000e-004</b> | <b>0.0000</b> | <b>1.3000e-004</b> | <b>0.0000</b> | <b>0.4146</b> | <b>0.4146</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.4149</b> |

**Mitigated Construction On-Site**

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 1.6200e-003        | 0.0148        | 0.0176        | 3.0000e-005        |               | 7.4000e-004        | 7.4000e-004        |                | 6.9000e-004        | 6.9000e-004        | 0.0000        | 2.3492        | 2.3492        | 6.8000e-004        | 0.0000        | 2.3663        |
| Paving       | 0.0000             |               |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| <b>Total</b> | <b>1.6200e-003</b> | <b>0.0148</b> | <b>0.0176</b> | <b>3.0000e-005</b> |               | <b>7.4000e-004</b> | <b>7.4000e-004</b> |                | <b>6.9000e-004</b> | <b>6.9000e-004</b> | <b>0.0000</b> | <b>2.3492</b> | <b>2.3492</b> | <b>6.8000e-004</b> | <b>0.0000</b> | <b>2.3663</b> |

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

**3.6 Paving - 2022****Mitigated Construction Off-Site**

|              | ROG                | NOx                | CO                 | SO2           | Fugitive PM10      | Exhaust PM10  | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |                    |               |                    |               |                    |                    |               |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.8000e-004        | 1.3000e-004        | 1.4500e-003        | 0.0000        | 4.9000e-004        | 0.0000        | 5.0000e-004        | 1.3000e-004        | 0.0000        | 1.3000e-004        | 0.0000        | 0.4146        | 0.4146        | 1.0000e-005        | 0.0000        | 0.4149        |
| <b>Total</b> | <b>1.8000e-004</b> | <b>1.3000e-004</b> | <b>1.4500e-003</b> | <b>0.0000</b> | <b>4.9000e-004</b> | <b>0.0000</b> | <b>5.0000e-004</b> | <b>1.3000e-004</b> | <b>0.0000</b> | <b>1.3000e-004</b> | <b>0.0000</b> | <b>0.4146</b> | <b>0.4146</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.4149</b> |

**3.7 Architectural Coating - 2022****Unmitigated Construction On-Site**

|                 | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category        | tons/yr            |                    |                    |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Archit. Coating | 8.6500e-003        |                    |                    |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road        | 5.1000e-004        | 3.5200e-003        | 4.5300e-003        | 1.0000e-005        |               | 2.0000e-004        | 2.0000e-004        |                | 2.0000e-004        | 2.0000e-004        | 0.0000        | 0.6383        | 0.6383        | 4.0000e-005        | 0.0000        | 0.6394        |
| <b>Total</b>    | <b>9.1600e-003</b> | <b>3.5200e-003</b> | <b>4.5300e-003</b> | <b>1.0000e-005</b> |               | <b>2.0000e-004</b> | <b>2.0000e-004</b> |                | <b>2.0000e-004</b> | <b>2.0000e-004</b> | <b>0.0000</b> | <b>0.6383</b> | <b>0.6383</b> | <b>4.0000e-005</b> | <b>0.0000</b> | <b>0.6394</b> |

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**3.7 Architectural Coating - 2022****Unmitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr       |               |               |               |               |               |               |                |               |               | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**Mitigated Construction On-Site**

|                 | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category        | tons/yr            |                    |                    |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Archit. Coating | 8.6500e-003        |                    |                    |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road        | 5.1000e-004        | 3.5200e-003        | 4.5300e-003        | 1.0000e-005        |               | 2.0000e-004        | 2.0000e-004        |                | 2.0000e-004        | 2.0000e-004        | 0.0000        | 0.6383        | 0.6383        | 4.0000e-005        | 0.0000        | 0.6394        |
| <b>Total</b>    | <b>9.1600e-003</b> | <b>3.5200e-003</b> | <b>4.5300e-003</b> | <b>1.0000e-005</b> |               | <b>2.0000e-004</b> | <b>2.0000e-004</b> |                | <b>2.0000e-004</b> | <b>2.0000e-004</b> | <b>0.0000</b> | <b>0.6383</b> | <b>0.6383</b> | <b>4.0000e-005</b> | <b>0.0000</b> | <b>0.6394</b> |

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**3.7 Architectural Coating - 2022****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2     | Total CO2     | CH4           | N2O           | CO2e          |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category     | tons/yr       |               |               |               |               |               |               |                |               |               | MT/yr         |               |               |               |               |               |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Worker       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

|             | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|-------------|-------------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category    | tons/yr     |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |        |         |
| Mitigated   | 2.5400e-003 | 0.0124 | 0.0353 | 1.4000e-004 | 0.0123        | 1.0000e-004  | 0.0124     | 3.2900e-003    | 9.0000e-005   | 3.3800e-003 | 0.0000   | 13.0589   | 13.0589   | 5.9000e-004 | 0.0000 | 13.0735 |
| Unmitigated | 2.5400e-003 | 0.0124 | 0.0353 | 1.4000e-004 | 0.0123        | 1.0000e-004  | 0.0124     | 3.2900e-003    | 9.0000e-005   | 3.3800e-003 | 0.0000   | 13.0589   | 13.0589   | 5.9000e-004 | 0.0000 | 13.0735 |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|-----------------------|-------------------------|----------|--------|-------------|------------|
|                       | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Single Family Housing | 9.52                    | 9.91     | 8.62   | 32,282      | 32,282     |
| Total                 | 9.52                    | 9.91     | 8.62   | 32,282      | 32,282     |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

## 4.4 Fleet Mix

| Land Use              | LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Single Family Housing | 0.550151 | 0.042593 | 0.202457 | 0.116946 | 0.015037 | 0.005825 | 0.021699 | 0.034933 | 0.002123 | 0.001780 | 0.004876 | 0.000710 | 0.000868 |

## 5.0 Energy Detail

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Historical Energy Use: N

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

## 5.1 Mitigation Measures Energy

|                         | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e   |
|-------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|--------|
| Category                | tons/yr     |             |             |             |               |              |             |                |               |             | MT/yr    |           |           |             |             |        |
| Electricity Mitigated   |             |             |             |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 4.2177    | 4.2177    | 1.1000e-004 | 2.0000e-005 | 4.2272 |
| Electricity Unmitigated |             |             |             |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 4.2177    | 4.2177    | 1.1000e-004 | 2.0000e-005 | 4.2272 |
| NaturalGas Mitigated    | 1.6000e-004 | 1.3700e-003 | 5.8000e-004 | 1.0000e-005 |               | 1.1000e-004  | 1.1000e-004 |                | 1.1000e-004   | 1.1000e-004 | 0.0000   | 1.5917    | 1.5917    | 3.0000e-005 | 3.0000e-005 | 1.6012 |
| NaturalGas Unmitigated  | 1.6000e-004 | 1.3700e-003 | 5.8000e-004 | 1.0000e-005 |               | 1.1000e-004  | 1.1000e-004 |                | 1.1000e-004   | 1.1000e-004 | 0.0000   | 1.5917    | 1.5917    | 3.0000e-005 | 3.0000e-005 | 1.6012 |

## 5.2 Energy by Land Use - NaturalGas

Unmitigated

|                       | NaturalGas Use | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kBTU/yr        | tons/yr            |                    |                    |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |                    |               |
| Single Family Housing | 29827.4        | 1.6000e-004        | 1.3700e-003        | 5.8000e-004        | 1.0000e-005        |               | 1.1000e-004        | 1.1000e-004        |                | 1.1000e-004        | 1.1000e-004        | 0.0000        | 1.5917        | 1.5917        | 3.0000e-005        | 3.0000e-005        | 1.6012        |
| <b>Total</b>          |                | <b>1.6000e-004</b> | <b>1.3700e-003</b> | <b>5.8000e-004</b> | <b>1.0000e-005</b> |               | <b>1.1000e-004</b> | <b>1.1000e-004</b> |                | <b>1.1000e-004</b> | <b>1.1000e-004</b> | <b>0.0000</b> | <b>1.5917</b> | <b>1.5917</b> | <b>3.0000e-005</b> | <b>3.0000e-005</b> | <b>1.6012</b> |

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**5.2 Energy by Land Use - NaturalGas****Mitigated**

|                       | NaturalGas Use | ROG                | NOx                | CO                 | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kBTU/yr        | tons/yr            |                    |                    |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |                    |               |
| Single Family Housing | 29827.4        | 1.6000e-004        | 1.3700e-003        | 5.8000e-004        | 1.0000e-005        |               | 1.1000e-004        | 1.1000e-004        |                | 1.1000e-004        | 1.1000e-004        | 0.0000        | 1.5917        | 1.5917        | 3.0000e-005        | 3.0000e-005        | 1.6012        |
| <b>Total</b>          |                | <b>1.6000e-004</b> | <b>1.3700e-003</b> | <b>5.8000e-004</b> | <b>1.0000e-005</b> |               | <b>1.1000e-004</b> | <b>1.1000e-004</b> |                | <b>1.1000e-004</b> | <b>1.1000e-004</b> | <b>0.0000</b> | <b>1.5917</b> | <b>1.5917</b> | <b>3.0000e-005</b> | <b>3.0000e-005</b> | <b>1.6012</b> |

**5.3 Energy by Land Use - Electricity****Unmitigated**

|                       | Electricity Use | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|-----------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kWh/yr          | MT/yr         |                    |                    |               |
| Single Family Housing | 8336.84         | 4.2177        | 1.1000e-004        | 2.0000e-005        | 4.2272        |
| <b>Total</b>          |                 | <b>4.2177</b> | <b>1.1000e-004</b> | <b>2.0000e-005</b> | <b>4.2272</b> |

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**5.3 Energy by Land Use - Electricity****Mitigated**

|                       | Electricity Use | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|-----------------|---------------|--------------------|--------------------|---------------|
| Land Use              | kWh/yr          | MT/yr         |                    |                    |               |
| Single Family Housing | 8336.84         | 4.2177        | 1.1000e-004        | 2.0000e-005        | 4.2272        |
| <b>Total</b>          |                 | <b>4.2177</b> | <b>1.1000e-004</b> | <b>2.0000e-005</b> | <b>4.2272</b> |

**6.0 Area Detail****6.1 Mitigation Measures Area**

|             | ROG     | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e   |
|-------------|---------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|--------|
| Category    | tons/yr |             |        |             |               |              |             |                |               |             | MT/yr    |           |           |             |             |        |
| Mitigated   | 0.0144  | 3.8000e-004 | 0.0167 | 2.0000e-005 |               | 1.0100e-003  | 1.0100e-003 |                | 1.0100e-003   | 1.0100e-003 | 0.1062   | 0.2210    | 0.3272    | 3.3000e-004 | 1.0000e-005 | 0.3377 |
| Unmitigated | 0.0144  | 3.8000e-004 | 0.0167 | 2.0000e-005 |               | 1.0100e-003  | 1.0100e-003 |                | 1.0100e-003   | 1.0100e-003 | 0.1062   | 0.2210    | 0.3272    | 3.3000e-004 | 1.0000e-005 | 0.3377 |



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**6.2 Area by SubCategory****Unmitigated**

|                       | ROG           | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|---------------|
| SubCategory           | tons/yr       |                    |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |                    |               |
| Architectural Coating | 8.6000e-004   |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000        |
| Consumer Products     | 9.9900e-003   |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000        |
| Hearth                | 3.2800e-003   | 2.6000e-004        | 6.3600e-003   | 2.0000e-005        |               | 9.5000e-004        | 9.5000e-004        |                | 9.5000e-004        | 9.5000e-004        | 0.1062        | 0.2041        | 0.3103        | 3.2000e-004        | 1.0000e-005        | 0.3204        |
| Landscaping           | 3.1000e-004   | 1.2000e-004        | 0.0103        | 0.0000             |               | 6.0000e-005        | 6.0000e-005        |                | 6.0000e-005        | 6.0000e-005        | 0.0000        | 0.0169        | 0.0169        | 2.0000e-005        | 0.0000             | 0.0173        |
| <b>Total</b>          | <b>0.0144</b> | <b>3.8000e-004</b> | <b>0.0167</b> | <b>2.0000e-005</b> |               | <b>1.0100e-003</b> | <b>1.0100e-003</b> |                | <b>1.0100e-003</b> | <b>1.0100e-003</b> | <b>0.1062</b> | <b>0.2210</b> | <b>0.3272</b> | <b>3.4000e-004</b> | <b>1.0000e-005</b> | <b>0.3377</b> |

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**6.2 Area by SubCategory****Mitigated**

|                       | ROG           | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|---------------|
| SubCategory           | tons/yr       |                    |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |                    |               |
| Architectural Coating | 8.6000e-004   |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000        |
| Consumer Products     | 9.9900e-003   |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000        |
| Hearth                | 3.2800e-003   | 2.6000e-004        | 6.3600e-003   | 2.0000e-005        |               | 9.5000e-004        | 9.5000e-004        |                | 9.5000e-004        | 9.5000e-004        | 0.1062        | 0.2041        | 0.3103        | 3.2000e-004        | 1.0000e-005        | 0.3204        |
| Landscaping           | 3.1000e-004   | 1.2000e-004        | 0.0103        | 0.0000             |               | 6.0000e-005        | 6.0000e-005        |                | 6.0000e-005        | 6.0000e-005        | 0.0000        | 0.0169        | 0.0169        | 2.0000e-005        | 0.0000             | 0.0173        |
| <b>Total</b>          | <b>0.0144</b> | <b>3.8000e-004</b> | <b>0.0167</b> | <b>2.0000e-005</b> |               | <b>1.0100e-003</b> | <b>1.0100e-003</b> |                | <b>1.0100e-003</b> | <b>1.0100e-003</b> | <b>0.1062</b> | <b>0.2210</b> | <b>0.3272</b> | <b>3.4000e-004</b> | <b>1.0000e-005</b> | <b>0.3377</b> |

**7.0 Water Detail****7.1 Mitigation Measures Water**

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|             | Total CO2 | CH4         | N2O         | CO2e   |
|-------------|-----------|-------------|-------------|--------|
| Category    | MT/yr     |             |             |        |
| Mitigated   | 0.6807    | 2.1400e-003 | 5.0000e-005 | 0.7502 |
| Unmitigated | 0.6807    | 2.1400e-003 | 5.0000e-005 | 0.7502 |

**7.2 Water by Land Use****Unmitigated**

|                       | Indoor/Outdoor Use   | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------------|---------------|--------------------|--------------------|---------------|
| Land Use              | Mgal                 | MT/yr         |                    |                    |               |
| Single Family Housing | 0.065154 / 0.0410754 | 0.6807        | 2.1400e-003        | 5.0000e-005        | 0.7502        |
| <b>Total</b>          |                      | <b>0.6807</b> | <b>2.1400e-003</b> | <b>5.0000e-005</b> | <b>0.7502</b> |

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**7.2 Water by Land Use****Mitigated**

|                       | Indoor/Outdoor Use   | Total CO2     | CH4                | N2O                | CO2e          |
|-----------------------|----------------------|---------------|--------------------|--------------------|---------------|
| Land Use              | Mgal                 | MT/yr         |                    |                    |               |
| Single Family Housing | 0.065154 / 0.0410754 | 0.6807        | 2.1400e-003        | 5.0000e-005        | 0.7502        |
| <b>Total</b>          |                      | <b>0.6807</b> | <b>2.1400e-003</b> | <b>5.0000e-005</b> | <b>0.7502</b> |

**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

|             | Total CO2 | CH4    | N2O    | CO2e   |
|-------------|-----------|--------|--------|--------|
|             | MT/yr     |        |        |        |
| Mitigated   | 0.2497    | 0.0148 | 0.0000 | 0.6186 |
| Unmitigated | 0.2497    | 0.0148 | 0.0000 | 0.6186 |

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**8.2 Waste by Land Use****Unmitigated**

|                       | Waste Disposed | Total CO2     | CH4           | N2O           | CO2e          |
|-----------------------|----------------|---------------|---------------|---------------|---------------|
| Land Use              | tons           | MT/yr         |               |               |               |
| Single Family Housing | 1.23           | 0.2497        | 0.0148        | 0.0000        | 0.6186        |
| <b>Total</b>          |                | <b>0.2497</b> | <b>0.0148</b> | <b>0.0000</b> | <b>0.6186</b> |

**Mitigated**

|                       | Waste Disposed | Total CO2     | CH4           | N2O           | CO2e          |
|-----------------------|----------------|---------------|---------------|---------------|---------------|
| Land Use              | tons           | MT/yr         |               |               |               |
| Single Family Housing | 1.23           | 0.2497        | 0.0148        | 0.0000        | 0.6186        |
| <b>Total</b>          |                | <b>0.2497</b> | <b>0.0148</b> | <b>0.0000</b> | <b>0.6186</b> |

**9.0 Operational Offroad**

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## 3130 Charing Cross (SFR) - South Coast AQMD Air District, Annual

## 10.0 Stationary Equipment

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### Fire Pumps and Emergency Generators

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|------------|-------------|-------------|-----------|
|----------------|--------|-----------|------------|-------------|-------------|-----------|

### Boilers

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|----------------|--------|----------------|-----------------|---------------|-----------|
|----------------|--------|----------------|-----------------|---------------|-----------|

### User Defined Equipment

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

## 11.0 Vegetation

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REPORT OF  
GEOTECHNICAL INVESTIGATION  
PROPOSED NEW SINGLE FAMILY RESIDENCE  
LOT 1 OF TRACT NO. 9327  
AND LOT 1 AND ½ VAC WALK ADJ ON NE OF TRACT NO. 9328  
3130 CHARING CROSS ROAD  
GLENDALE, CALIFORNIA 91206

FOR  
MR. SAM NAZAYIAN

PROJECT NO. 19-523-22  
SEPTEMBER 20, 2019



a division of Applied Soil Technology, Inc.

GEOTECHNICAL & ENVIRONMENTAL ENGINEERING CONSULTANTS

September 20, 2019

19-523-22

Mr. Sam Nazaryan  
2048 Ashington Drive  
Glendale, California 91206

Subject: Report Of Geotechnical Investigation  
Proposed New Single Family Residence  
Lot 1 Of Tract NO. 9327  
And Lot 1 And ½ VAC Walk Adj On NE Of Tract NO. 9328  
3130 Charing Cross Road  
Glendale, California 91206

Dear Mr. Nazaryan:

### INTRODUCTION

This report presents the results of a geotechnical investigation for the subject project. During the course of this investigation, the engineering properties of the subsurface materials were evaluated in order to evaluate slope stability and to provide recommendations for design and construction of temporary excavations, retaining walls, foundations, and grading. The investigation included geologic mapping, subsurface exploration, soil and bedrock sampling, laboratory testing, engineering and geological evaluation and analysis, consultation and preparation of this report.

During the course of this investigation, the provided topographic survey map prepared by the offices of M&G Civil Engineering & Land Surveying was used as reference. Also used as reference during this investigation, were the Architectural Plans by the offices of DOMUS Design. We have utilized the provided plans as “base map” for preparation of our plan and section drawings contained in this report.

The enclosed Geologic Map & Site Plan; Drawing No. 1, shows the surface geology and approximate locations of the exploratory test pits in relation to the site boundaries and the proposed building and walls. This drawing also shows the approximate locations of the Geologic Cross Sections A-A' and B-B'. Drawing Nos. 2



and 3 show the profiles of the Geologic Cross Sections A-A' and B-B' with respect to the existing and proposed grades.

Figure No. 1 show the Site Vicinity Map. Figure No. 2 shows the Regional Topographic Map. Figure No. 3 shows the Regional Geologic Map.

The attached Appendix I, describes the method of field exploration. Figure Nos. I-1 through I-5 present summaries of the materials encountered at the locations of our exploratory test pits. Figure No. I-6 presents a key to the log of exploratory test pits.

The attached Appendix II describes the laboratory testing procedures. Figure Nos. II-1 and II-2 present the results of direct shear and consolidation tests on selected undisturbed samples.

### **PROJECT CONSIDERATIONS**

It is our understanding that the proposed project will consist of construction of a single family residence on the site. The proposed building is expected to be a 2-story structure over garage at the street level.

It is expected that the finished grades of the proposed garage, building and the backyard will be created through mainly cutting operations in a form of terraces. The resulting vertical cuts on the upslope side of the building pad will be supported by retaining walls with vertical heights ranging from about 5 feet to as much as 18 feet.

The upper most retaining wall supporting the ascending slope and the small wall below in the backyard will be designed as cantilevered systems. The upper most wall will support cuts of soil (fill and native) and bedrock. The walls incorporated into the proposed building will be designed as restrained walls. These walls will support mainly cuts of granitic bedrock. The approximate locations of the proposed building and other improvements are shown on the enclosed Geologic Map & Site Plan; Drawing No. 1. Geologic Cross Sections A-A' and B-B' show the profiles of the proposed improvements (building and walls) with respect to the existing and proposed grades.

The upper most retaining wall will support the ascending slope. This retaining wall will have a freeboard of at least 2 feet and a concrete paved drain (swale) to divert surface water and collect normal erosion debris which will be cleaned after rainy seasons. See the enclosed Cross Section A-A'; Drawing No. 2.

Based on the results of our investigation, it is expected that the planned excavation will be made through minor amount of soil and granitic rock. With no through-going plane of weakness. Therefore, all retaining walls for this project can be designed based on normal lateral earth pressures.

During the course of site grading work, temporary excavation will be made to create the proposed finished grades. Although adequate space is available to make unsupported/open excavation slopes, it may be desirable to use shoring for the high cuts. Use of shoring will eliminate the following;

1. Use of relatively large spread footings required for tall walls;
2. Over-excavation beyond the planned line of excavation; and
3. Subsequent backfilling within the over-excavation zone.

The shoring piles will be incorporated into the new walls and will be part of the permanent structure. The lower portion of the piles below the finished grade will be used for support of the gravity loads of the building and walls through skin friction.

Unsupported/open excavation slopes can be used for all cuts where adequate horizontal spacing (a distance equal to the vertical height of excavation) beyond the planned line of excavation is available. The slopes of the unsupported/open excavation cuts should be made using the gradients as recommended in this report.

Structural loading data was not available during the course of preparation of this report. For the purpose of this investigation, however, it is assumed that maximum concentrated loads will be on the order of 120 kips, combined dead plus frequently applied live loads. The retaining wall footings are expected to have loads of on the order of 9 kips per lineal foot.

### **ANTICIPATED SITE GRADING WORK**

It is expected that the site grading work will involve mainly cutting operations in order to create the proposed finished grades in a form of terraces. Some wall backfilling will also be made within the over-excavated areas. The excavated sandy soils can be used for wall backfilling. Rocks should be broken down to acceptable pieces (less than 4 inches in diameter) for wall backfilling.

The new wall backfill should be constructed and properly benched into bedrock. Therefore, before new fill is placed on the slope below the building pad, any soil on the slope should be shaved until bedrock is exposed.

The new compacted fill for this project will be used for support of grade slabs only. It is anticipated that, at the completion of the site grading work, materials will be exported from the site.

### **SITE SURFACE CONDITIONS**

The project site consists of an trapezoid-shaped double lot located in the Chevy Chase neighborhood in the city of Glendale, Lot 1, Block 2 Tract No. 9327, also known as 3130 Charing Cross Road. There are two adjacent ascending slope lots part of this project; however, the north one is off-limits to development due to Southern California Edison right-of-way and overhead power lines.

There is a developed lot at 3120 Charing Cross Road to the south of the proposed new dwelling on Lot 1. There is also a developed lot to the east at 3235 Buckingham Road.

The southern lot is to be developed with a new multilevel building. We are in receipt of project plans from the project architect Domus Design as well as a topographic survey by M&G, which we have used as basis for our geologic map and cross section drawings.

### **REGIONAL GEOLOGY**

The site is situated in the San Rafael Hills, east of the Verdugo Mountains, part of the Transverse Ranges Geomorphic Province of California. The local rock in this area consists of Cretaceous-age medium-grained crystalline granitic bedrock, known as quartz diorite based on its mineralogy (see Figure No. 3 – Regional Geologic Map).

The site is located approximately two miles north of the inferred location of the Eagle Rock Fault, which extends east-west along the southern foot of the San Rafael Hills (see Figure No. 3- Regional Geologic Map). This fault is an extension of the Verdugo fault, which, according to the Southern California Earthquake Center, is

considered active, particularly the northwest portion near Sun Valley. However, neither the fault nor the site is located in an Alquist-Priolo Earthquake Fault zone.

### **GEOLOGIC AND SOIL CONDITIONS**

Our geologic investigation consisted of the excavation, inspection, sampling and geologic logging of five test pits, a review of published geologic maps, and on-site and near-site geologic reconnaissance and mapping. This activity indicates that the area of the proposed new dwelling is underlain by some slough fill along the slopes; a thin veneer of native colluvial/residual soil; overlying granitic bedrock. A geologic map and site plan is provided in Drawing 1, and geologic cross-sections A and B in Drawing 2. Test pit logs are provided in Appendix I. A description of the units and their distribution are as follows:

**Fill (Af):** Minor surficial fill was noted in the test pits, ranging from 1 to 3 feet in thickness, with the thickest portion near the road, most likely associated with road fill. It consists of gravelly silty sand, loose to moderately compact.

**Soil (Qc):** Native residual and colluvial soil was encountered in the test pits along the slopes, and generally consists of silty gravelly sand, yellow-brown, with rock fragments, medium dense and moist. It is generally creep-prone, especially along the steeper portion of the site near the street.

**Granitic Bedrock (qd):** Local bedrock underlying the site consists of medium-grained crystalline quartz diorite. It was found to be weathered, competent, locally hard to very hard, tight, and dense. Regularly occurring joint or foliation patterns were not noted in the bedrock, which is generally free of through-going planes of weakness.

### **ENGINEERING-GEOLOGIC CONSIDERATIONS**

Groundwater was not observed on the site; no seeps or springs were noted on-site, nor does the site have any surface streams passing through it.

The site has relatively shallow bedrock under ground surface throughout the building area. The site does not have gross slope stability issues, no landslides were mapped on this site.

From an engineering-geologic point of view, the proposed new dwelling project can proceed as planned, provided the new structures are founded in granitic bedrock to sufficient depth, and with proper drainage; surface water runoff on the site is controlled; and preventive slope maintenance is regularly performed.

### **PREVENTIVE SLOPE MAINTENANCE**

For all slopes, it is important to reduce the risk of problems relating to slope instability. It is recommended that the owners implement a program of normal slope maintenance. This maintenance program should include annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardant, deep rooted ground cover and proper irrigation.

Hillside properties are typically subject to potential geotechnical hazards including mudslides, spalling of slopes, erosion and concentrated flows. It must be emphasized that responsible maintenance of these slopes, and the property in general, by the owner, using proper methods, can reduce the risk of these hazards significantly.

### **SEISMIC DESIGN CONSIDERATIONS**

In accordance with ASCE-7-16, the project site can be classified as site "C". The mapped spectral accelerations of  $S_s=2.059$  (short period) and  $S_1=0.756$  (1-second period) can be used for this project. These parameters corresponds to site Coefficients values of  $F_a=1.0$  and  $F_v=1.4$ , respectively.

The seismic design parameters would be as follows:

$$S_{ms} = F_a (S_s) = 1.0 (2.059) = 2.059$$

$$S_{m1} = F_v (S_1) = 1.4 (0.756) = 1.059$$

$$S_{ds} = 2/3 (S_{ms}) = 4/5 (2.059) = 1.647, \text{ and}$$

$$S_{d1} = 2/3 (S_{m1}) = 2/3 (1.059) = 0.706$$

## **EVALUATION AND RECOMMENDATIONS**

### **GENERAL**

Based on the geotechnical engineering data derived during this investigation, it is believed that the proposed construction may be made as planned. It is anticipated that the planned excavation, in a form of terraces, will be made through minor amount of soil (fill and native) and granitic rock. Bedrock will be exposed at the finished grade. Such materials will provide very good support for the proposed residence and the associated retaining walls through spread footings and piles (where the high cuts are shored).

The resulting vertical cuts on the upslope side of the building pad will be supported by two, single cantilevered retaining walls (less than 5 feet and 12 feet) supporting cuts of minor soil and bedrock with ascending slopes. The upper most retaining wall supporting the ascending slope will have a freeboard of at least 2 feet and a concrete paved drain (swale) to divert surface water and collect normal erosion debris which will be cleaned after rainy seasons. All the other retaining walls will be incorporated into the proposed building and will be designed as restrained walls. Because of lack of through-going planes of weakness within the rock, all walls for this project can be designed based on normal lateral earth pressures.

During the course of site grading work, temporary excavation will be made to create the proposed finished grades. Although adequate space is available to make unsupported/open excavation slopes, it may be desirable to use shoring for the high cuts. Use of shoring will have the following benefits;

1. Eliminate relatively large spread footings that are normally required for tall walls;
2. Eliminate over-excavation beyond the planned line of excavation; and
3. Eliminate subsequent backfilling within the over-excavation zone.

Where temporary shoring is used, the vertical elements can be incorporated into the new walls and will be part of the permanent structure. The lower portion of the piles below the finished grade will be used for support of the gravity loads of the building and walls through skin friction.

Unsupported/open excavation slopes can be used for all cuts where adequate horizontal spacing (a distance equal to the vertical height of excavation) beyond the planned line of excavation is available. The slopes of the unsupported/open excavation cuts should be made using the gradients as recommended in this report.

The results of our analysis indicated that the subject lot, with the planned grading work, will remain grossly stable with respect to deep-seated slope instability (having a factor of safety of greater than 1.5). See the enclosed engineering calculation sheets.

The soil cover on the upslope of the proposed residence was also found to have a factor of safety of greater than 1.5. Normal erosion, however, can still occur on all permanent slopes. The recommended 2-foot high freeboard is considered to be adequate to retain debris associated with erosion. The freeboard should be cleaned after rainy seasons. The freeboard portion should be designed based on an equivalent fluid pressure of 125 pounds per square foot per foot of depth.

For the purpose of the subject project, it is recommended that all permanent slopes be covered with erosion resistant vegetation. A landscape architect may be consulted for selection of proper ground cover for the subject site.

Grade slabs may be cast directly over bedrock, or properly compacted fill soils. Where grade slabs span between soil and bedrock, the bedrock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at optimum moisture content). This will create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements. Because of granular nature of the site materials, soil expansion will not be an issue of this site. The grade slabs for this project, however, should be at least 5 inches thick and be reinforced with # 3 bars placed at every 18 inches on center.

The following sections present our specific recommendations for temporary excavations, site grading, site drainage, foundations, lateral design, grade slabs, retaining walls, and observations during construction.

## TEMPORARY EXCAVATION

**Unshored Excavations:** It is expected that temporary excavations will be made during the course of site grading work to create the proposed finished grades. The excavation will be made through minor amount of native soils and bedrock.

Based upon the engineering characteristics of the subsurface materials, it is our opinion that temporary excavation slopes through soil and massive granitic rock with no through-going plane of weakness may be made in accordance with the following table:

| Maximum Depth of Cut<br>(FT) | Maximum Slope Ratio<br>(Horizontal:Vertical) |          |
|------------------------------|--|----------|
|                              | Soil   | Bedrock  |
| 0-5                          | 1/2:1  | Vertical |
| 5-10                         | 1:1  | Vertical |
| >10                          | 1:1  | 1:1      |

It is recommended that the Engineering Geologist inspect the cut slopes within larger scale excavations as soon as five feet of bedrock is exposed in order to confirm the results of our findings. Modification to our recommendations may be necessary if variations are noted.

Water should not be allowed to flow over the top of the excavation in an uncontrolled manner. No surcharge should be allowed within a 45-degree line drawn from the bottom of the excavation. Excavation surfaces should be kept moist but not saturated to retard raveling and sloughing during construction.

It would be advantageous, particularly during wet season construction, to place polyethylene plastic sheeting over the slopes. This will reduce the chances of moisture changes within the soil banks and material wash into the excavation.

**Cantilevered Soldier Piles:** Cantilevered soldier piles can be used as a means of temporary shoring for tall cuts to eliminate large footings, over-excavation and subsequent backfilling. Soldier piles consist of structural steel beams encased in concrete (below the basement garage level) and slurry mix within the exposed depths of excavation.



For the purpose of this project, caisson type shoring piles with reinforcing cages can also be used. The caissons can be incorporated into the retaining walls and be part of the permanent structures. The lower portions of the shoring piles (below the base of the excavation) can be used to provide vertical support through skin friction.

The lateral resistance for cantilevered soldier piles may be assumed to be offered by available passive pressure below the basement level. An allowable passive pressure of 600 pounds per square foot per foot of depth may be used below the basement level for soldier piles having center-to-center spacing of at least 2-1/2 times the pile diameter. Maximum allowable passive pressure should be limited to 6,000 pounds per square foot. The maximum center-to-center spacing of the vertical shafts should be maintained no greater than 12 feet.

For design of temporary support, active pressure on the shoring piles may be computed using an equivalent fluid density of 25 pounds per cubic foot. Uniform surcharge may be computed using an active pressure coefficient of 0.30 times the uniform load.

When using cantilevered soldier piles for temporary shoring, the point of fixity (for the purpose of moment calculations), may be assumed to occur at some 12 inches below the base of the excavation. In order to limit local sloughing, it is recommended that lagging be used where soil is exposed between the soldier piles. All wood members left in ground should be pressure treated. For the purpose of design, lagging pressure should not exceed 400 pounds per square foot.

It should be noted that the recommendations presented in this section are for use in design and for cost estimating purposes prior to construction. The contractor is solely responsible for safety during construction.

## **GRADING RECOMMENDATIONS**

Site grading work for this project will involve mainly cutting operations in order to create the proposed finished grades in a form of terraces. Some wall backfilling will also be made within the over-excavated areas. The excavated materials can be used for wall backfilling. Rocks should be broken down to acceptable pieces (less than 4 inches in diameter) for wall backfilling.

The new wall backfill should be constructed and properly benched into bedrock. Therefore, before new fill is placed on the slope below the building pad, any soil on the slope should be shaved until bedrock is exposed.

The new compacted fill for this project will be used for support of grade slabs only. It is anticipated that, at the completion of the site grading work, materials will be exported from the site.

Prior to placing any fill, the Soil Engineer and Engineering Geologist should observe the excavation bottoms. The areas to receive fill should be scarified and compacted in-place to a relative compaction of at least 90 percent at optimum moisture content.

General guidelines regarding site grading are presented below in an itemized form which may be included in the earthwork specification. It is recommended that all fill be placed under engineering observation and in accordance with the following guidelines:

1. All vegetation should be shaved and removed from the site before site grading work is initiated;
2. Subdrain should be installed behind all retaining walls. All subdrain should be observed and approved by this office before backfilling;
3. The subdrain pipes should be laid at a minimum grade of two percent for self cleaning.
4. The excavated materials from the site may be reused in the areas of new fill. Wall backfill, however, should consist of granular materials.
5. Rocks larger than 4 inches in diameter should be excluded from the areas of compacted fill.
6. Fill material, approved by the Soil Engineer, should be placed in controlled layers. Each layer should be compacted to at least 90 percent of the maximum unit weight as determined by ASTM designation D 1557 for the material used. All new fill should be benched into rock;
7. The fill material shall be placed in layers which, when compacted, shall not exceed 8 inches per layer. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to insure uniformity of material in each layer.

8. When moisture content of the fill material is too low to obtain adequate compaction, water shall be added and thoroughly dispersed until the moisture content is near optimum.
9. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material shall be aerated by blading or other satisfactory methods until near optimum moisture condition is achieved.
10. Inspection and field density tests should be conducted by the Soil Engineer during grading work to assure that adequate compaction is attained. Where compaction of less than 90 percent is indicated, additional compactive effort should be made with adjustment of the moisture content or layer thickness, as necessary, until at least 90 percent compaction is obtained.

## **SITE DRAINAGE**

Site drainage should be provided to divert roof and surface waters from the property through non-erodible drainage devices to the street. In no case should the surface waters be allowed to pond behind the walls or flow over the slope surfaces in an uncontrolled manner. A minimum surface slope of one and two percent should be maintained in paved and unpaved areas, respectively.

The site drainage recommendations should also include the following:

1. Having positive slope away from the buildings, as recommended above;
2. Installation of roof drains, area drains and catch basins with appropriate connecting lines;
3. Managing landscape watering;
4. Regular maintenance of the drainage devices;
5. Installing waterproofing or damp proofing, whichever appropriate, beneath concrete grade slabs and behind the basement walls.
6. The owners should be familiar with the general maintenance guidelines of the City requirements.

## **FOUNDATIONS**

It is anticipated that, after the planned excavation is made, bedrock will be exposed at the finished grades. The bedrock is expected to provide very good support for the proposed residence and the associated retaining walls through conventional spread footing foundation system. Where shoring piles are used for the tall cuts, the vertical shafts can be used for gravity support of the structures/walls using skin friction.

The retaining wall footings should be at least 24 inches wide and should be established at least 24 inches into bedrock. The footings of the proposed residence should be at least 18 inches wide and should be established at least 18 inches into bedrock.

It should be noted that the above recommended foundation dimensions are the minimum required. The actual foundation dimensions may be greater depending upon the magnitude of the imposed loads.

Properly designed and constructed spread footings established in bedrock may be based on allowable maximum bearing pressure of 4,800 pounds per square foot.

For the purpose of estimating vertical capacity of individual piles, an allowable maximum skin friction value of 750 pounds per square foot may be used for the top 10 feet of the bedrock. The allowable maximum skin friction value can be increased to 950 pounds per square foot for the portion of piles extended deeper than 10 feet into bedrock. Uplift capacity may be assumed one half of the downward capacity.

The above given allowable maximum bearing and skin friction values are for the total of dead, plus frequently applied live loads. For short duration transient loading; wind or seismic forces, the given value may be increased by one third.

For friction pile design, the weight of the shafts can be assumed to be taken by end-bearing, therefore, need not be added to the structural loads. All piles should be concreted as soon as they are excavated and, for safety, should not be left open overnight.

During the course of our field investigation, no caving was experienced in the test holes. On this basis, caving is expected not to occur within drilled holes. If the foundations are excavated with hand tools, proper shoring should be implemented for workmen safety where soil is exposed.

Total and differential settlements of the proposed residence and the associated retaining walls (with foundations established in rock) are expected to be within tolerable limits; less than 3/8 and 1/4 of one inch, respectively. The major portion of the settlements are expected to occur during construction.

## **LATERAL DESIGN**

Lateral resistance at the base of footings in contact with bedrock may be assumed to be the product of the dead load forces and a coefficient of friction of 0.4. Passive pressure on the face of footings or developed against the vertical shafts, may also be used to resist lateral forces. For the purpose of the subject project, a passive pressure of 300 pounds per square foot at the surface of bedrock and increasing at a rate of 300 pounds per square foot per foot of depth to a maximum value of 3,500 pounds per square foot may be used.

It should be noted that, if the individual shafts are spaced at least 2.5 times the pile diameters (isolated shafts) the above given values can be doubled. For the purpose of moment calculations, the point of fixity of the vertical shafts on slope may be taken some 12 inches below the surface of the bedrock.

## **GRADE SLABS**

Grade slabs may be cast directly over bedrock, or properly compacted fill soils. Where grade slabs span between soil and bedrock, the bedrock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at optimum moisture content). This will create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements. Because of granular nature of the site materials, soil expansion will not be an issue of this site. The grade slabs for this project, however, should be at least 5 inches thick and be reinforced with # 3 bars placed at every 18 inches on center.

In the areas where moisture sensitive floor covering is used and slab dampness cannot be tolerated, a vapor-barrier should be used beneath the slabs. This normally consists of a 6-mil polyethylene film covered with 2 inches of clean sand.

## **RETAINING WALLS**

As part of the site grading work, retaining walls will be constructed. Such walls are expected to be designed as restrained and cantilevered outside the building. Maximum height of the restrained walls are expected to be on the order of 18 feet.

The vertical heights of the cantilevered retaining walls are expected to range from about 5 feet to 12 feet. Therefore, single walls will be used for this project.

Static design of cantilevered retaining walls supporting cuts of may be based on an equivalent fluid pressure of 30 pounds per square foot per foot of depth. The retaining walls that are restrained against rotation at top should be based on an equivalent fluid pressure of 47 pounds per square foot per foot of depth. See the enclosed supporting engineering calculations.

The cantilevered retaining walls supporting ascending slope should be designed based on an equivalent fluid pressure of 45 pounds per square foot per foot of depth. The freeboard section of the cantilevered retaining wall should be designed based on an equivalent fluid density of 125 pounds per cubic foot.

It is noted that, based on the new Code requirement, the basement walls should be designed not only for static, but also for seismic lateral earth pressures. For the purpose of this project, the magnitude of seismic lateral earth pressure should be maximum at the ground surface and decrease at a rate of 32 pounds per square foot per foot of depth to a value of zero at the base of the retaining wall (see the enclosed supporting engineering calculations). The point of application of the lateral thrust of the seismic pressure should be assumed 0.6 time the wall height, measured from the bottom of the wall.

The above given pressures, assume that hydrostatic pressure will be relieved from the back of the retaining walls through a properly designed and constructed backdrain system. The backdrain system should consist of 4-inch diameter perforated pipes encased in free draining gravel; at least one cubic foot per lineal foot of the pipe.

The retaining walls supporting all ascending slope should have a minimum freeboard of 2 feet and a paved drain to collect minor debris washed down during rainy season. The freeboard should then be cleaned after rainy seasons.

## **OBSERVATION DURING CONSTRUCTION**

The presented recommendations in this report assume that all structural foundations (footings and piles) will be established in bedrock. All foundation excavations should be observed and approved by a representative of this office, before the reinforcing is placed. It is essential to assure that all excavations are made at proper dimensions, are established in the recommended bearing material and are free of loose and disturbed soils. All shoring piles should be inspected by a Grading Deputy.

The project engineering geologist should observe the temporary cut slopes. Modification to our recommendations may be necessary if significant variations are noted in the geologic features of the underlying bedrock.

Site grading work should be made under continuous observation and testing by a representative of this firm. For proper scheduling, please notify this office at least 24 hours before any inspection work is required.

## **CLOSURE**

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either express or implied.

It is noted that the conclusions and recommendations presented are based on exploration "window" borings and excavations which is in conformance with accepted engineering practice. Some variations of subsurface conditions are common between "windows" and major variations are possible.

-oOo-

The following Plates and Appendices are attached and complete this report:

Engineering Calculation Sheets  
Drawing No. 1 - Geologic Map & Site Plan  
Drawing Nos. 2 and 3 - Geologic Cross Sections A-A' and B-B '  
Figure No. 1 - Site Vicinity Map  
Figure No. 2 - Regional Topographic Map  
Figure No. 3 - Regional Geologic Map  
Appendix I Method of Field Exploration  
Figure Nos. I-1 through I-6  
Appendix II Methods of Laboratory Testing  
Figure Nos. II-1 and II-2

Respectfully Submitted,  
**APPLIED EARTH SCIENCES**



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CJM/SM/se

Distribution: (3)



**Bedrock Strength Parameters**Saturated Unit Weight =  $\gamma_s =$  121 pcfValue of Friction Angle =  $\phi =$  38 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 38^\circ$$

$$K_o = 1 - 0.62$$

$$K_o = 0.38$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.38 * 121$$

$$\gamma_o = 46.5$$

**At-Rest Equivalent Fluid Density,  $\gamma_o = 47$  PCF****AT-REST LATERAL EARTH PRESSURE**

Basement Walls

**FOR:** 3130 Charing Cross Road,**DATE:** 9/10/19**PROJECT NO.:** 19-523-22**APPLIED EARTH SCIENCES**

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

**CALC SHEET No. 1**

|   |   |   |               |        |                         |           |
|---|---|---|---------------|--------|-------------------------|-----------|
| Bedrock Strength  | Unit Weight   | $\gamma_s$  | 121 PCF       |        |                         |           |
|   | Cohesion  | $C$   | 610 PSF       |        |                         |           |
|   | Friction Angle  | $\phi$  | 38 °          |        |                         |           |
|   | Estimated Failure Surface Angle                         | $\alpha$  | 64 °          |        |                         |           |
| Retaining Wall Parameters   | Height of Wall  | $H$   | 12 ft.        |        |                         |           |
|   | Average Inclination of Ground Surface Above Wall        | $\beta$   | 25 °          |        |                         |           |
|   | Assumed Surcharge Load                                  | $q$   | 300 PSF       |        |                         |           |
| Mobilized Strength  | Factor of Safety  | $F.S.$  |               | 1.25   | 1.5                     |           |
|   | Mobilized Cohesion                                      | $C_m = c/F.S.$  |               | 488    | 406.67                  | PSF       |
|   | Mobilized Friction Angle                                | $\phi_m = \tan^{-1}(\tan\phi/F.S.)$   |               | 32     | 28                      | °         |
| Tension Crack   | Coefficient of Lateral Earth Active Pressure            | $K_a = \tan^2(45^\circ - (\phi_m/2))$   |               | 0.31   | 0.37                    |           |
|   | Height of Tension Crack                                 | $H_c = (2C_m)/[(\gamma_s)(K_a^{0.5})]$  |               | 14.6   | 11.1                    | ft.       |
| For F.S = 1.25<br>(Temporary Conditions)  | Failure Surface Angle ( $\alpha > \beta$ )              | $\alpha$  |               | 59     | 64                      | 69 °      |
|   | Length of Potential Sliding Surface Across Wedge        | $L = \frac{(H - H_c) \cos \beta}{\sin(\alpha - \beta)}$   |               | -4.14  | -3.68                   | -3.33 ft. |
|   | Weight of Soil in Wedge Above Potential Sliding Area    | $W = 0.5\gamma_s \left[ HL + \frac{H_c(H - H_c)\cos\beta}{\sin(\alpha - \beta)} \right] \cos\alpha$ |               | -3424  | -2590                   | -1918 lb. |
|   | Additional Lateral Load                                 | $E = (K_a q L \cos\alpha)/(\cos\beta)$  |               | -178.0 | -134.6                  | -99.7 lb. |
|   | Resultant Horizontal Force                              | $P = (W - c_m L \sin\alpha)(\tan(\alpha - \phi_m)) - c_m L \cos\alpha + E$                          |               | -0.3   | 41.8                    | 181.4 lb. |
|   | Equivalent Fluid Density                                | $G_h = 2P/H^2$  |               | 0.0    | 0.6                     | 2.5 PCF   |
|   |   |   |               |        |                         |           |
| For F.S = 1.5<br>(Permanent Conditions)   | Failure Surface Angle ( $\alpha > \beta$ )              | $\alpha$  |               | 59     | 64                      | 69 °      |
|   | Length of Potential Sliding Surface Across Wedge        | $L = \frac{(H - H_c) \cos \beta}{\sin(\alpha - \beta)}$   |               | 1.49   | 1.32                    | 1.20 ft.  |
|   | Weight of Soil in Wedge Above Potential Sliding Area    | $W = 0.5\gamma_s \left[ HL + \frac{H_c(H - H_c)\cos\beta}{\sin(\alpha - \beta)} \right] \cos\alpha$ |               | 1072   | 811                     | 601 lb.   |
|   | Additional Lateral Load                                 | $E = (K_a q L \cos\alpha)/(\cos\beta)$  |               | 76.8   | 58.1                    | 43.0 lb.  |
|   | Resultant Horizontal Force                              | $P = (W - c_m L \sin\alpha)(\tan(\alpha - \phi_m)) - c_m L \cos\alpha + E$                          |               | 103.0  | 63.6                    | -3.7 lb.  |
|   | Equivalent Fluid Density                                | $G_h = 2P/H^2$  |               | 1.4    | 0.9                     | -0.1 PCF  |
|   |   |   |               |        |                         |           |
| EFD   | For Temporary Wall Design, Use Equivalent Fluid Density |   | $G_h =$       | 25     | PCF                     |           |
|   | For Permanent Wall Design, Use Equivalent Fluid Density |   | $G_h =$       | 30     | PCF                     |           |
| <h2 style="text-align: center;">LATERAL EARTH PRESSURE CALCULATIONS</h2>                        |   |   |               |        |                         |           |
| SECTION A-A' - NORTH FACING RETAINING WALLS   |   |   |               |        |                         |           |
| FOR: 3130 Charing Cross Road,   |   |   | DATE: 9/10/19 |        | PROJECT NO.: 19-523-22  |           |
| <b>APPLIED EARTH SCIENCES</b><br>GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS |   |   |               |        | <b>CALC SHEET No. 2</b> |           |

Average Soil Strength Parameters

\* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight  $\gamma = 121$  PCFHeight of Wall  $H = 22$  Ft. $PGAM = 1.067$ 

$$P_{AE} = \frac{3}{8} \gamma H^2 (K_h) \quad *7.2-78$$

$$K_h = \frac{\frac{2}{3} * PGAM}{2}$$

$$K_h = \frac{2/3 * 1.067}{2}$$

$$K_h = 0.36$$

$$P_{AE} = \frac{3}{8} * 121 * 484 * 0.36$$

$$P_{AE} = 7811 \text{ lb.}$$

Equivalent Fluid Pressure (EFP)

$$EFP = \left( \frac{2 * P_{AE}}{H^2} \right)$$

$$EFP = \frac{2 * 7811}{484}$$

$$EFP = 32.28 \text{ PCF}$$

**SEISMIC LATERAL EARTH PRESSURE****Retaining Walls****FOR:** 3130 Charing Cross Road,**DATE:** 9/10/19**PROJECT NO.:** 19-523-22**APPLIED EARTH SCIENCES**

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

**CALC SHEET NO. 3**

### FILL STRENGTHS

|                       |            |      |     |
|-----------------------|------------|------|-----|
| Saturated Unit Weight | $\gamma_s$ | 126  | pcf |
| Cohesion              | C          | 200  | psf |
| Friction Angle        | $\phi$     | 32   | °   |
| Slope Angle           | $\alpha$   | 25   | °   |
| Depth of Soil         | d          | 3    | ft  |
| Unit Weight of Water  | $\gamma_w$ | 62.4 | pcf |

$$F.S. = \frac{[C + (\gamma_s - \gamma_w) * d * \cos^2 \alpha * \tan \phi]}{\gamma_s * d * \sin \alpha * \cos \alpha}$$

$$F.S. = 200 + 97.93 / 144.78$$

$$F.S. = 2.06 > 1.5 \quad \text{O.K.}$$

### **SURFICIAL SLOPE STABILITY CALCULATIONS**

**FOR:** 3130 Charing Cross Road

**DATE:** 9/10/19

**PROJECT NO.:** 19-523-22



**APPLIED EARTH SCIENCES**

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

**CALC SHEET No. 4**

Average Soil Strength Parameters

Saturated Unit Weight  $\gamma = 121$  pcf  
 $C = 610$  psf  
 $\phi = 38^\circ$

Height of Wall

$H = 22$  ft

Weight of Surcharge Load on Wedge

$W_q = 0.3$  K

|         |        |       |          |                    | Driving Force                   | Resisting Force                 |                       |
|---------|--------|-------|----------|--------------------|---------------------------------|---------------------------------|-----------------------|
| SECTION | A (sf) | W (K) | L (feet) | $\alpha$ (degrees) | $W \sin \alpha \cos \alpha$ (k) | $W \cos^2 \alpha \tan \phi$ (k) | $C L \cos \alpha$ (k) |
| I       | 118.0  | 14.3  | 24.48    | 64                 | 5.7                             | 2.2                             | 6.5                   |
|         |        |       |          |                    | 5.7                             | 8.7                             |                       |

$$F.S. = \sum RF / \sum DF = 8.73 / 5.75 = 1.52$$

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

$$1.25 (DF) = (RF) + UBF$$

$$1.25 * 5.75 = 8.73 + UBF$$

$$UBF = 7.18 - 8.73 = -1.55 \text{ k/ft.}$$

$$\text{Equivalent Fluid Density } G_h = 2P/H^2$$

$$G_h = -6.4 \text{ pcf}$$

Therefore use Recommended value of 25 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

$$1.5 (DF) = (RF) + UBF$$

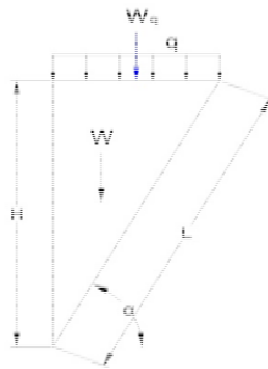
$$1.5 * 5.75 = 8.73 + UBF$$

$$UBF = 8.62 - 8.73 = -0.12 \text{ k/ft.}$$

$$\text{Equivalent Fluid Density } G_h = 2P/H^2$$

$$G_h = -0.5 \text{ pcf}$$

Therefore use Recommended value of 30 pcf



## LATERAL EARTH PRESSURE CALCULATIONS

### CANTILEVERED SYSTEM

#### SECTION A-A' - North Facing Basement Walls

FOR: 3130 Charing Cross Road,

DATE: 9/10/19

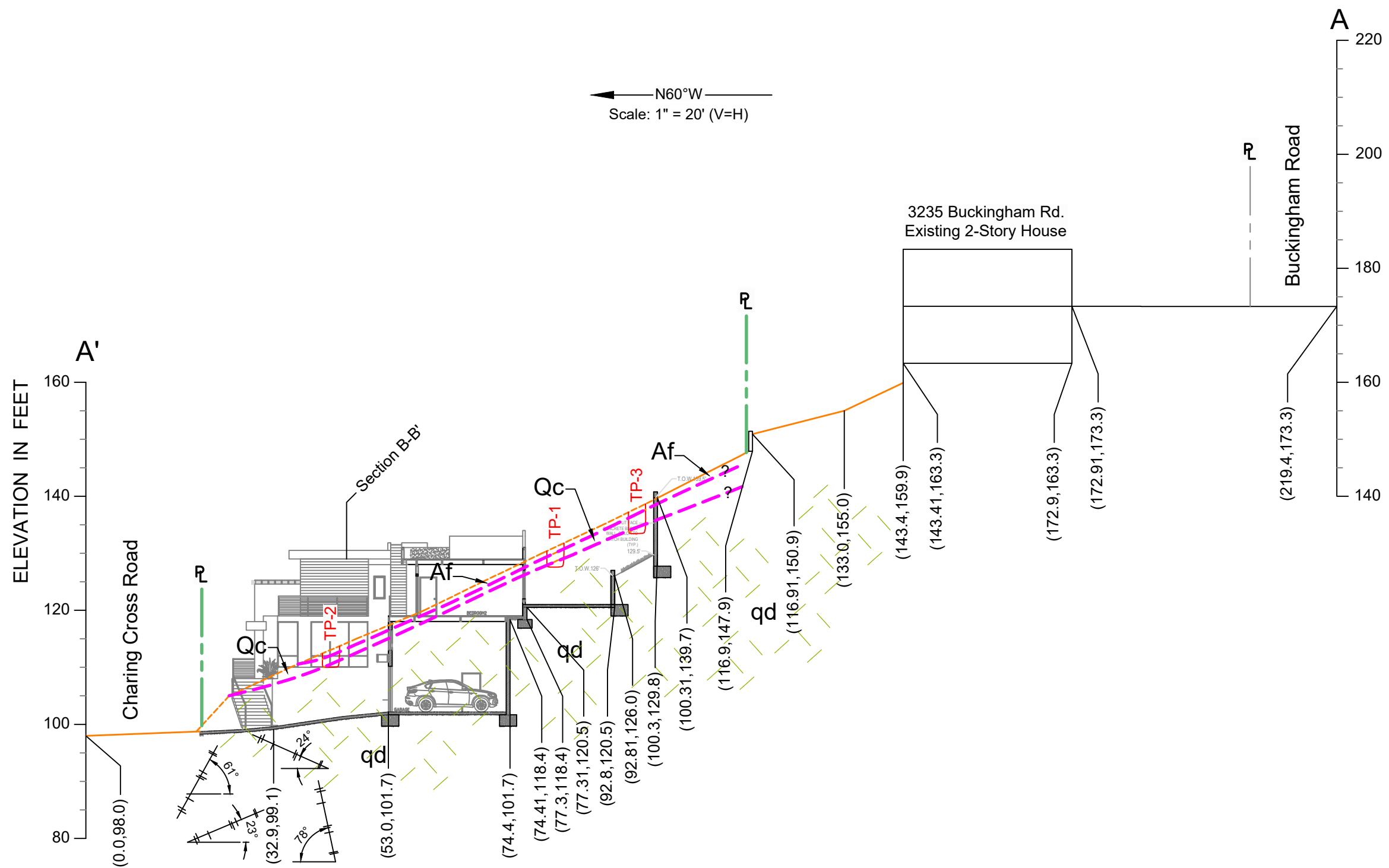
PROJECT NO.: 19-523-22



APPLIED EARTH SCIENCES

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TABLE No. 1



# LEGEND:

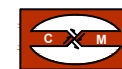
- Af = Artificial Fill
- Qc = Colluvium (Native Soil)
- qd = Granitic Bedrock
- TP-5 = Location & Number of Test Pit
- Geological Contact Approximately Located
- Joint Set

## SLOPE STABILITY ANALYSIS SECTION A-A'

DESCRIPTION: Proposed New Single Family Residence

FOR: Mr. Sam Nazaryan

ADDRESS: 3130 Charing Cross Road, Glendale, CA 91206



Applied  
Earth  
Sciences

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PROJECT No: 19-523-22

DATE: 09 / 20 / 2019

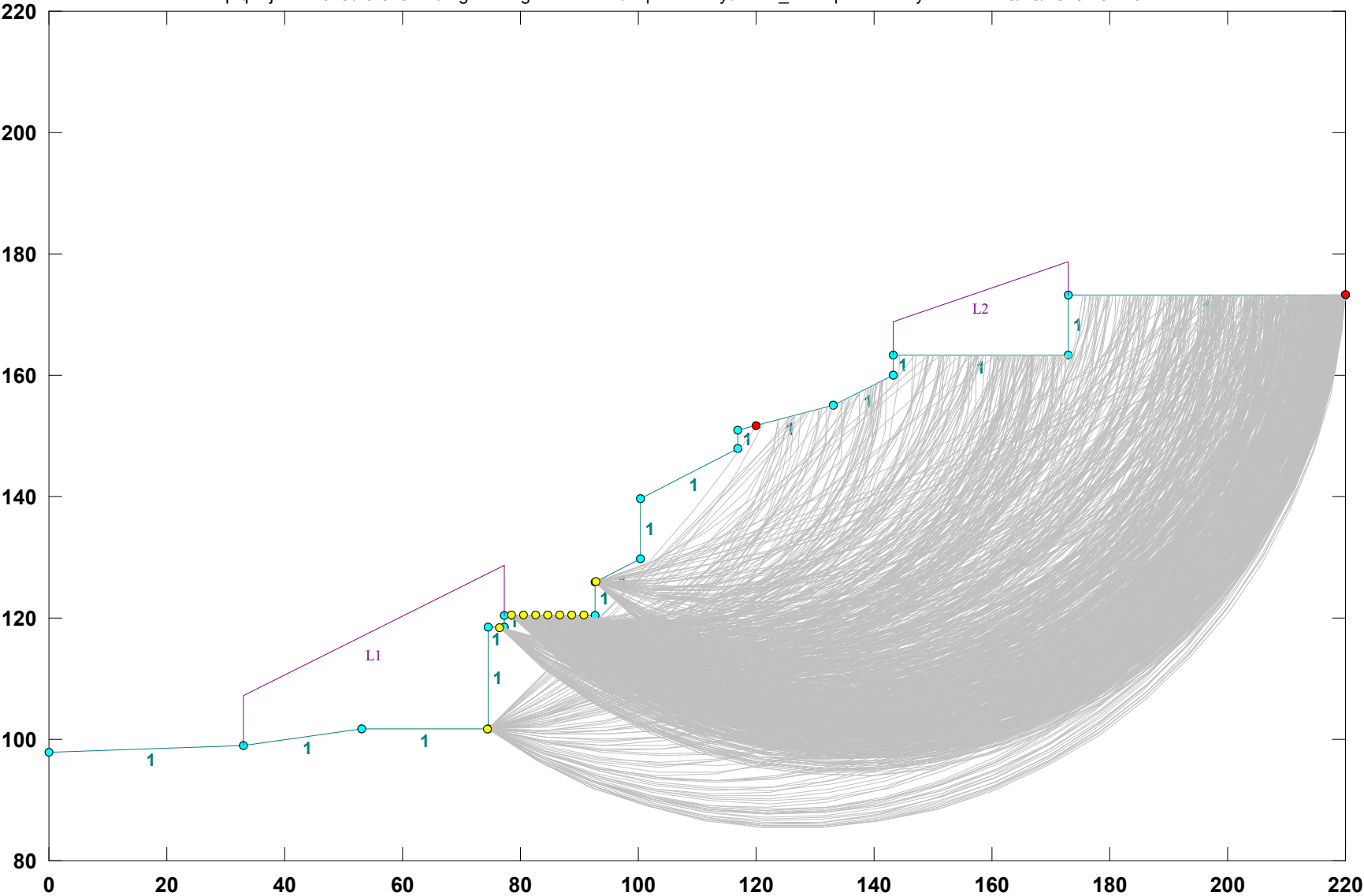
DRAWN BY: VM

CHECKED BY: SM

SHEET No: 1

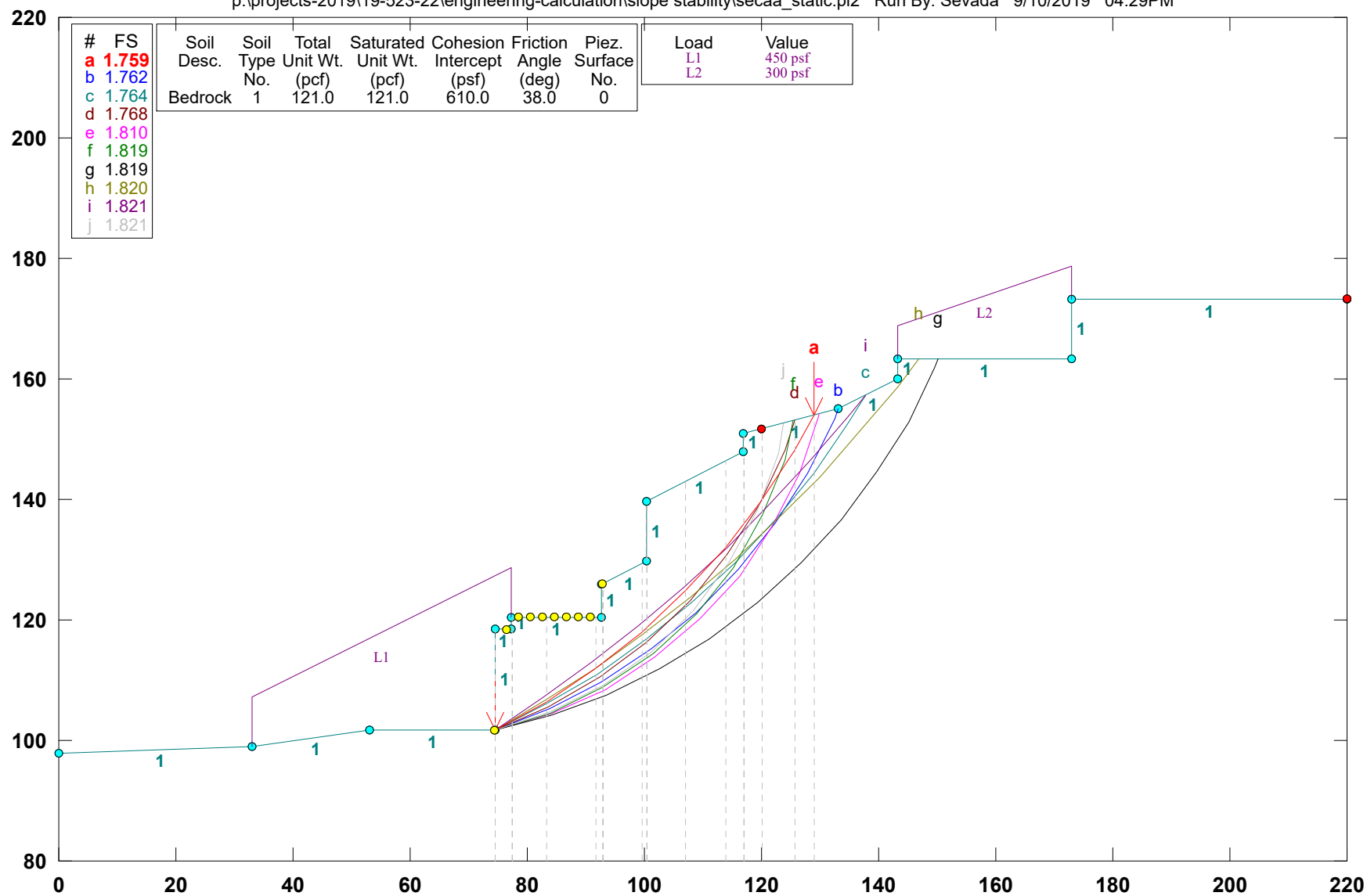
19-523-22\_SecAA 3130 Charing Cross Rd\_Static

p:\projects-2019\19-523-22\engineering-calculation\slope stability\secaa\_static.plt Run By: Sevada 9/10/2019 04:29PM



# 19-523-22\_SecAA 3130 Charing Cross Rd\_Static

p:\projects-2019\19-523-22\engineering-calculation\slope stability\secaa\_static.pl2 Run By: Sevada 9/10/2019 04:29PM



GSTABL7 v.2 FSmin=1.759

Safety Factors Are Calculated By The Modified Bishop Method



## \*\*\* GSTABL7 \*\*\*

\*\* GSTABL7 by Dr. Garry H. Gregory, Ph.D., P.E., D.GE \*\*

\*\* Original Version 1.0, January 1996; Current Ver. 2.005.2, Jan. 2011 \*\*

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\*\*\*\*\*

## SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.

(Includes Spencer &amp; Morgenstern-Price Type Analysis)

Including Pier/Pile, Reinforcement, Soil Nail, Tieback,

Nonlinear Undrained Shear Strength, Curved Phi Envelope,

Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water

Surfaces, Pseudo-Static &amp; Newmark Earthquake, and Applied Forces.

\*\*\*\*\*

Analysis Run Date: 9/10/2019

Time of Run: 04:29PM

Run By: Sevada

Input Data Filename: P:\Projects-2019\19-523-22\Engineering-Calculation\Slope Stability\secaa\_static.in

Output Filename: P:\Projects-2019\19-523-22\Engineering-Calculation\Slope Stability\secaa\_static.OUT

Unit System: English

Plotted Output Filename: P:\Projects-2019\19-523-22\Engineering-Calculation\Slope Stability\secaa\_static.PLT

PROBLEM DESCRIPTION: 19-523-22\_SecAA

3130 Charing Cross Rd\_Static

## BOUNDARY COORDINATES

18 Top Boundaries

18 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 0.00        | 98.00       | 32.90        | 99.10        | 1                   |
| 2            | 32.90       | 99.10       | 53.00        | 101.70       | 1                   |
| 3            | 53.00       | 101.70      | 74.40        | 101.70       | 1                   |
| 4            | 74.40       | 101.70      | 74.41        | 118.40       | 1                   |
| 5            | 74.41       | 118.40      | 77.30        | 118.40       | 1                   |
| 6            | 77.30       | 118.40      | 77.31        | 120.50       | 1                   |
| 7            | 77.31       | 120.50      | 92.80        | 120.50       | 1                   |
| 8            | 92.80       | 120.50      | 92.81        | 126.00       | 1                   |
| 9            | 92.81       | 126.00      | 100.30       | 129.80       | 1                   |
| 10           | 100.30      | 129.80      | 100.31       | 139.70       | 1                   |
| 11           | 100.31      | 139.70      | 116.90       | 147.90       | 1                   |
| 12           | 116.90      | 147.90      | 116.91       | 150.90       | 1                   |
| 13           | 116.91      | 150.90      | 133.00       | 155.00       | 1                   |
| 14           | 133.00      | 155.00      | 143.40       | 159.90       | 1                   |
| 15           | 143.40      | 159.90      | 143.41       | 163.30       | 1                   |
| 16           | 143.41      | 163.30      | 172.90       | 163.30       | 1                   |
| 17           | 172.90      | 163.30      | 172.91       | 173.30       | 1                   |
| 18           | 172.91      | 173.30      | 220.00       | 173.30       | 1                   |

User Specified Y-Origin = 80.00(ft)

Default X-Plus Value = 0.00(ft)

Default Y-Plus Value = 0.00(ft)

## ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

| Soil Type No. | Total Unit Wt. (pcf) | Saturated Unit Wt. (pcf) | Cohesion Intercept (psf) | Friction Angle (deg) | Pore Pressure Param. (psf) | Pressure Constant (psf) | Piez. Surface No. |
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------------|-------------------------|-------------------|
| 1             | 121.0                | 121.0                    | 610.0                    | 38.0                 | 0.00                       | 0.0                     | 0                 |

## BOUNDARY LOAD(S)

2 Load(s) Specified

| Load No. | X-Left (ft) | X-Right (ft) | Intensity (psf) | Deflection (deg) |
|----------|-------------|--------------|-----------------|------------------|
| 1        | 32.90       | 77.31        | 450.0           | 0.0              |
| 2        | 143.41      | 172.91       | 300.0           | 0.0              |

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Circular Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 74.40(ft)

and X = 92.81(ft)  
 Each Surface Terminates Between X = 120.00(ft)  
 and X = 220.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation  
 At Which A Surface Extends Is Y = 0.00(ft)

10.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.

\* \* Safety Factors Are Calculated By The Modified Bishop Method \* \*

Total Number of Trial Surfaces Attempted = 1000

Number of Trial Surfaces With Valid FS = 1000

Statistical Data On All Valid FS Values:

FS Max = 5.315 FS Min = 1.759 FS Ave = 3.641

Standard Deviation = 0.782 Coefficient of Variation = 21.47 %

Failure Surface Specified By 9 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 74.400         | 101.700        |
| 2            | 83.195         | 106.459        |
| 3            | 91.582         | 111.906        |
| 4            | 99.506         | 118.005        |
| 5            | 106.918        | 124.717        |
| 6            | 113.771        | 132.001        |
| 7            | 120.019        | 139.808        |
| 8            | 125.624        | 148.089        |
| 9            | 128.952        | 153.968        |

Circle Center At X = 19.314 ; Y = 214.003 ; and Radius = 125.086

Factor of Safety

\*\*\* 1.759 \*\*\*

Individual data on the 17 slices

| Slice<br>No. | Width<br>(ft) | Weight<br>(lbs) | Water Force  |              | Tie<br>Force<br>Norm<br>(lbs) | Tie<br>Force<br>Tan<br>(lbs) | Earthquake Force |              | Surcharge<br>Load<br>(lbs) |
|--------------|---------------|-----------------|--------------|--------------|-------------------------------|------------------------------|------------------|--------------|----------------------------|
|              |               |                 | Top<br>(lbs) | Bot<br>(lbs) |                               |                              | Hor<br>(lbs)     | Ver<br>(lbs) |                            |
| 1            | 0.0           | 10.1            | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 4.5                        |
| 2            | 2.9           | 5564.5          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 1300.5                     |
| 3            | 0.0           | 19.6            | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 4.5                        |
| 4            | 5.9           | 11131.9         | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 5            | 8.4           | 11484.8         | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 6            | 1.2           | 1198.0          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 7            | 0.0           | 12.6            | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 8            | 6.7           | 9942.3          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 9            | 0.8           | 1079.0          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 10           | 0.0           | 19.4            | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 11           | 6.6           | 15679.2         | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 12           | 6.9           | 13515.5         | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 13           | 3.1           | 4987.1          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 14           | 0.0           | 16.3            | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 15           | 3.1           | 5053.2          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 16           | 5.6           | 5736.1          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |
| 17           | 3.3           | 1012.8          | 0.0          | 0.0          | 0.                            | 0.                           | 0.0              | 0.0          | 0.0                        |

Failure Surface Specified By 10 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 74.400         | 101.700        |
| 2            | 83.760         | 105.221        |
| 3            | 92.699         | 109.702        |
| 4            | 101.120        | 115.096        |
| 5            | 108.929        | 121.342        |
| 6            | 116.041        | 128.372        |
| 7            | 122.377        | 136.109        |
| 8            | 127.868        | 144.466        |
| 9            | 132.453        | 153.353        |
| 10           | 133.116        | 155.055        |

Circle Center At X = 45.781 ; Y = 192.179 ; and Radius = 94.897

Factor of Safety

\*\*\* 1.762 \*\*\*

Failure Surface Specified By 10 Coordinate Points

| Point | X-Surf | Y-Surf |
|-------|--------|--------|
|-------|--------|--------|

|     |         |         |
|-----|---------|---------|
| No. | (ft)    | (ft)    |
| 1   | 74.400  | 101.700 |
| 2   | 83.370  | 106.121 |
| 3   | 92.013  | 111.149 |
| 4   | 100.290 | 116.761 |
| 5   | 108.161 | 122.930 |
| 6   | 115.588 | 129.626 |
| 7   | 122.536 | 136.818 |
| 8   | 128.972 | 144.471 |
| 9   | 134.866 | 152.550 |
| 10  | 137.841 | 157.281 |

Circle Center At X = 15.276 ; Y = 233.182 ; and Radius = 144.163

Factor of Safety  
\*\*\* 1.764 \*\*\*

Failure Surface Specified By 9 Coordinate Points

|       |         |         |
|-------|---------|---------|
| Point | X-Surf  | Y-Surf  |
| No.   | (ft)    | (ft)    |
| 1     | 74.400  | 101.700 |
| 2     | 83.637  | 105.532 |
| 3     | 92.347  | 110.443 |
| 4     | 100.406 | 116.364 |
| 5     | 107.697 | 123.209 |
| 6     | 114.113 | 130.879 |
| 7     | 119.564 | 139.262 |
| 8     | 123.970 | 148.240 |
| 9     | 125.680 | 153.135 |

Circle Center At X = 47.186 ; Y = 180.355 ; and Radius = 83.229

Factor of Safety  
\*\*\* 1.768 \*\*\*

Failure Surface Specified By 10 Coordinate Points

|       |         |         |
|-------|---------|---------|
| Point | X-Surf  | Y-Surf  |
| No.   | (ft)    | (ft)    |
| 1     | 74.400  | 101.700 |
| 2     | 84.018  | 104.438 |
| 3     | 93.173  | 108.461 |
| 4     | 101.695 | 113.694 |
| 5     | 109.424 | 120.039 |
| 6     | 116.217 | 127.377 |
| 7     | 121.947 | 135.573 |
| 8     | 126.507 | 144.473 |
| 9     | 129.812 | 153.911 |
| 10    | 129.872 | 154.203 |

Circle Center At X = 59.234 ; Y = 173.279 ; and Radius = 73.168

Factor of Safety  
\*\*\* 1.810 \*\*\*

Failure Surface Specified By 9 Coordinate Points

|       |         |         |
|-------|---------|---------|
| Point | X-Surf  | Y-Surf  |
| No.   | (ft)    | (ft)    |
| 1     | 74.400  | 101.700 |
| 2     | 83.990  | 104.533 |
| 3     | 93.050  | 108.766 |
| 4     | 101.376 | 114.305 |
| 5     | 108.780 | 121.026 |
| 6     | 115.098 | 128.778 |
| 7     | 120.187 | 137.386 |
| 8     | 123.933 | 146.658 |
| 9     | 125.464 | 153.080 |

Circle Center At X = 60.339 ; Y = 166.958 ; and Radius = 66.756

Factor of Safety  
\*\*\* 1.819 \*\*\*

Failure Surface Specified By 12 Coordinate Points

|       |         |         |
|-------|---------|---------|
| Point | X-Surf  | Y-Surf  |
| No.   | (ft)    | (ft)    |
| 1     | 74.400  | 101.700 |
| 2     | 84.083  | 104.199 |
| 3     | 93.489  | 107.593 |
| 4     | 102.537 | 111.852 |
| 5     | 111.146 | 116.940 |
| 6     | 119.241 | 122.811 |
| 7     | 126.751 | 129.414 |

|    |         |         |
|----|---------|---------|
| 8  | 133.610 | 136.690 |
| 9  | 139.758 | 144.577 |
| 10 | 145.141 | 153.005 |
| 11 | 149.711 | 161.900 |
| 12 | 150.272 | 163.300 |

Circle Center At X = 52.720 ; Y = 205.928 ; and Radius = 106.459

Factor of Safety  
\*\*\* 1.819 \*\*\*

Failure Surface Specified By 11 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.068      | 106.686     |
| 3         | 91.517      | 112.036     |
| 4         | 99.731      | 117.739     |
| 5         | 107.696     | 123.786     |
| 6         | 115.397     | 130.165     |
| 7         | 122.820     | 136.865     |
| 8         | 129.953     | 143.874     |
| 9         | 136.781     | 151.180     |
| 10        | 143.293     | 158.769     |
| 11        | 146.859     | 163.300     |

Circle Center At X = -38.704 ; Y = 308.356 ; and Radius = 235.583

Factor of Safety  
\*\*\* 1.820 \*\*\*

Failure Surface Specified By 10 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 82.779      | 107.158     |
| 3         | 90.944      | 112.932     |
| 4         | 98.883      | 119.012     |
| 5         | 106.585     | 125.390     |
| 6         | 114.038     | 132.057     |
| 7         | 121.232     | 139.003     |
| 8         | 128.157     | 146.218     |
| 9         | 134.801     | 153.691     |
| 10        | 137.701     | 157.215     |

Circle Center At X = -63.636 ; Y = 322.942 ; and Radius = 260.771

Factor of Safety  
\*\*\* 1.821 \*\*\*

Failure Surface Specified By 9 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.955      | 104.651     |
| 3         | 92.947      | 109.027     |
| 4         | 101.164     | 114.725     |
| 5         | 108.414     | 121.612     |
| 6         | 114.527     | 129.527     |
| 7         | 119.358     | 138.282     |
| 8         | 122.795     | 147.673     |
| 9         | 123.791     | 152.653     |

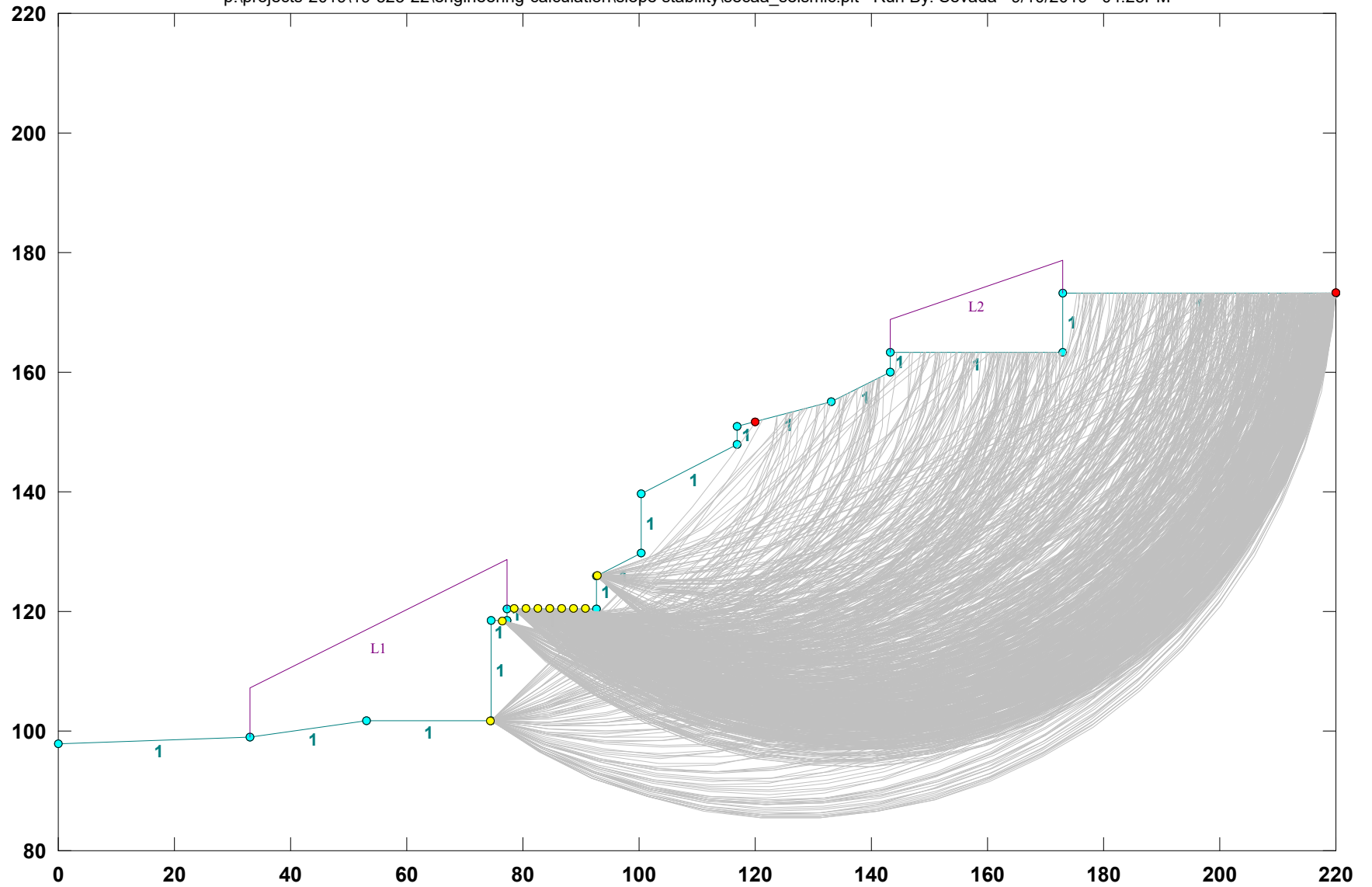
Circle Center At X = 59.982 ; Y = 165.336 ; and Radius = 65.249

Factor of Safety  
\*\*\* 1.821 \*\*\*

\*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*

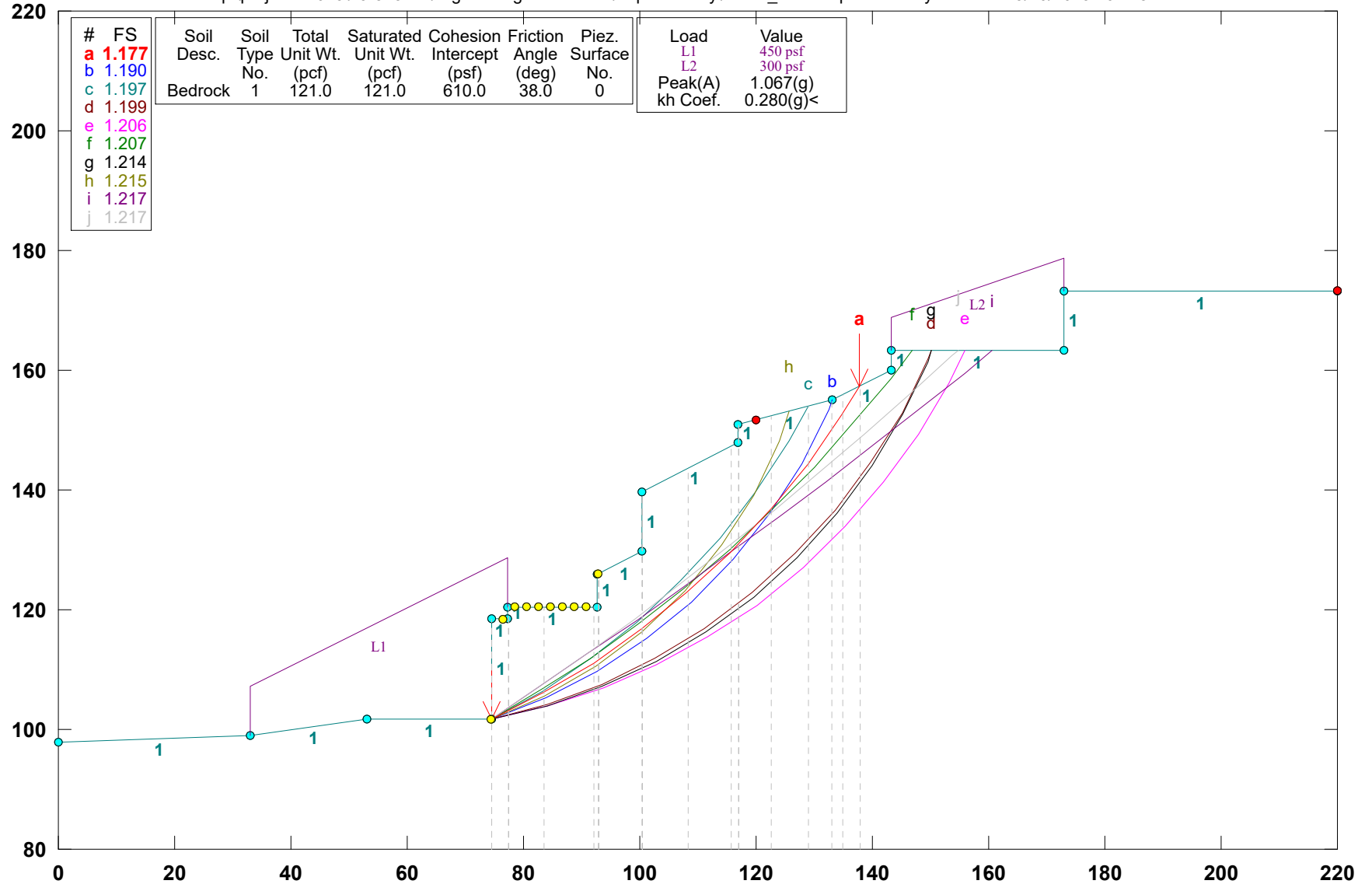
# 19-523-22\_SecAA 3130 Charing Cross Rd\_Seismic

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GSTABL7 v.2 FSmin=1.177  
Safety Factors Are Calculated By The Modified Bishop Method

```

*** GSTABL7 ***
** GSTABL7 by Dr. Garry H. Gregory, Ph.D., P.E., D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.2, Jan. 2011 **
  (All Rights Reserved-Unauthorized Use Prohibited)
*****
      SLOPE STABILITY ANALYSIS SYSTEM
      Modified Bishop, Simplified Janbu, or GLE Method of Slices.
      (Includes Spencer & Morgenstern-Price Type Analysis)
      Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
      Nonlinear Undrained Shear Strength, Curved Phi Envelope,
      Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
      Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
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Time of Run:           04:25PM
Run By:                Sevada
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bility\secaa_seismic.OUT
Unit System:           English
Plotted Output Filename: P:\Projects-2019\19-523-22\Engineering-Calculation\Slope Sta
bility\secaa_seismic.PLT
PROBLEM DESCRIPTION:   19-523-22_SecAA
                      3130 Charing Cross Rd_Seismic
BOUNDARY COORDINATES
  18 Top    Boundaries

```

| 18 Total Boundaries |             |             |              |              |                     |
|---------------------|-------------|-------------|--------------|--------------|---------------------|
| Boundary No.        | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
| 1                   | 0.00        | 98.00       | 32.90        | 99.10        | 1                   |
| 2                   | 32.90       | 99.10       | 53.00        | 101.70       | 1                   |
| 3                   | 53.00       | 101.70      | 74.40        | 101.70       | 1                   |
| 4                   | 74.40       | 101.70      | 74.41        | 118.40       | 1                   |
| 5                   | 74.41       | 118.40      | 77.30        | 118.40       | 1                   |
| 6                   | 77.30       | 118.40      | 77.31        | 120.50       | 1                   |
| 7                   | 77.31       | 120.50      | 92.80        | 120.50       | 1                   |
| 8                   | 92.80       | 120.50      | 92.81        | 126.00       | 1                   |
| 9                   | 92.81       | 126.00      | 100.30       | 129.80       | 1                   |
| 10                  | 100.30      | 129.80      | 100.31       | 139.70       | 1                   |
| 11                  | 100.31      | 139.70      | 116.90       | 147.90       | 1                   |
| 12                  | 116.90      | 147.90      | 116.91       | 150.90       | 1                   |
| 13                  | 116.91      | 150.90      | 133.00       | 155.00       | 1                   |
| 14                  | 133.00      | 155.00      | 143.40       | 159.90       | 1                   |
| 15                  | 143.40      | 159.90      | 143.41       | 163.30       | 1                   |
| 16                  | 143.41      | 163.30      | 172.90       | 163.30       | 1                   |
| 17                  | 172.90      | 163.30      | 172.91       | 173.30       | 1                   |
| 18                  | 172.91      | 173.30      | 220.00       | 173.30       | 1                   |

User Specified Y-Origin = 80.00(ft)

Default X-Plus Value = 0.00(ft)

Default Y-Plus Value = 0.00(ft)

#### ISOTROPIC SOIL PARAMETERS

##### 1 Type(s) of Soil

| Soil Type No. | Total Unit Wt. (pcf) | Saturated Unit Wt. (pcf) | Cohesion Intercept (psf) | Friction Angle (deg) | Pore Pressure Param. (psf) | Pressure Constant (psf) | Piez. Surface No. |
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------------|-------------------------|-------------------|
| 1             | 121.0                | 121.0                    | 610.0                    | 38.0                 | 0.00                       | 0.0                     | 0                 |

#### BOUNDARY LOAD(S)

##### 2 Load(s) Specified

| Load No. | X-Left (ft) | X-Right (ft) | Intensity (psf) | Deflection (deg) |
|----------|-------------|--------------|-----------------|------------------|
| 1        | 32.90       | 77.31        | 450.0           | 0.0              |
| 2        | 143.41      | 172.91       | 300.0           | 0.0              |

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

Specified Peak Ground Acceleration Coefficient (A) = 1.067(g)

Specified Horizontal Earthquake Coefficient (kh) = 0.280(g)

Specified Vertical Earthquake Coefficient (kv) = 0.000(g)

Specified Seismic Pore-Pressure Factor = 0.000

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Circular Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced

Along The Ground Surface Between X = 74.40(ft)

and X = 92.81(ft)

Each Surface Terminates Between X = 120.00(ft)

and X = 220.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(ft)

10.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.

\* \* Safety Factors Are Calculated By The Modified Bishop Method \* \*

Total Number of Trial Surfaces Attempted = 1000

Number of Trial Surfaces With Valid FS = 1000

Statistical Data On All Valid FS Values:

FS Max = 2.888 FS Min = 1.177 FS Ave = 2.156

Standard Deviation = 0.384 Coefficient of Variation = 17.82 %

Failure Surface Specified By 10 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.370      | 106.121     |
| 3         | 92.013      | 111.149     |
| 4         | 100.290     | 116.761     |
| 5         | 108.161     | 122.930     |



6 115.588 129.626  
 7 122.536 136.818  
 8 128.972 144.471  
 9 134.866 152.550  
 10 137.841 157.281

Circle Center At X = 15.276 ; Y = 233.182 ; and Radius = 144.163

Factor of Safety

\*\*\* 1.177 \*\*\*

| Individual data on the 19 slices |            |              |             |           |                      |                     |                  |           |                      |     |
|----------------------------------|------------|--------------|-------------|-----------|----------------------|---------------------|------------------|-----------|----------------------|-----|
| Slice No.                        | Width (ft) | Weight (lbs) | Water Force |           | Tie Force Norm (lbs) | Tie Force Tan (lbs) | Earthquake Force |           | Surcharge Load (lbs) |     |
|                                  |            |              | Top (lbs)   | Bot (lbs) |                      |                     | Hor (lbs)        | Ver (lbs) |                      |     |
| 1                                | 0.0        | 10.1         | 0.0         | 0.0       | 0.                   | 0.                  | 2.8              | 0.0       |                      | 4.5 |
| 2                                | 2.9        | 5589.0       | 0.0         | 0.0       | 0.                   | 0.                  | 1564.9           | 0.0       | 1300.5               |     |
| 3                                | 0.0        | 19.8         | 0.0         | 0.0       | 0.                   | 0.                  | 5.5              | 0.0       |                      | 4.5 |
| 4                                | 6.1        | 11637.9      | 0.0         | 0.0       | 0.                   | 0.                  | 3258.6           | 0.0       |                      | 0.0 |
| 5                                | 8.6        | 12409.5      | 0.0         | 0.0       | 0.                   | 0.                  | 3474.7           | 0.0       |                      | 0.0 |
| 6                                | 0.8        | 864.5        | 0.0         | 0.0       | 0.                   | 0.                  | 242.1            | 0.0       |                      | 0.0 |
| 7                                | 0.0        | 14.0         | 0.0         | 0.0       | 0.                   | 0.                  | 3.9              | 0.0       |                      | 0.0 |
| 8                                | 7.5        | 12375.2      | 0.0         | 0.0       | 0.                   | 0.                  | 3465.1           | 0.0       |                      | 0.0 |
| 9                                | 0.0        | 15.1         | 0.0         | 0.0       | 0.                   | 0.                  | 4.2              | 0.0       |                      | 0.0 |
| 10                               | 0.0        | 21.8         | 0.0         | 0.0       | 0.                   | 0.                  | 6.1              | 0.0       |                      | 0.0 |
| 11                               | 7.9        | 20697.3      | 0.0         | 0.0       | 0.                   | 0.                  | 5795.3           | 0.0       |                      | 0.0 |
| 12                               | 7.4        | 17198.9      | 0.0         | 0.0       | 0.                   | 0.                  | 4815.7           | 0.0       |                      | 0.0 |
| 13                               | 1.3        | 2741.5       | 0.0         | 0.0       | 0.                   | 0.                  | 767.6            | 0.0       |                      | 0.0 |
| 14                               | 0.0        | 22.3         | 0.0         | 0.0       | 0.                   | 0.                  | 6.2              | 0.0       |                      | 0.0 |
| 15                               | 5.6        | 12057.1      | 0.0         | 0.0       | 0.                   | 0.                  | 3376.0           | 0.0       |                      | 0.0 |
| 16                               | 6.4        | 9741.8       | 0.0         | 0.0       | 0.                   | 0.                  | 2727.7           | 0.0       |                      | 0.0 |
| 17                               | 4.0        | 3535.7       | 0.0         | 0.0       | 0.                   | 0.                  | 990.0            | 0.0       |                      | 0.0 |
| 18                               | 1.9        | 941.3        | 0.0         | 0.0       | 0.                   | 0.                  | 263.6            | 0.0       |                      | 0.0 |
| 19                               | 3.0        | 599.2        | 0.0         | 0.0       | 0.                   | 0.                  | 167.8            | 0.0       |                      | 0.0 |

Failure Surface Specified By 10 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.760      | 105.221     |
| 3         | 92.699      | 109.702     |
| 4         | 101.120     | 115.096     |
| 5         | 108.929     | 121.342     |
| 6         | 116.041     | 128.372     |
| 7         | 122.377     | 136.109     |
| 8         | 127.868     | 144.466     |
| 9         | 132.453     | 153.353     |
| 10        | 133.116     | 155.055     |

Circle Center At X = 45.781 ; Y = 192.179 ; and Radius = 94.897

Factor of Safety

\*\*\* 1.190 \*\*\*

Failure Surface Specified By 9 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.195      | 106.459     |
| 3         | 91.582      | 111.906     |
| 4         | 99.506      | 118.005     |
| 5         | 106.918     | 124.717     |
| 6         | 113.771     | 132.001     |
| 7         | 120.019     | 139.808     |
| 8         | 125.624     | 148.089     |
| 9         | 128.952     | 153.968     |

Circle Center At X = 19.314 ; Y = 214.003 ; and Radius = 125.086

Factor of Safety

\*\*\* 1.197 \*\*\*

Failure Surface Specified By 12 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 84.083      | 104.199     |
| 3         | 93.489      | 107.593     |
| 4         | 102.537     | 111.852     |

|    |         |         |
|----|---------|---------|
| 5  | 111.146 | 116.940 |
| 6  | 119.241 | 122.811 |
| 7  | 126.751 | 129.414 |
| 8  | 133.610 | 136.690 |
| 9  | 139.758 | 144.577 |
| 10 | 145.141 | 153.005 |
| 11 | 149.711 | 161.900 |
| 12 | 150.272 | 163.300 |

Circle Center At X = 52.720 ; Y = 205.928 ; and Radius = 106.459

Factor of Safety

\*\*\* 1.199 \*\*\*

Failure Surface Specified By 12 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 84.167      | 103.847     |
| 3         | 93.703      | 106.856     |
| 4         | 102.934     | 110.704     |
| 5         | 111.784     | 115.358     |
| 6         | 120.184     | 120.784     |
| 7         | 128.068     | 126.937     |
| 8         | 135.371     | 133.767     |
| 9         | 142.036     | 141.222     |
| 10        | 148.010     | 149.242     |
| 11        | 153.246     | 157.762     |
| 12        | 156.002     | 163.300     |

Circle Center At X = 55.426 ; Y = 211.684 ; and Radius = 111.608

Factor of Safety

\*\*\* 1.206 \*\*\*

Failure Surface Specified By 11 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.068      | 106.686     |
| 3         | 91.517      | 112.036     |
| 4         | 99.731      | 117.739     |
| 5         | 107.696     | 123.786     |
| 6         | 115.397     | 130.165     |
| 7         | 122.820     | 136.865     |
| 8         | 129.953     | 143.874     |
| 9         | 136.781     | 151.180     |
| 10        | 143.293     | 158.769     |
| 11        | 146.859     | 163.300     |

Circle Center At X = -38.704 ; Y = 308.356 ; and Radius = 235.583

Factor of Safety

\*\*\* 1.207 \*\*\*

Failure Surface Specified By 12 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 84.144      | 103.950     |
| 3         | 93.617      | 107.152     |
| 4         | 102.727     | 111.276     |
| 5         | 111.385     | 116.280     |
| 6         | 119.505     | 122.117     |
| 7         | 127.008     | 128.727     |
| 8         | 133.821     | 136.048     |
| 9         | 139.876     | 144.006     |
| 10        | 145.115     | 152.524     |
| 11        | 149.486     | 161.518     |
| 12        | 150.143     | 163.300     |

Circle Center At X = 56.706 ; Y = 200.822 ; and Radius = 100.689

Factor of Safety

\*\*\* 1.214 \*\*\*

Failure Surface Specified By 9 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 74.400      | 101.700     |
| 2         | 83.637      | 105.532     |
| 3         | 92.347      | 110.443     |

|   |         |         |
|---|---------|---------|
| 4 | 100.406 | 116.364 |
| 5 | 107.697 | 123.209 |
| 6 | 114.113 | 130.879 |
| 7 | 119.564 | 139.262 |
| 8 | 123.970 | 148.240 |
| 9 | 125.680 | 153.135 |

Circle Center At X = 47.186 ; Y = 180.355 ; and Radius = 83.229

Factor of Safety

\*\*\* 1.215 \*\*\*

Failure Surface Specified By 12 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 74.400         | 101.700        |
| 2            | 82.802         | 107.123        |
| 3            | 91.149         | 112.629        |
| 4            | 99.442         | 118.218        |
| 5            | 107.679        | 123.888        |
| 6            | 115.860        | 129.639        |
| 7            | 123.983        | 135.471        |
| 8            | 132.049        | 141.383        |
| 9            | 140.055        | 147.374        |
| 10           | 148.002        | 153.445        |
| 11           | 155.888        | 159.593        |
| 12           | 160.547        | 163.300        |

Circle Center At X = -467.374 ; Y = 950.399 ; and Radius = 1006.881

Factor of Safety

\*\*\* 1.217 \*\*\*

Failure Surface Specified By 12 Coordinate Points

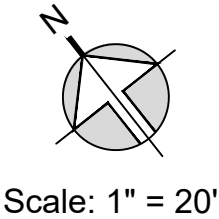
| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 74.400         | 101.700        |
| 2            | 82.758         | 107.190        |
| 3            | 91.027         | 112.813        |
| 4            | 99.205         | 118.568        |
| 5            | 107.290        | 124.453        |
| 6            | 115.280        | 130.467        |
| 7            | 123.172        | 136.609        |
| 8            | 130.964        | 142.876        |
| 9            | 138.656        | 149.267        |
| 10           | 146.244        | 155.780        |
| 11           | 153.726        | 162.414        |
| 12           | 154.693        | 163.300        |

Circle Center At X = -263.272 ; Y = 624.973 ; and Radius = 622.766

Factor of Safety

\*\*\* 1.217 \*\*\*


\*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*

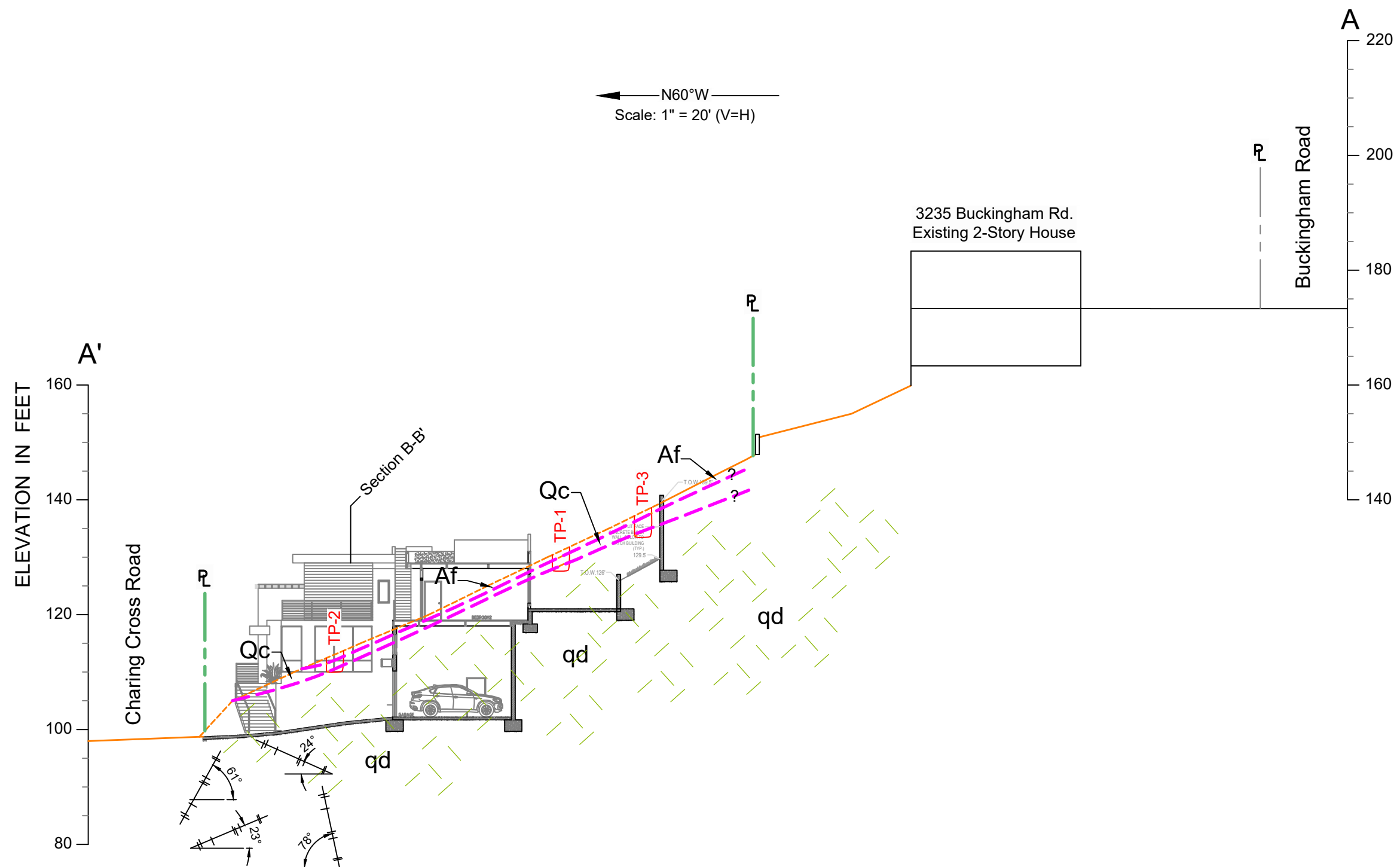


**Note:**  
Site plan and sections prepared by using survey drawn by:  
- M&G Civil Engineering & Land Surveying  
Architectural plans by:  
-DOMUS Design  
-Topographic Lines outside subject property are based on LA County GIS Map.

**LEGEND:**

- Af = Artificial Fill
- Qc = Colluvium (Native Soil)
- qd = Granitic Bedrock
- TP-5 = Location & Number of Test Pit
- 80° = Strike & Dip of Joint
- Geological Contact Approximately Located

|  |  |   |                |           |
|--|--|---|----------------|-----------|
| GEOLOGIC MAP & SITE PLAN   |  | PROJECT No:   |                | 19-523-22 |
| DESCRIPTION: Proposed New Single Family Residence  |  | DATE:   | 09 / 20 / 2019 |           |
| FOR: Mr. Sam Nazaryan  |  | DRAWN BY:   | VM             |           |
| ADDRESS: 3130 Charing Cross Road, Glendale, CA 91206   |  | CHECKED BY:   | SM             |           |
| <div>Applied Earth Sciences</div> |  | DRAWING No:   |                | 1         |
|  |  | www.aessoil.com<br>(818) 552-6000                                 |                |           |
|  |  | GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL<br>ENGINEERING CONSULTANTS |                |           |



**LEGEND:**

- Af** = Artificial Fill  
**Qc** = Colluvium (Native Soil)  
**qd** = Granitic Bedrock
- TP-5** = Location & Number of Test Pit
- = Geological Contact Approximately Located
- = Joint Set

**GEOLOGIC CROSS SECTION A-A'**

**DESCRIPTION:** Proposed New Single Family Residence

**FOR:** Mr. Sam Nazaryan

**ADDRESS:** 3130 Charing Cross Road, Glendale, CA 91206



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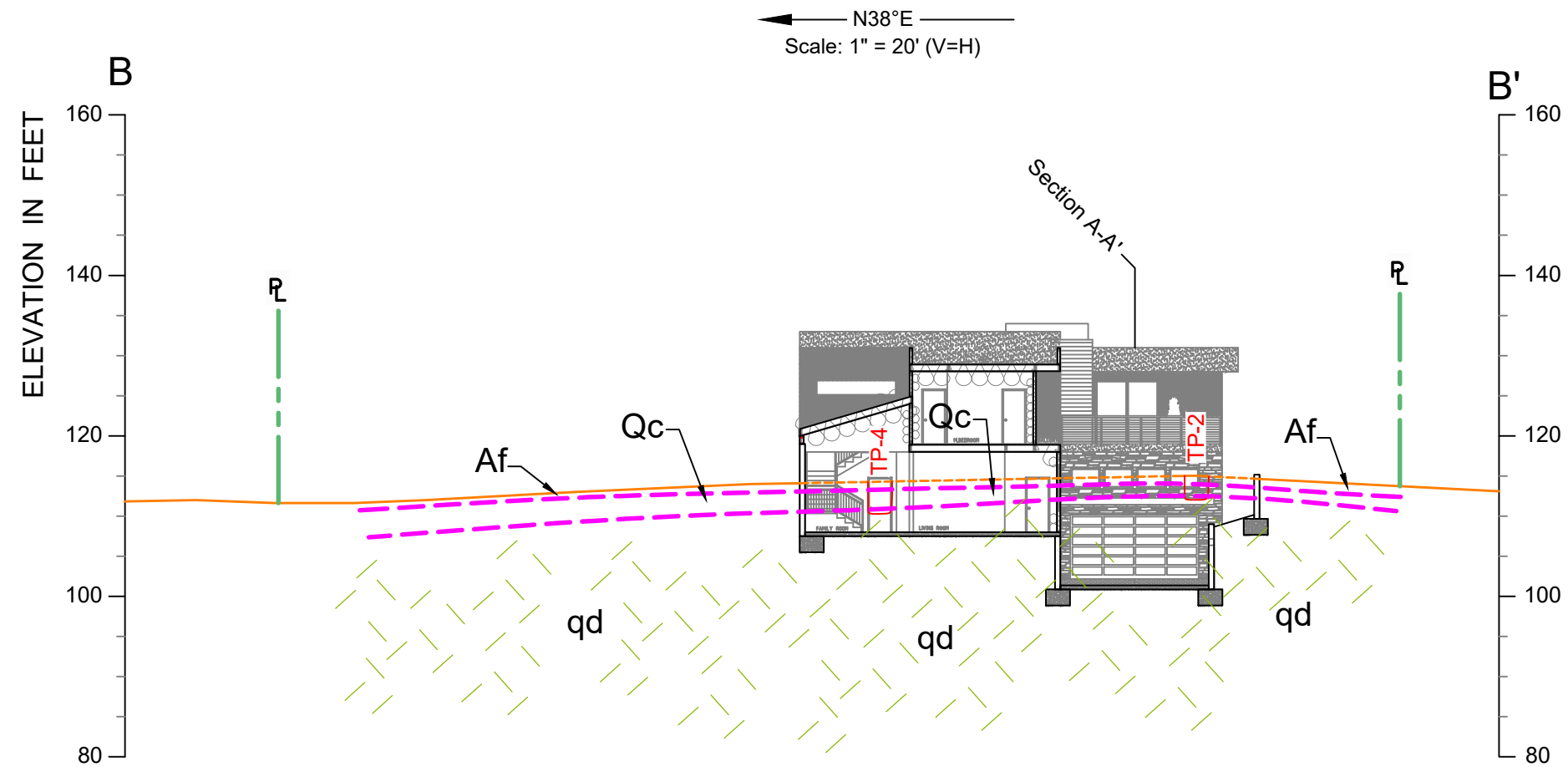
**DATE:** 09 / 20 / 2019

**DRAWN BY:** VM

**CHECKED BY:** SM

**DRAWING No:** 2





**LEGEND:**

Af = Artificial Fill  
Qc = Colluvium (Native Soil)  
qd = Granitic Bedrock

TP-5  
= Location & Number of Test Pit  
= Geological Contact  
Approximately Located

**GEOLOGIC CROSS SECTION B-B'**

DESCRIPTION: Proposed New Single Family Residence

FOR: Mr. Sam Nazaryan

ADDRESS: 3130 Charing Cross Road, Glendale, CA 91206



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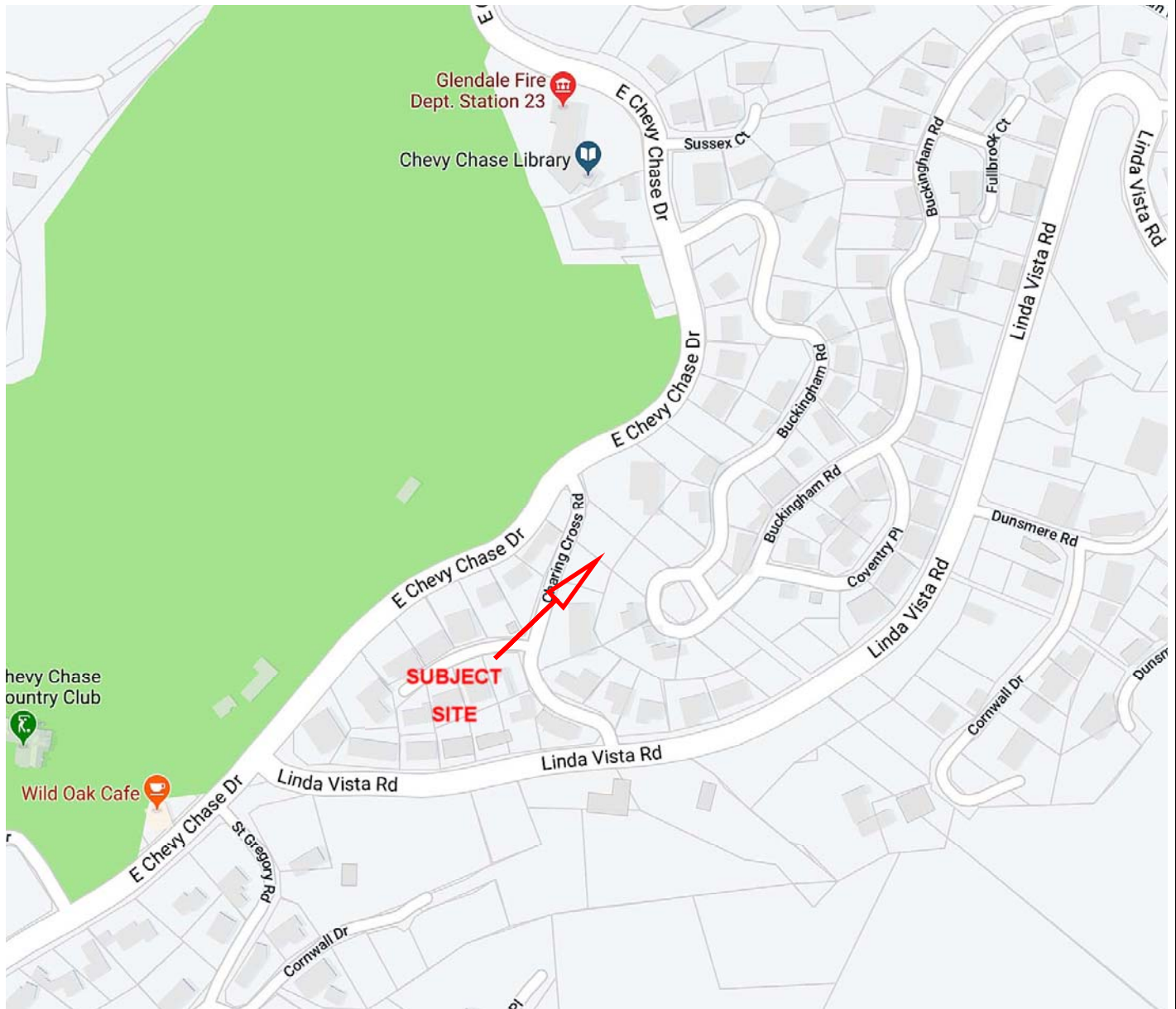
PROJECT No: 19-523-22

DATE: 09 / 20 / 2019

DRAWN BY: VM

CHECKED BY: SM

DRAWING No: 3




Reference: Portion of Google Maps

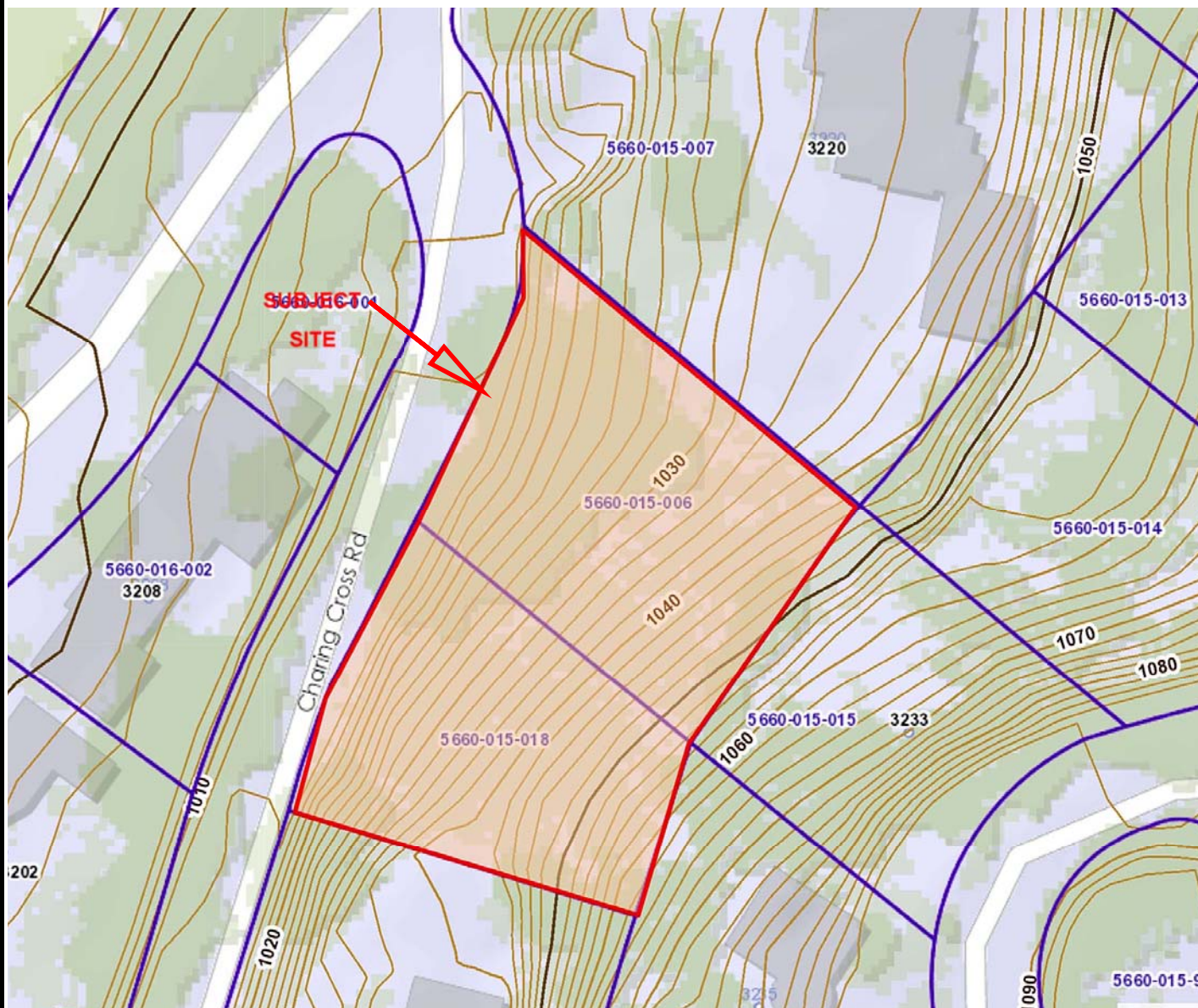
## SITE VICINITY MAP

Proposed New Single Family Residence

3130 Charing Cross Road, Glendale, CA 91206

|   |                  |      |                |             |           |
|---|------------------|------|----------------|-------------|-----------|
| FOR   | Mr. Sam Nazaryan | DATE | 09 / 20 / 2019 | PROJECT No. | 19-523-22 |
|  <b>APPLIED EARTH SCIENCES</b><br>GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS |                  |      |                | FIGURE No.  | 1         |






Reference: Los Angeles County GIS Map

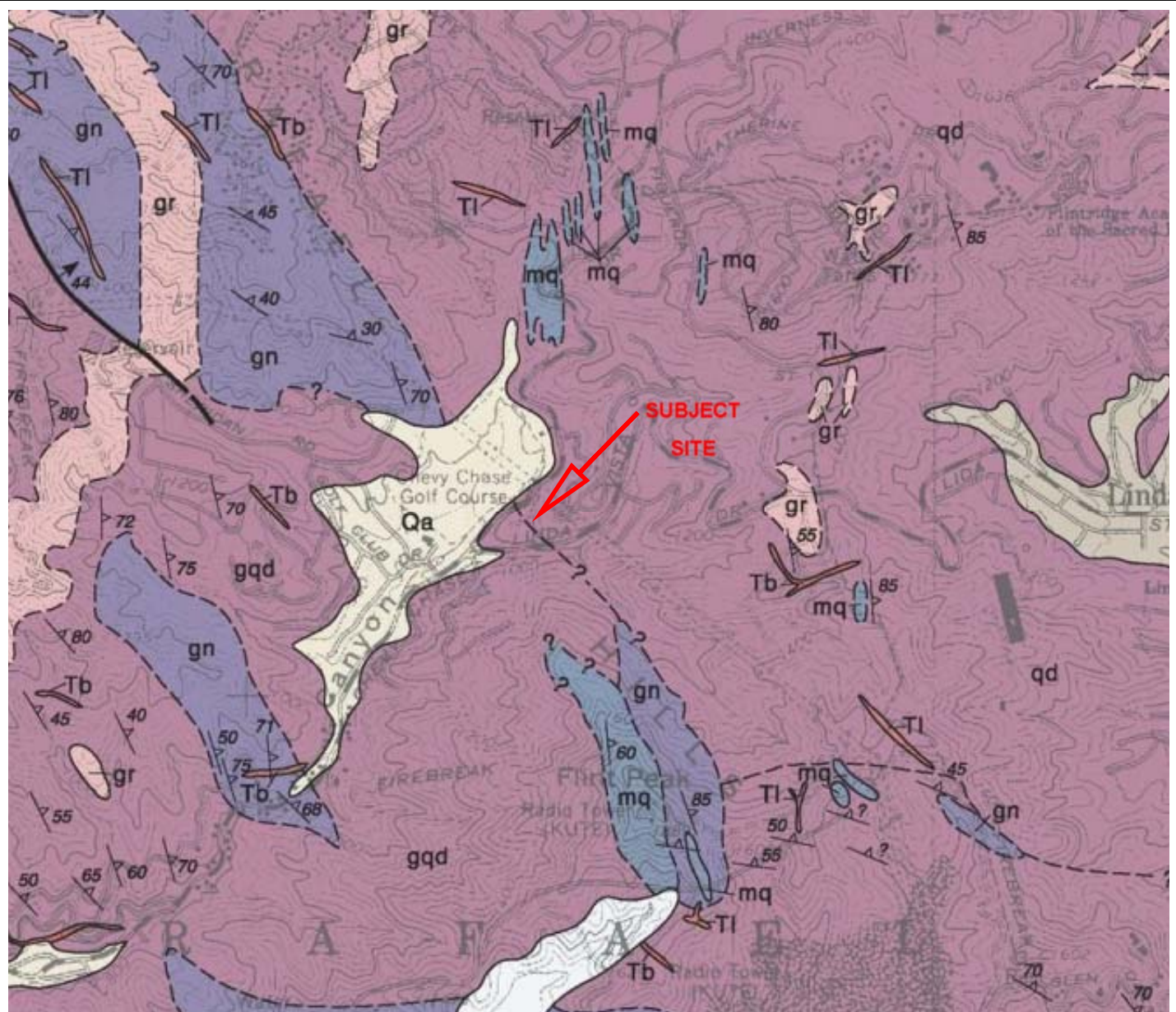
## REGIONAL TOPOGRAPHIC MAP

Proposed New Single Family Residence

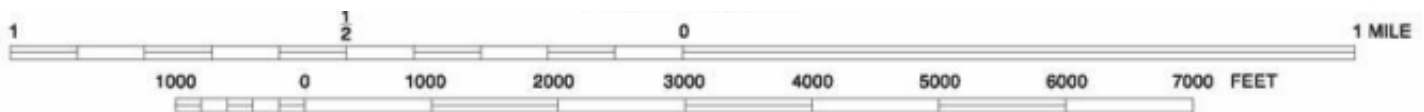
3130 Charing Cross Road, Glendale, CA 91206

|   |                  |      |                |             |           |
|---|------------------|------|----------------|-------------|-----------|
| FOR   | Mr. Sam Nazaryan | DATE | 09 / 20 / 2019 | PROJECT No. | 19-523-22 |
|  <b>APPLIED EARTH SCIENCES</b><br>GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS |                  |      |                | FIGURE No.  | 2         |





**gqd** Massive to gneissoid quartz diorite, locally includes unmapped biotite-rich gneiss




Reference: Dibblee Geologic Map of the Pasadena Quadrangle

## REGIONAL GEOLOGIC MAP

Proposed New Single Family Residence

3130 Charing Cross Road, Glendale, CA 91206

|   |                  |      |                |             |           |
|---|------------------|------|----------------|-------------|-----------|
| FOR   | Mr. Sam Nazaryan | DATE | 09 / 20 / 2019 | PROJECT No. | 19-523-22 |
|  <b>APPLIED EARTH SCIENCES</b><br>GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS |                  |      |                | FIGURE No.  | 3         |

## **APPENDIX I**

### **METHOD OF FIELD EXPLORATION**

In order to define the subsurface conditions, five test pits were excavated on the site. The approximate location of the excavated test pits are shown on the enclosed Site Plan. Continuous logs of the subsurface conditions, as encountered in the test pits, were recorded during the field work and are presented on Figure Nos. I-1 through I-5 within this Appendix. These figures also show the number and approximate depths of each of the recovered soil and rock samples.

Relatively undisturbed samples of the subsurface materials were obtained by driving successive drops of a 36-pound metal weight free-falling a vertical distance of about 30 inches. The relatively undisturbed soil and bedrock samples were retained in brass liner rings 2.5 inches in diameter and 1.0 inch in height.

Field investigation for this project was performed on August 23, 2019. The material excavated from the test pits was placed back and compacted upon completion of the field work. Such material may settle. The owner should periodically inspect these areas and notify this office if the settlement creates a hazard to persons or property.

Date: September 4, 2019

Project No: 19-523-22

Figure No. I-1

## EXPLORATORY TEST PIT NO. 1

PROJECT LOCATION: 3130 Charing Cross Road, Glendale

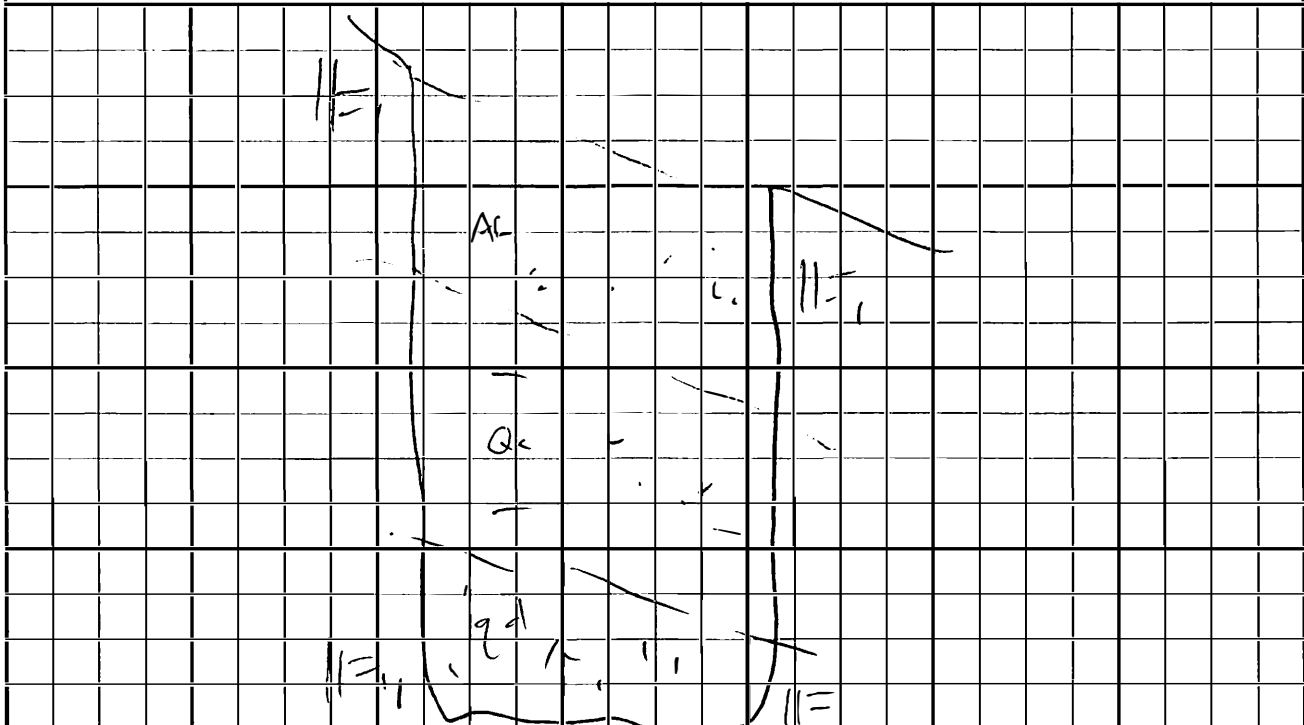
PROJECT TYPE: Proposed SFR

DATE LOGGED: August 23, 2019

LOGGED BY: MA

| DRY DENSITY<br>(PCF) | FIELD<br>MOISTURE (%<br>DRY WEIGHT) | ATTITUDE | BLOWS PER<br>FOOT | GEOLOGIC<br>UNIT                     | MATERIAL DESCRIPTION (USCS)  |
|----------------------|-------------------------------------|----------|-------------------|--------------------------------------|--|
|                      |                                     |          |                   | Slough<br>(Af)                       | 0' - 1': slough: light brown to grayish sand with silt (SM), rootlets, moist, some rock fragments, loose, creep prone.   |
|                      |                                     |          |                   | Soil<br>(Qc)                         | 1' - 2.5': native colluvial soil, tan to light brown fine-grained silty sand (SM), moist, slightly clayey with depth.  |
|                      |                                     |          |                   | Bedrock<br>Quartz<br>Diorite<br>(qd) | 2.5' - 3.5': Quartz Diorite: Medium to coarse grained granitic bedrock, light gray to yellowish brown, moderately weathered, slightly friable, mostly composed of plagioclase along with quartz and black hornblende minerals. |
|                      |                                     |          |                   |                                      | Total Depth 3.5 Feet. No water, No caving.<br>samples not recovered from TP-1 due to beehives near test pit  |
|                      |                                     |          |                   |                                      | Test Pit backfilled to surface level after logging.  |

Scale 1"=1'



Applied Earth Sciences

Date: September 4, 2019

Project No: 19-523-22

Figure No. I-2

## EXPLORATORY TEST PIT NO. 2

PROJECT LOCATION: 3130 Charing Cross Road, Glendale

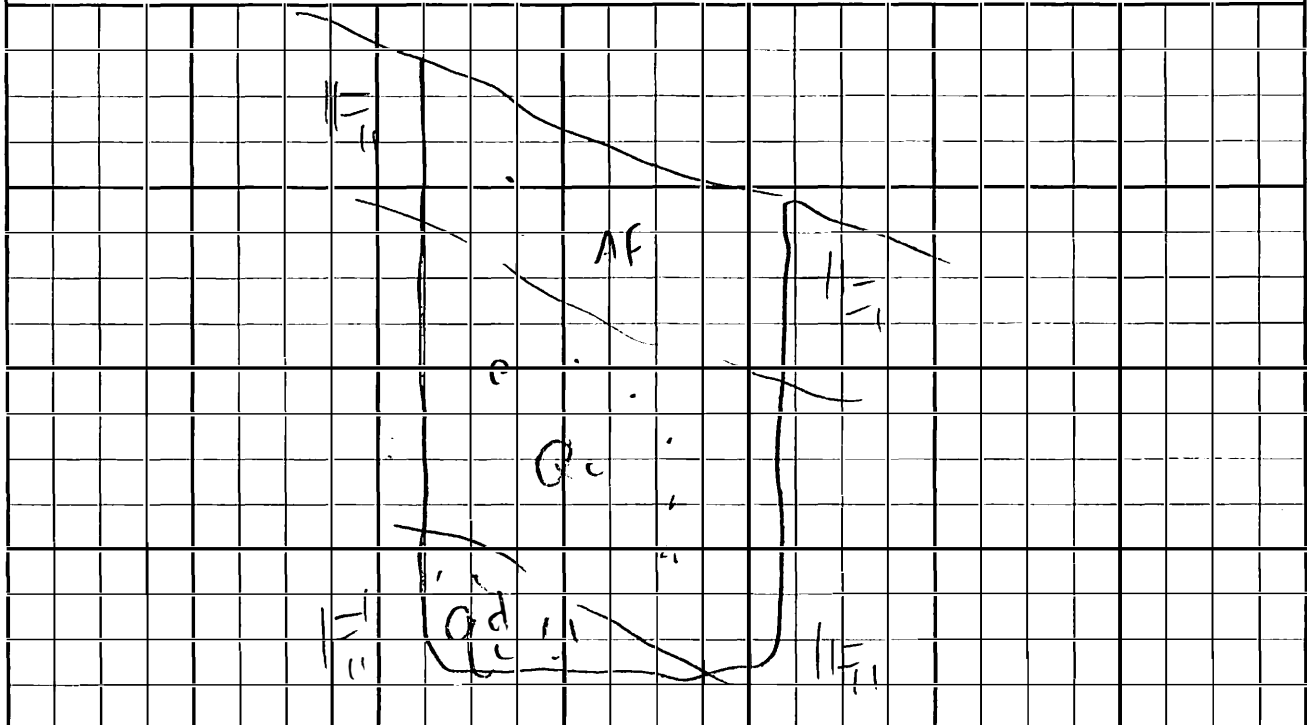
PROJECT TYPE: Proposed SFR

DATE LOGGED: August 23, 2019

LOGGED BY: MA

| DRY DENSITY<br>(PCF) | FIELD<br>MOISTURE (%<br>DRY WEIGHT) | ATTITUDE | BLOWS PER<br>FOOT | GEOLOGIC<br>UNIT                     | MATERIAL DESCRIPTION (USCS)  |
|----------------------|-------------------------------------|----------|-------------------|--------------------------------------|--|
| 94<br>@ 1.5'         | 3                                   |          |                   | Slough<br>(Af)                       | 0' - 1': slough: light brown to grayish sand with silt (SM), rootlets, moist, some rock fragments, loose, creep prone.   |
|                      |                                     |          |                   | Soil<br>(Qc)                         | 1' - 2.5': native colluvial soil, tan to light brown fine-grained silty sand (SM), moist, slightly clayey with depth.  |
|                      |                                     |          |                   | Bedrock<br>Quartz<br>Diorite<br>(qd) | 2.5' - 3': Quartz Diorite: Medium to coarse grained granitic bedrock, light gray to yellowish brown, moderately weathered, slightly friable, yellowish aplitic veins |
|                      |                                     |          |                   |                                      | Total Depth 3 Feet. No water, No caving.   |
|                      |                                     |          |                   |                                      | Test Pit backfilled to surface level after logging and sampling.   |

Scale 1"=1'



Applied Earth Sciences

Date: September 4, 2019

Project No: 19-523-22

Figure No. I-3

### EXPLORATORY TEST PIT NO. 3

PROJECT LOCATION: 3130 Charing Cross Road, Glendale

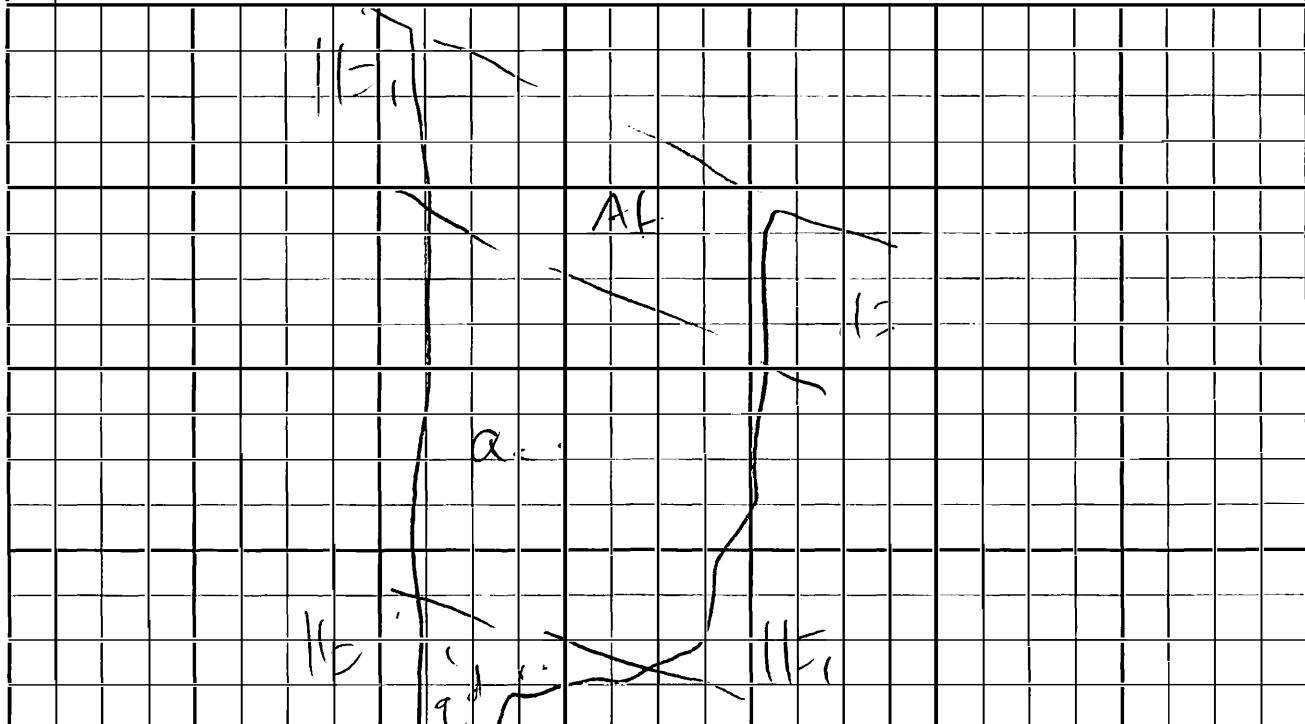
PROJECT TYPE: Proposed SFR

DATE LOGGED: August 23, 2019

LOGGED BY: MA

| DRY DENSITY<br>(PCF) | FIELD<br>MOISTURE (%<br>DRY WEIGHT) | ATTITUDE | BLOWS PER<br>FOOT | GEOLOGIC<br>UNIT                     | MATERIAL DESCRIPTION (USCS)   |
|----------------------|-------------------------------------|----------|-------------------|--------------------------------------|---|
| 109<br>@1'           | 4                                   |          |                   | Slough<br>(Af)                       | 0' - 1': slough: light brown to grayish sand with silt (SM), rootlets, moist, some rock fragments, loose, creep prone.  |
| 105<br>@2.5'         | 4                                   |          |                   | Soil<br>(Qc)                         | 1' - 3.5': native colluvial soil, tan to light brown fine-grained silty sand (SM), moist, slightly clayey with depth.   |
| 107<br>@4.5'         | 5                                   |          |                   | Bedrock<br>Quartz<br>Diorite<br>(qd) | 3.5' - 4.5': Quartz Diorite: Medium to coarse grained granitic bedrock, brownish yellow, moderately weathered, slightly friable, yellowish orange aplitic veins<br><br>Total Depth 4.5 Feet. No water, No caving.<br><br>Test Pit backfilled to surface level after logging and sampling. |

Scale 1"=1'



Applied Earth Sciences

Date: September 4, 2019

Project No: 19-523-22

Figure No. I-4

## EXPLORATORY TEST PIT NO. 4

PROJECT LOCATION: 3130 Charing Cross Road, Glendale

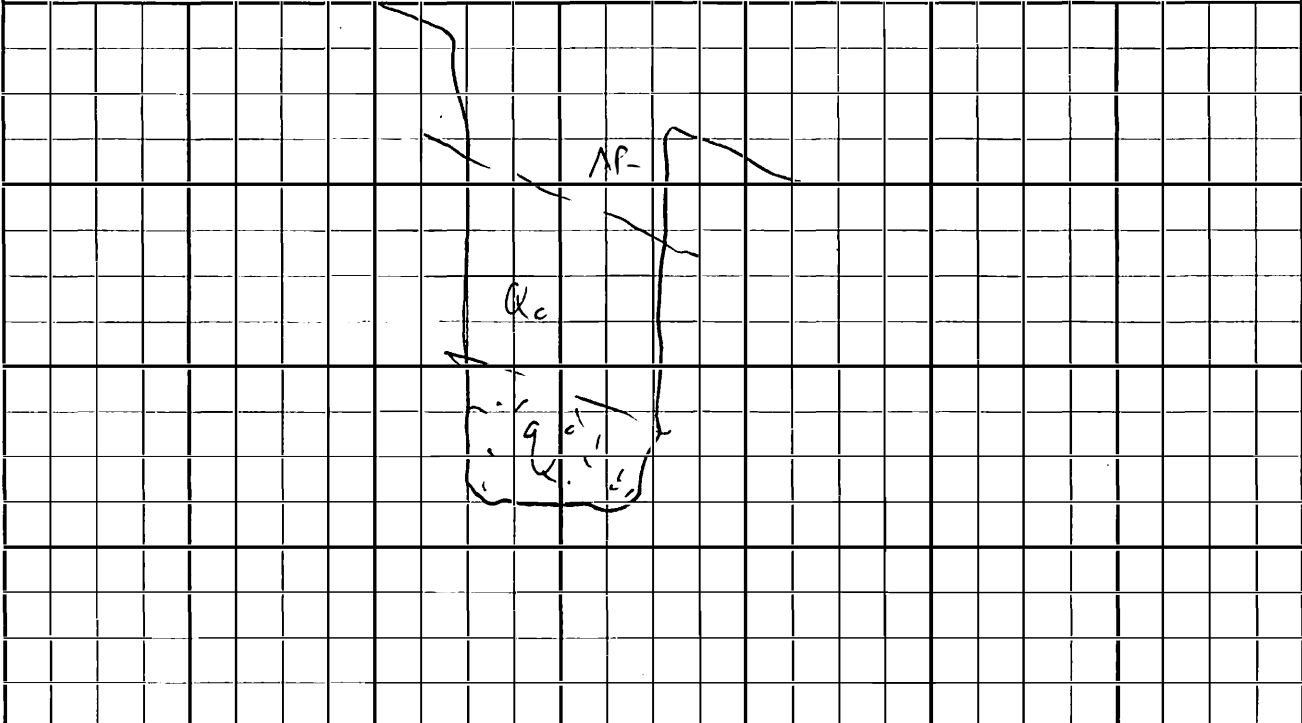
PROJECT TYPE: Proposed SFR

DATE LOGGED: August 23, 2019

LOGGED BY: MA

| DRY DENSITY<br>(PCF) | FIELD<br>MOISTURE (%<br>DRY WEIGHT) | ATTITUDE | BLOWS PER<br>FOOT | GEOLOGIC<br>UNIT                     | MATERIAL DESCRIPTION (USCS)   |
|----------------------|-------------------------------------|----------|-------------------|--------------------------------------|---|
| 114<br>@ 1'          | 5                                   |          |                   | Slough<br>(Af)                       | 0' - 1': slough: light brown to grayish sand with silt (SM), rootlets, moist, some rock fragments, loose, creep prone.  |
| 92<br>@ 3'           | 5                                   |          |                   | Soil<br>(Qc)                         | 1' - 3.5': native colluvial soil, tan to light brown fine-grained silty sand (SM), moist, slightly clayey with depth.   |
| 102<br>@ 5'          | 6                                   |          |                   | Bedrock<br>Quartz<br>Diorite<br>(qd) | 3.5' - 5': Quartz Diorite: Medium to coarse grained granitic bedrock, brownish yellow, moderately weathered, slightly friable, yellowish orange aplitic veins<br><br>Total Depth 5 Feet. No water, No caving.<br><br>Test Pit backfilled to surface level after logging and sampling. |

Scale 1"=2'



**Applied Earth Sciences**

Date: September 4, 2019

Project No: 19-523-22

Figure No. I-5

## EXPLORATORY TEST PIT NO. 5

PROJECT LOCATION: 3130 Charing Cross Road, Glendale

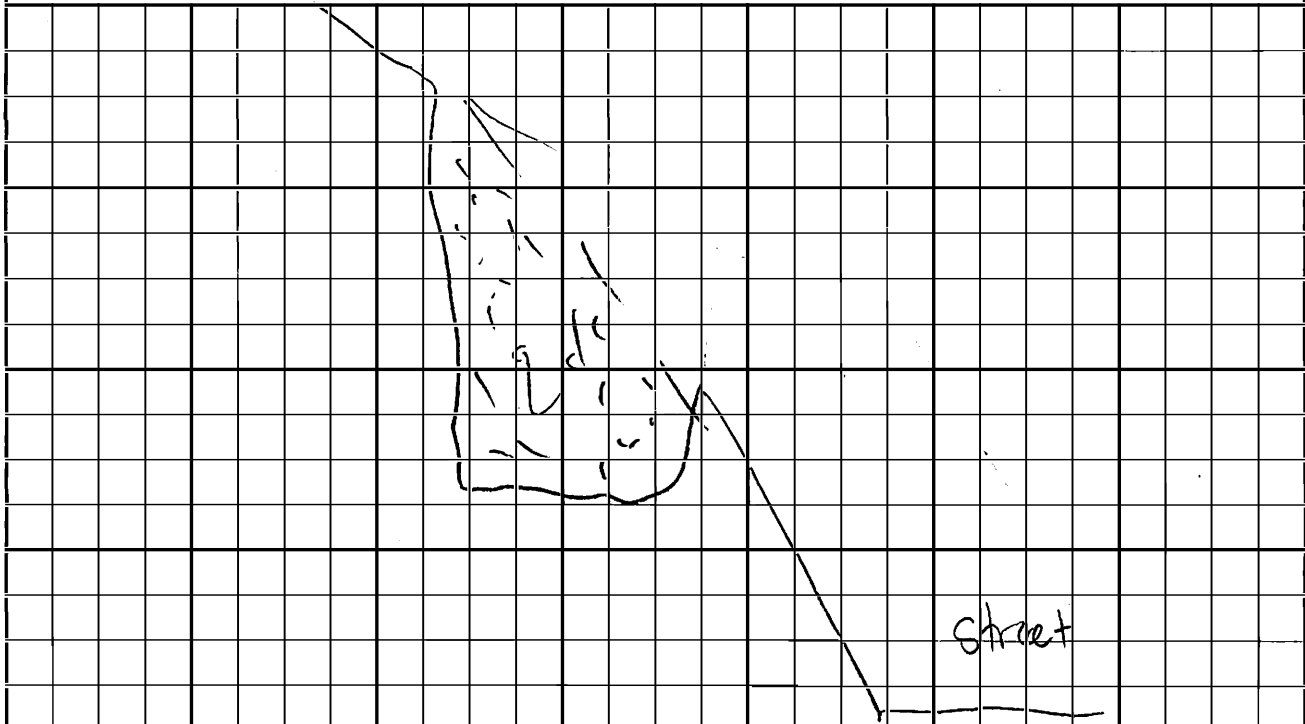
PROJECT TYPE: Proposed SFR















DATE LOGGED: August 23, 2019

LOGGED BY: MA

| DRY DENSITY<br>(PCF) | FIELD<br>MOISTURE (%<br>DRY WEIGHT) | ATTITUDE | BLOWS PER<br>FOOT | GEOLOGIC<br>UNIT                     | MATERIAL DESCRIPTION (USCS)   |
|----------------------|-------------------------------------|----------|-------------------|--------------------------------------|---|
| 115                  | 5                                   |          |                   | Bedrock<br>Quartz<br>Diorite<br>(qd) | <p>0 - 1.5': Quartz Diorite: Medium to coarse grained granitic bedrock, brownish yellow, moderately weathered, slightly friable, highly weathered at surface.</p> <p>Total Depth 1.5 Feet. No water, No caving.</p> <p>Test Pit backfilled to surface level after logging and sampling.</p> |

Scale 1"=1'



| MAJOR DIVISIONS  |  |  | GROUP SYMBOLS   | TYPICAL NAME   |
|--|--|--|---|--|
| <div>COARSE GRAINED SOILS</div> <div>(More than 50% of material is LARGER than No. 200 sieve size)</div> | GRAVELS<br><div>(More than 50% of coarse fraction is LARGER than the No. 4 sieve size)</div> | CLEAN GRAVELS<br><div>(Little or no fines)</div>                                       |  GW                              | Well graded gravels, gravel - sand mixtures, little or no fines.                       |
|  |  |  |  GP                              | Poorly graded gravels or gravel-sand mixtures, little or no fines.                     |
|  |  | GRAVELS WITH FINES<br><div>(Appreciable amt. of fines)</div>                           |  GM                              | Silty gravels, gravel-sand-silt mixtures.  |
|  |  |  |  GC                              | Clayey gravels, gravel-sand-clay mixtures.   |
|  | SANDS<br><div>(More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)</div>  | CLEAN SANDS<br><div>(Little or no fines)</div>   |  SW                              | Well graded sands, gravelly sands, little or no fines.                                 |
|  |  |  |  SP                              | Poorly graded sands or gravelly sands, little or no fines.                             |
|  |  | SANDS WITH FINES<br><div>(Appreciable amt. of fines)</div>                             |  SM                              | Silty sands, sand-silt mixtures.   |
|  |  |  |  SC                              | Clayey sands, sand-clay mixtures.  |
| <div>FINE GRAINED SOILS</div> <div>(More than 50% of material is SMALLER than No. 200 sieve size)</div>  | SILTS AND CLAYS<br><div>(Liquid limit LESS than 50)</div>                                    |  ML  | Organic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity. |  |
|  |  |  CL | Organic clay of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.                   |  |
|  |  |  OL | Organic silts and organic silty clays of low plasticity.  |  |
|  | SILTS AND CLAYS<br><div>(Liquid limit GREATER than 50)</div>                                 |  MH | Organic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.                                |  |
|  |  |  CH | Organic clays of high plasticity, fat clays.  |  |
|  |  |  OH | Organic clays of medium to high plasticity, organic silts.  |  |
|  |  | HIGHLY ORGANIC SOILS   |   |  Pt |

**BOUNDARY CLASSIFICATIONS:** Soils possessing characteristics of two groups are designated by combinations of group symbols.

#### PARTICLE SIZE LIMITS

| SILT OR CLAY              | SAND    |        |        | GRAVEL |         | COBBLES | BOULDERS |
|---------------------------|---------|--------|--------|--------|---------|---------|----------|
|                           | FINE    | MEDIUM | COARSE | FINE   | COARSE  |         |          |
|                           | NO. 200 | NO. 40 | NO. 10 | NO. 4  | 3/4 in. | 3 in.   | (12 in.) |
| U. S. STANDARD SIEVE SIZE |         |        |        |        |         |         |          |

## UNIFIED SOIL CLASSIFICATION SYSTEM

Propose New Single Family Residence  
**JOB NAME :** 3130 Charing Cross Road,  
 Glendale, CA 91206

**JOB No.**

19-523-22



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**FIGURE No.**

I-6



## **APPENDIX II**

### **LABORATORY TESTING PROCEDURES**

#### **MOISTURE DENSITY**

The moisture-density information provides a summary of soil consistency for each stratum and can also provide a correlation between soils found on this site and other nearby sites. The dry unit weight and field moisture content were determined for each undisturbed sample, and the results are shown on the log of exploratory borings.

#### **SHEAR AND RE-SHEAR TESTS**

After the samples are pre-soaked overnight under initial confining pressure, a range of normal stresses are applied vertically, and the shear strengths are progressively determined under each load in order to determine the internal angle of friction and the cohesion of the sample. After application of each of the confining pressures, and before the shearing tests, sufficient amount of time is allowed for any excess pore pressure to dissipate. During the course of shear test, the sample is allowed to undergo volume change under a given confining pressure. Under each load, the direct shear tests are continued until the ultimate strength or about 3 percent strain (whichever is lower) is reached. The sample is then allowed to relax to remove the major portion of the viscous component of the shear strength. It should be noted that due to normal disturbance during sampling and laboratory extruding, the measured bedrock strengths are normally significantly lower than the actual values.

In order to determine the strength of the bedrock along bedding, foliation or joint planes or landslide debris strengths, the sample is soaked overnight under initial confining pressure. The sample is then re-sheared several times until the least strengths are obtained. During typical testing, the shearing of the samples are continued until the residual strengths are developed (the shear strengths remain constant, after the peak has been reached, or about 5 percent strain corresponding to approximately 0.100 inches of shearing deformation has occurred). At this point, the tests are stopped. The samples are then pushed back to their original position. The

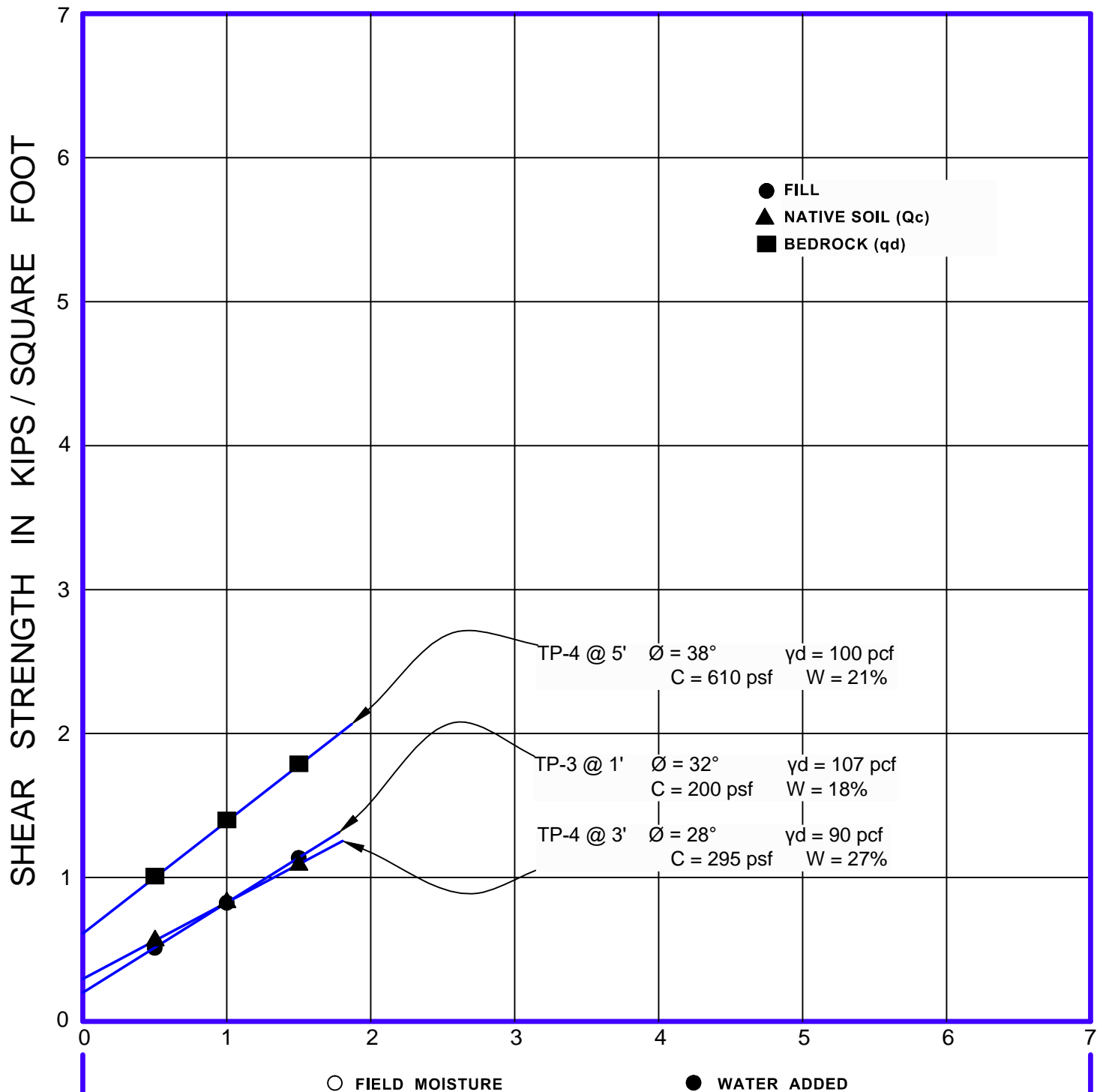
shear test procedure is then repeated along the previously sheared plane. This procedure is repeated several times until constant residual strengths are obtained.

## **CONSOLIDATION**

The apparatus used for the consolidation tests is designed to receive the undisturbed brass ring of soil as it comes from the field. Loads were applied to the test specimen in several increments, and the resulting deformations were recorded at selected time intervals. Porous stones were placed in contact with the top and bottom of the specimen to permit the ready addition or release of water.

Undisturbed specimens were tested at the field and added water conditions. The test results are shown on Figure No. II-2 within this Appendix.

# NORMAL STRESS IN KIPS / SQUARE FOOT



## DIRECT SHEAR TESTS

Propose New Single Family Residence  
**JOB NAME :** 3130 Charing Cross Road,  
 Glendale, CA 91206

**JOB No.**

19-523-22



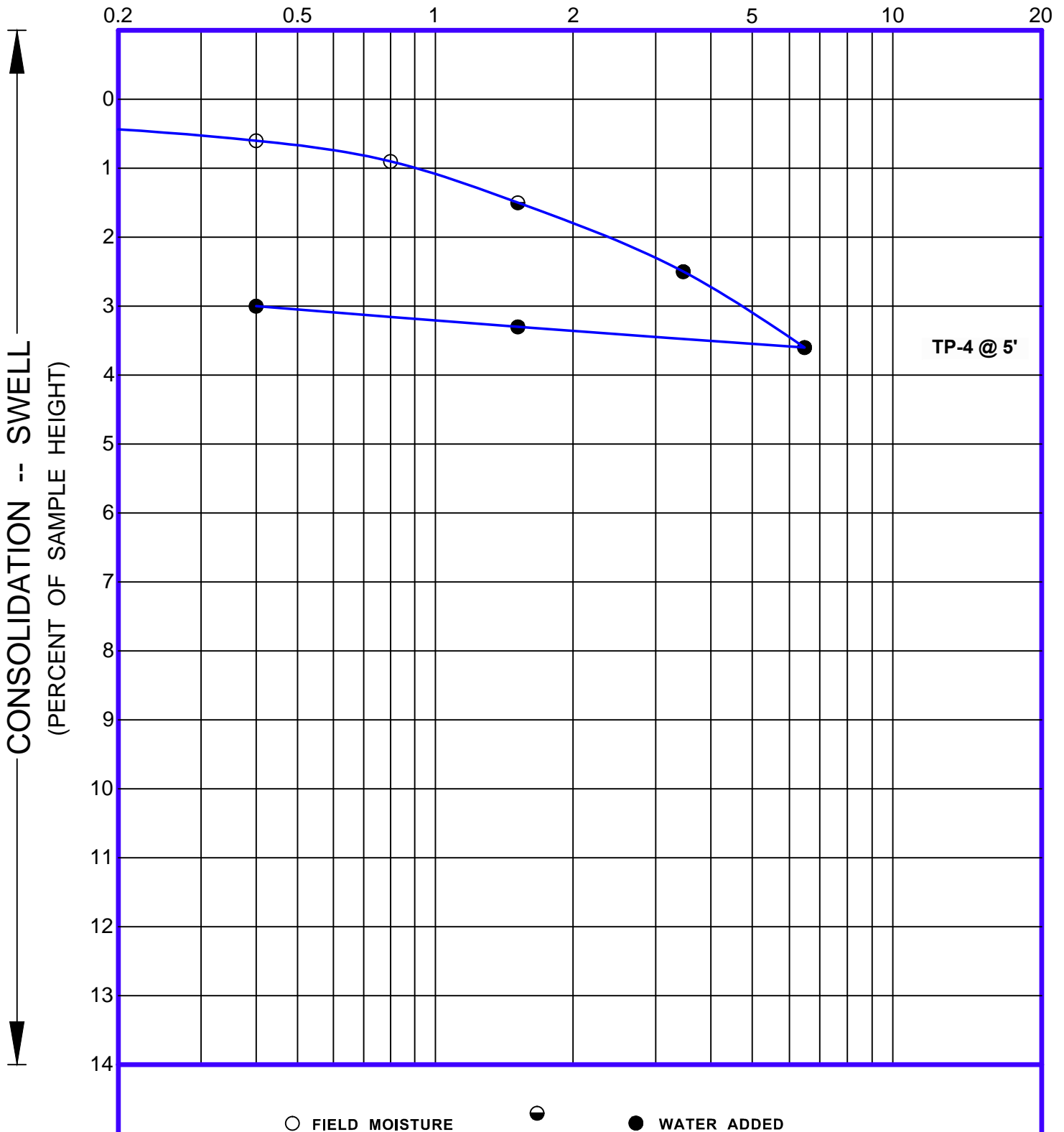
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**FIGURE No.**

II - 1

# PRESSURE IN KIPS PER SQUARE FOOT



○ FIELD MOISTURE

● WATER ADDED

## SWELL - CONSOLIDATION TESTS

Propose New Single Family Residence  
 JOB NAME : 3130 Charing Cross Road,  
 Glendale, CA 91206

JOB No.  
 19-523-22



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FIGURE No.

II - 2

**Preliminary Hydrologic and Hydraulic Drainage Report**

For LOT 1 OF TRACT NO 9327

AND LOT 1 AND ½ VAC WALK ADJ ON NE OF TRACT 9328

3130 Charing Cross Road, Glendale CA 91206

Mr. Sam Nazaryan

2048 Ashington Drive

Glendale CA 91206

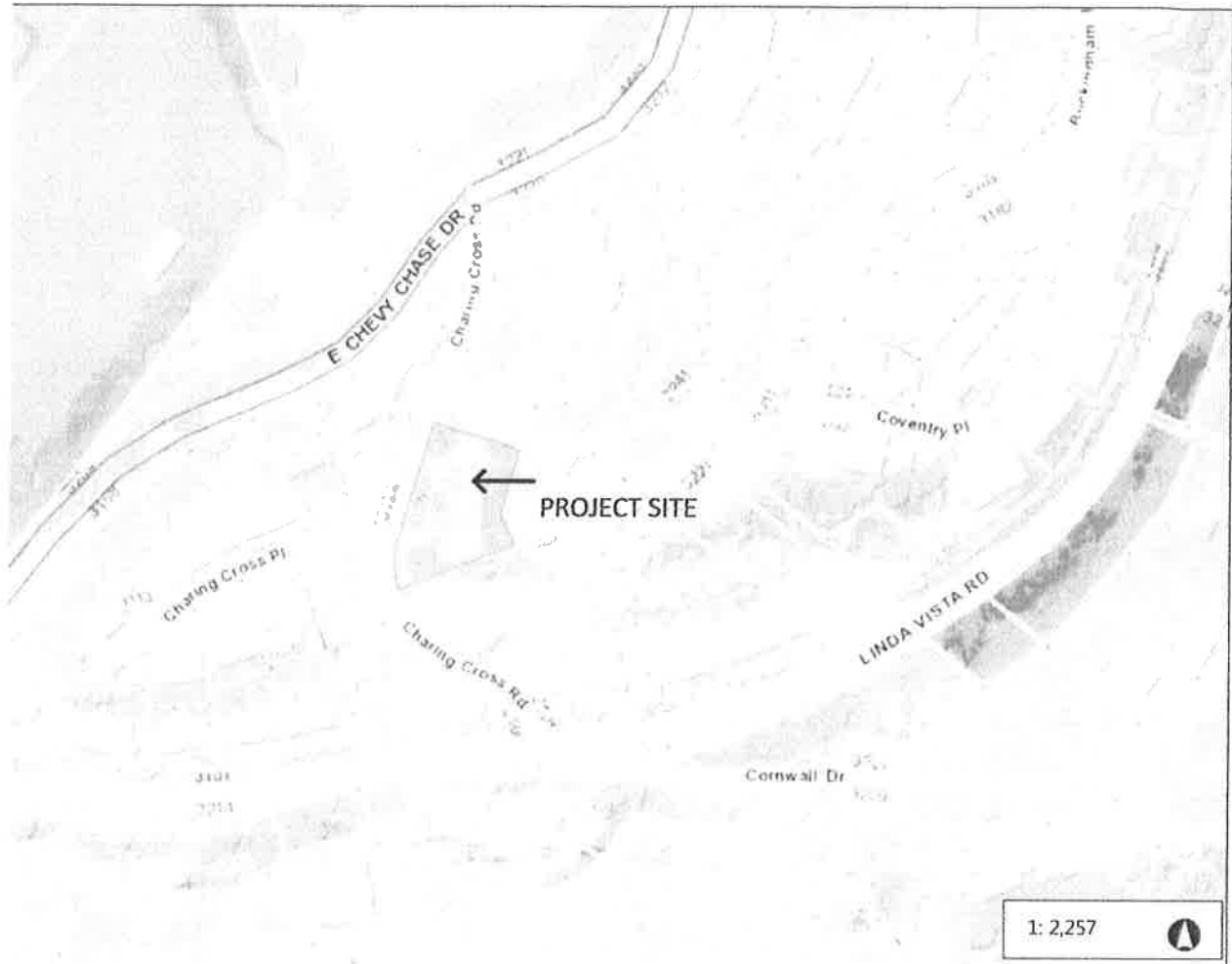
**November 15, 2019**

# HYDROLOGY STUDY FOR 3130 CHARING CROSS ROAD GLENDALE CA 91206

## Contents

|   |    |
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## VICINITY MAP



## 1. SCOPE & DESCRIPTION OF PROJECT AREA

The City of Glendale is located at the southeasternmost edge of the San Fernando Valley, in an area characterized by sharp contrasts in terrain. Distinct topographic features separate the City into four specific areas. From north to south these include 1) the steeply rising range front of the San Gabriel Mountains, 2) the gently south-dipping but elevated alluvial fan surface known as the La Cañada Valley at the base of the San Gabriel Mountains, 3) the lower but not less impressive bedrock highlands of the Verdugo Mountains and the San Rafael Hills, and 4) the even more gently southdipping alluvial surface (piedmont) at the base of the Verdugo Mountains. Farther south, just outside the City limits, is the northeastern end of the Santa Monica Mountains, which are locally referred to as the Hollywood Hills. The Los Angeles River hugs the north side of the Hollywood Hills as it flows easterly through the area; when it reaches the eastern end of the hills, the river veers south to flow through the "Narrows" and the City of Los Angeles on its way to the Pacific Ocean. The two heavily populated alluvial surfaces at the base of the Verdugo and San Gabriel Mountains are linked by the south-trending canyon carved by the Verdugo Wash that separates the Verdugo Mountains on the west from the San Rafael Hills on the east.

The subject site is situated in the San Rafael Hills, east of the Verdugo Mountains.

Nearly all the tributaries flowing northerly and easterly out of the Verdugo Mountains and westerly out of the San Rafael Hills empty into Verdugo Wash. South of the mountains, Verdugo Wash turns to the west-southwest and joins the Los Angeles River near the junction of Highway 134 with the 5 Freeway (Interstate 5). Drainage from the southwestern slope of the Verdugo Mountains flows directly across the alluvial fan and into the Los Angeles River. Verdugo Wash has been confined to a man-made channel through most of Glendale to reduce the potential for it to flood the City.

This report provides an analysis of the project's potential impacts associated with surface water hydrology. The Los Angeles Regional Water Quality Control Board (RWQCB) agreed to use a spatially distributed statistical rainfall distribution for water quality studies. The RWQCB allows the use of 85<sup>th</sup> percentile 24-hour rainfall event or the 0.75-inch event for Standard Urban Storm Water Mitigation Plan (SUSMP) and Best Management Practices (BMP) design hydrologic studies. During a 50-year, 24-hour storm event, the project site receives approximately 7.2 inches of rainfall.

The project is bounded on the East and South sides by single family residences, on the West side by Charing Cross Road, and on the North side by a vacant lot in a residential area in the City of Glendale, County of Los Angeles. The project site consists of a trapezoid-shaped double lot, gently sloping from the east to the west and currently occupied by a single-family dwelling. There are two adjacent ascending slope lots part of this project; however, the north one is off-limits to development due to Southern California Edison right-of-way and overhead power. The project development lot has a total lot area of 0.139 acres. Single family residences are present on surrounding properties. The project proposes the construction of two-story single-family residence over a garage at the street level.

Construction of the project would require paving, and landscaping on the site as well as earthwork activities (i.e., grading, excavation). As a result, underlying soils would be exposed, making the site temporarily more permeable. However, this increase in permeability would not have a substantial impact on existing drainage patterns and flows, particularly since runoff would be properly controlled through the implementation of appropriate BMPs if required. There will be area drains around the house collecting



the storm water and discharging it to the street. Therefore, construction-related impacts to surface water hydrology would be less than significant.

The impermeable area for the new project will be 0.057 acres. The site was previously occupied by a single-family dwelling of slightly smaller size of the proposed single-family dwelling. The discharge from the proposed project remains about the same since all the runoff will be collected and directed to the street. If required all the runoff would be directed to the proposed BMPs to help reduce pollution in water quality. Stormwater management BMPs are control measures taken to mitigate changes to both quantity and quality of runoff caused through the proposed development.

## **2. HYDROLOGIC ANALYSIS**

The study considers roof runoff area to include the new impervious are. The subject site will add 0.057 of an impervious area due to the new development. The project is in a developed area and there is an existing storm drain system for the area. All the flow from the upstream watershed area is directed to the Sycamore Canyon Channel (map attached in Appendix C). Water directed to our property would be collected by the sewer designed behind the retaining walls and from there will be directed to a catch basin at the end of the swale and further discharges to Charing Cross Road with a pipe behind the retaining walls. The runoff would then be discharged into the existing storm drain system along the Chevy Chase Drive.

The hydrologic parameters were determined from the Los Angeles County Department of Public Works Hydrology Manual, dated January 2006, and the LA County Hydrology GIS. The project site is in the Glendale quad sheet, included in Appendix A. The project is in soil classification type 68. An image from the LA County Hydrology Map GIS Viewer is included in Appendix C, depicting the 50-yr two-tenths rainfall, final 85<sup>th</sup> percentile (24-hr rainfall), and 1-yr 1-hr rainfall intensity. From this map, it was determined that the project site is on the 1.1 inch 85<sup>th</sup> percentile isohyets. The 85<sup>th</sup> percentile, 24-hour rainfall depth from the isohyets map was approximated at 1.1 inches for calculations of LID design (if required). The proportion imperviousness for the site is 41 percent which is higher than the existing impervious area which is 26 percent.

The project site is less than 40 acres, so for this analysis Los Angeles County's HydroCalc was used to determine the Time of Concentration ( $t_c$ ), the peak flow ( $Q$ ), and the 24-hr runoff ( $V_M$ ). Although the watershed is small approximately 0.14 acre, the existing  $t_c$  was 6 minutes, the new  $t_c$  remains the same and therefore it is appropriate to use HydroCalc without any adjustment for the onsite watershed size. The modeled design storm frequency is an 85th percentile storm for the BMP design and 50 years, 24 hours for the capacity analysis.

The result of pre and post development flow analysis are summarized in Table 1 below.

| DRAINAGE<br>SUBAREA | EXISTING<br>DRAINAGE<br>AREA, AC | POST PROJECT<br>DRAINAGE<br>AREA, AC | EXISTING<br>PEAK FLOW<br>CFS | POST PROJECT<br>PEAK FLOW<br>CFS |
|---------------------|----------------------------------|--------------------------------------|------------------------------|----------------------------------|
| <b>A1</b>           | 0.139                            | 0.139                                | 0.4719                       | 0.4852                           |

**Table-1. Pre and post development analysis**

### 3. CONCLUSION

The analysis of surface water hydrology impacts includes a calculation of pre-project and post-project runoff flow rates and volumes during a 50-year storm event using the methodologies directed in the LACDPW Hydrology Manual (2006). Potential impacts to the storm drain system was analyzed by comparing the calculated post-project runoff to the calculated drainage flow capacity of the existing storm drain system.

To further protect the new development from upstream run-on, a retaining wall will be constructed along the east of the proposed single-family house and there is an existing retaining wall along the east side of the property.

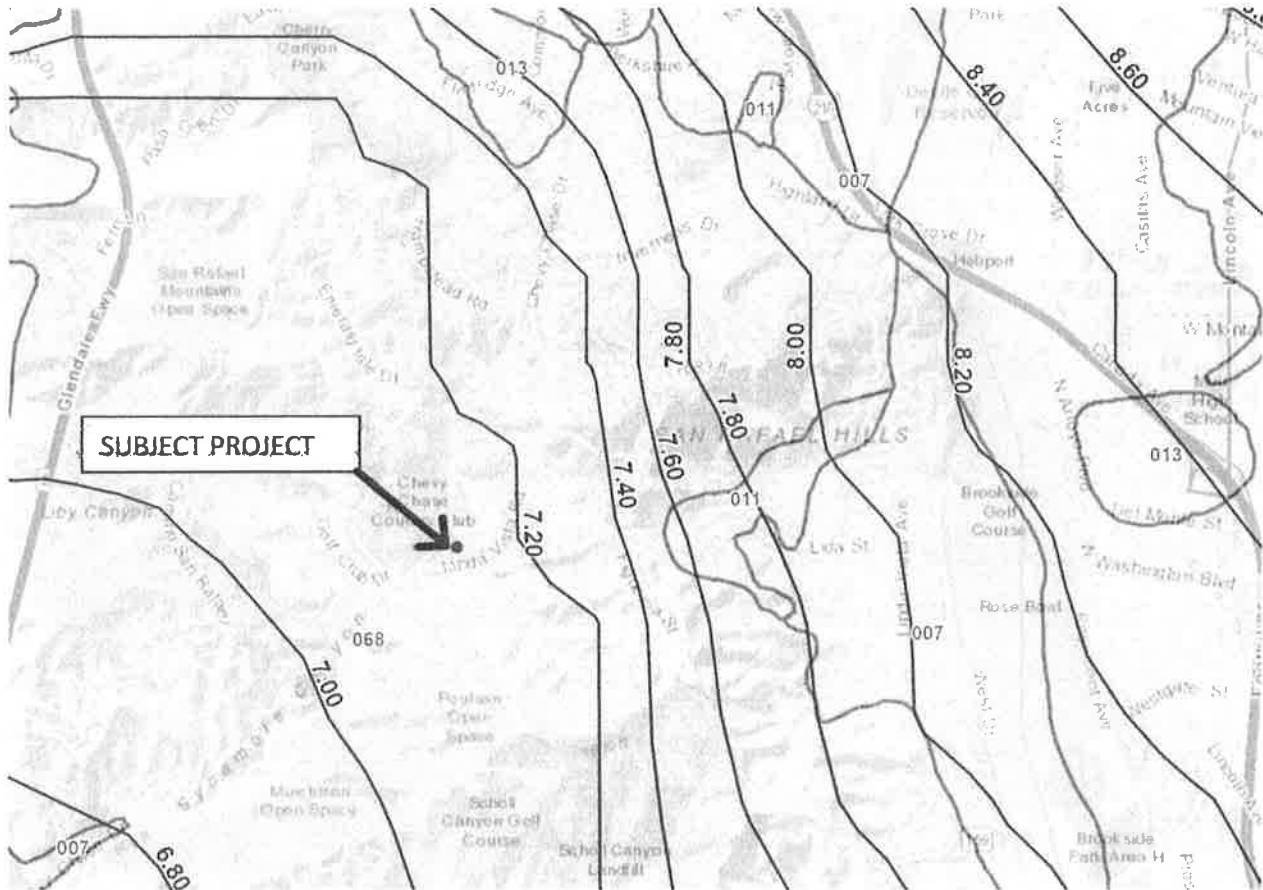
HydroCalc calculations for the 50 year 24-hr are shown in Appendix B. Because this area maintains the imperviousness ratio as close as the undeveloped condition considering the existing single-family dwelling, the proposed project does not significantly alter the pre-development drainage characteristic. Ultimately, the flow rate does not adversely affect the project lot or the surrounding areas and does not contribute to an increase in site erosion. It is recommended by the soil engineer that all permanent slopes be covered with erosion resistant vegetation.

In conclusion, per the calculations in Appendix B, the onsite volume and peak flow of the post-development are slightly higher than the pre-development Volume and peak flow but the discharge from the proposed project will be collected and directed to the street or to the proposed BMP if required; Implementing the BMPs are to help the water quality, reduce stormwater volume and peak flow. The proposed development would not have any potential drainage impact on the drainage pattern of the site or the surrounding areas.

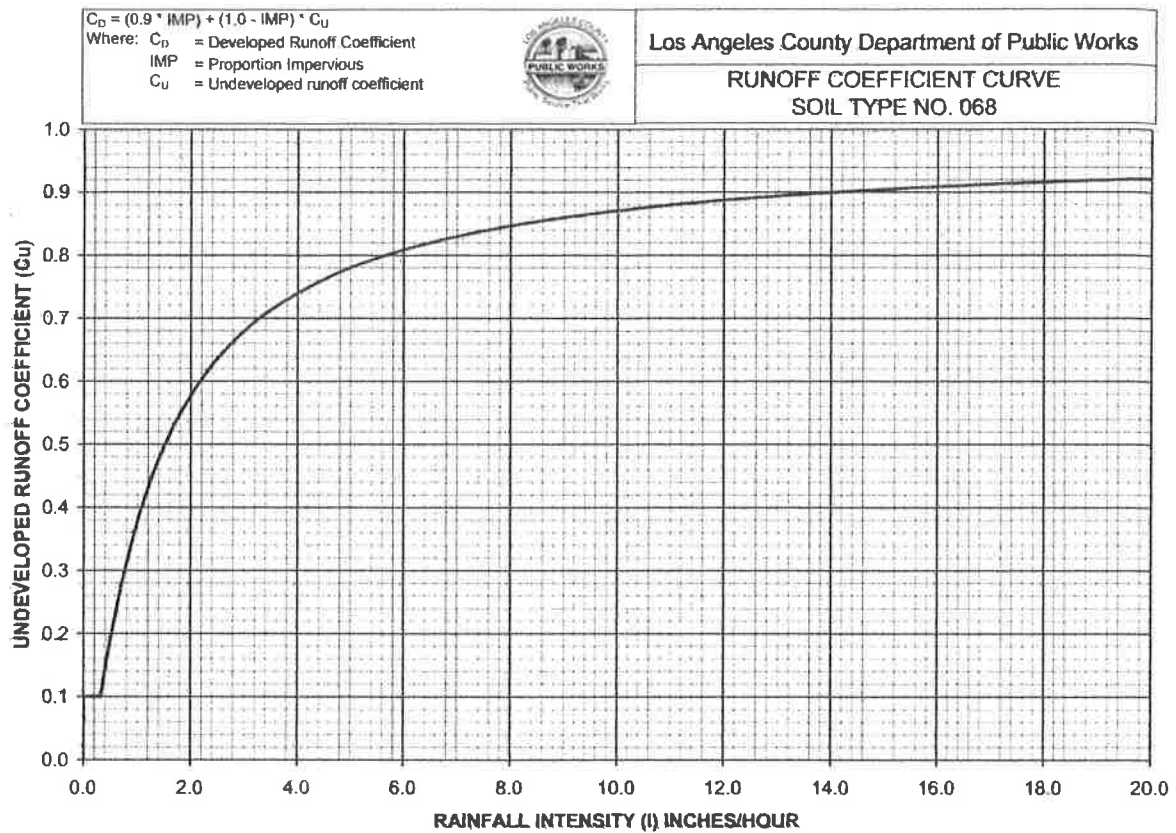
**HYDROLOGY STUDY FOR 3130 CHARING CROSS ROAD GLENDALE CA 91206**

**Appendix A**

**Glendale Isohyet Map**



# HYDROLOGY STUDY FOR 3130 CHARING CROSS ROAD GLENDALE CA 91206



File: Soil Curve Data and Graphs 50-79 Tab: GN68

HYDROLOGY APPENDIX C

BJW: 06/14/2004

**Runoff coefficient curve, soil type no. 68  $C_u = 0.1$**

## Appendix B

### Hydro Calculation Results

Onsite Pre-Development, existing impervious area is the existing SFD footprint, 1,801 sqft

HydroCalc 1.0.3

Single Subarea    Multi-Subarea

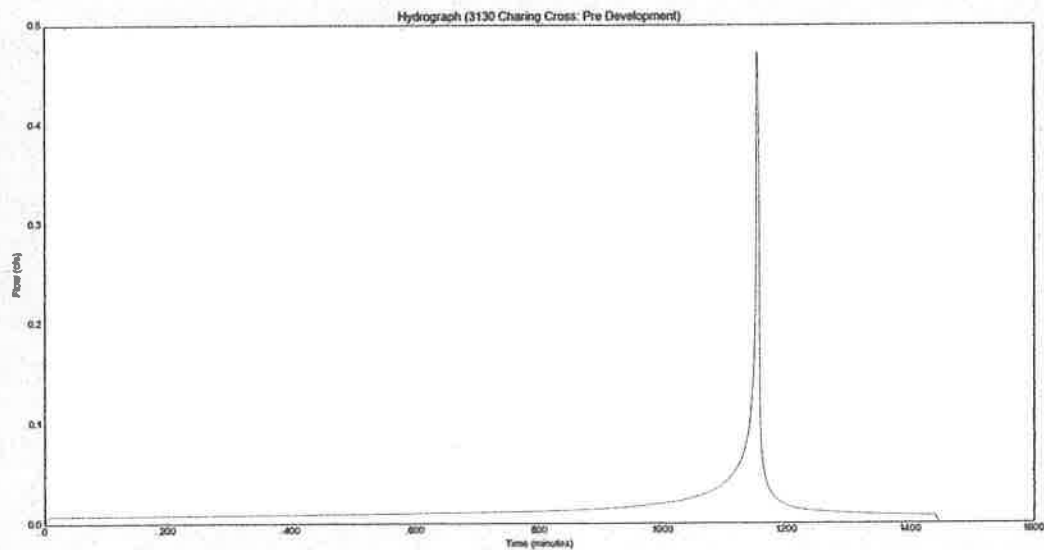
#### Inputs

|                                  |                    |
|----------------------------------|--------------------|
| Project Name                     | 3130 Charing Cross |
| Subarea ID                       | Pre Development    |
| Area (ac)                        | 0.139              |
| Flow Path Length (ft)            | 100                |
| Flow Path Slope (vft/hft)        | 0.45               |
| 24-hr, 50-yr Rainfall Depth (in) | 7.2                |
| Percent Impervious (0.01-1.0)    | 0.26               |
| Soil Type (2-180)                | 68                 |
| Design Storm Frequency           | 50-yr              |
| Fire Factor                      | 0                  |

#### Outputs

|                                     |           |
|-------------------------------------|-----------|
| Modeled (50-yr) Rainfall Depth (in) | 7.2       |
| Peak Intensity (in/hr)              | 4.2957    |
| Undeveloped Runoff Coefficient (Cu) | 0.7518    |
| Developed Runoff Coefficient (Cd)   | 0.7903    |
| Time of Concentration (min)         | 5         |
| Clear Peak Flow Rate (cfs)          | 0.4719    |
| Burned Peak Flow Rate (cfs)         | 0.4719    |
| 24-Hr Clear Runoff Volume (ac-ft)   | 0.0309    |
| 24-Hr Clear Runoff Volume (cu-ft)   | 1347.5034 |

#### Chart



# HYDROLOGY STUDY FOR 3130 CHARING CROSS ROAD GLENDALE CA 91206

On site Post Development- New impervious will be the new SFD 2,500 sqft

HydroCalc 1.0.3

Single Subarea    Multi-Subarea

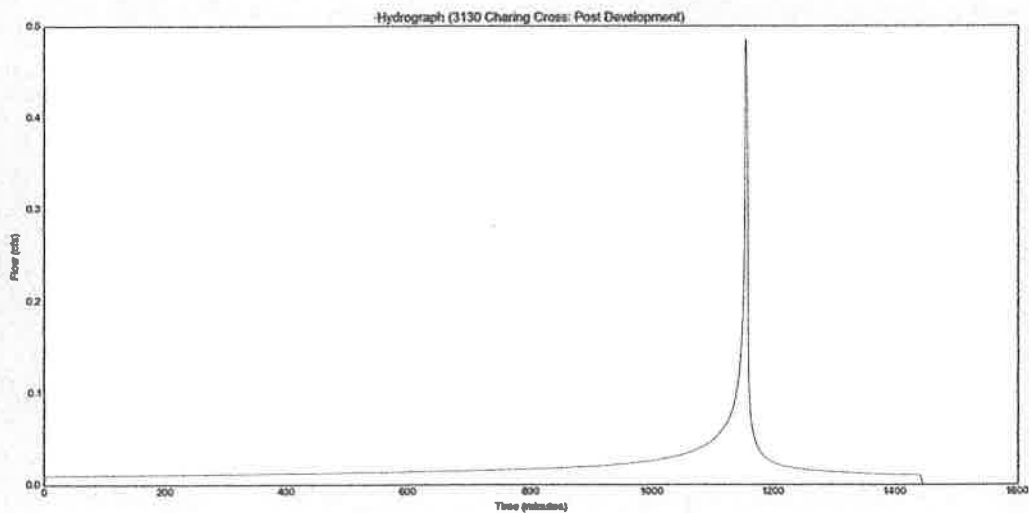
## Inputs

|                                  |                    |
|----------------------------------|--------------------|
| Project Name                     | 3130 Charing Cross |
| Subarea ID                       | Post Development   |
| Area (ac)                        | 0.139              |
| Flow Path Length (ft)            | 100                |
| Flow Path Slope (vft/hft)        | 0.45               |
| 24-hr, 50-yr Rainfall Depth (in) | 7.2                |
| Percent Impervious (0.01-1.0)    | 0.41               |
| Soil Type (2-180)                | 68                 |
| Design Storm Frequency           | 50-yr              |
| Fire Factor                      | 0                  |

## Outputs

|                                     |           |
|-------------------------------------|-----------|
| Modeled (50-yr) Rainfall Depth (in) | 7.2       |
| Peak Intensity (in/hr)              | 4.2957    |
| Undeveloped Runoff Coefficient (Cu) | 0.7518    |
| Developed Runoff Coefficient (Cd)   | 0.8125    |
| Time of Concentration (min)         | 5         |
| Clear Peak Flow Rate (cfs)          | 0.4852    |
| Burned Peak Flow Rate (cfs)         | 0.4852    |
| 24-Hr Clear Runoff Volume (ac-ft)   | 0.0398    |
| 24-Hr Clear Runoff Volume (cu-ft)   | 1731.6432 |

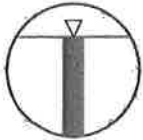
## Chart



# HYDROLOGY STUDY FOR 3130 CHARING CROSS ROAD GLENDALE CA 91206

## 4 inch pipe analysis

|   |      |            |                                    |        |          |
|---|------|------------|------------------------------------|--------|----------|
| Set units: m mm ft in   |      |            | Results                            |        |          |
| Pipe diameter, $d_0$  | 0.33 | ft ▼       | Flow, Q                            | 0.4911 | cfs ▼    |
| Manning roughness, n ?  | 0.02 |            | Velocity, v                        | 7.1372 | ft/sec ▼ |
| Pressure slope (possibly ? equal to pipe slope), $S_0$          | 0.20 | rise/run ▼ | Velocity head, $h_v$               | 0.7917 | ft ▼     |
| Percent of (or ratio to) full depth (100% or 1 if flowing full) | 0.75 | fraction ▼ | Flow area                          | 0.0688 | ft^2 ▼   |
|   |      |            | Wetted perimeter                   | 0.6912 | ft ▼     |
|   |      |            | Hydraulic radius                   | 0.0996 | ft ▼     |
|   |      |            | Top width, T                       | 0.2858 | ft ▼     |
|   |      |            | Froude number, F                   | 2.59   |          |
|   |      |            | Shear stress (tractive force), tau | 1.2432 | psf ▼    |

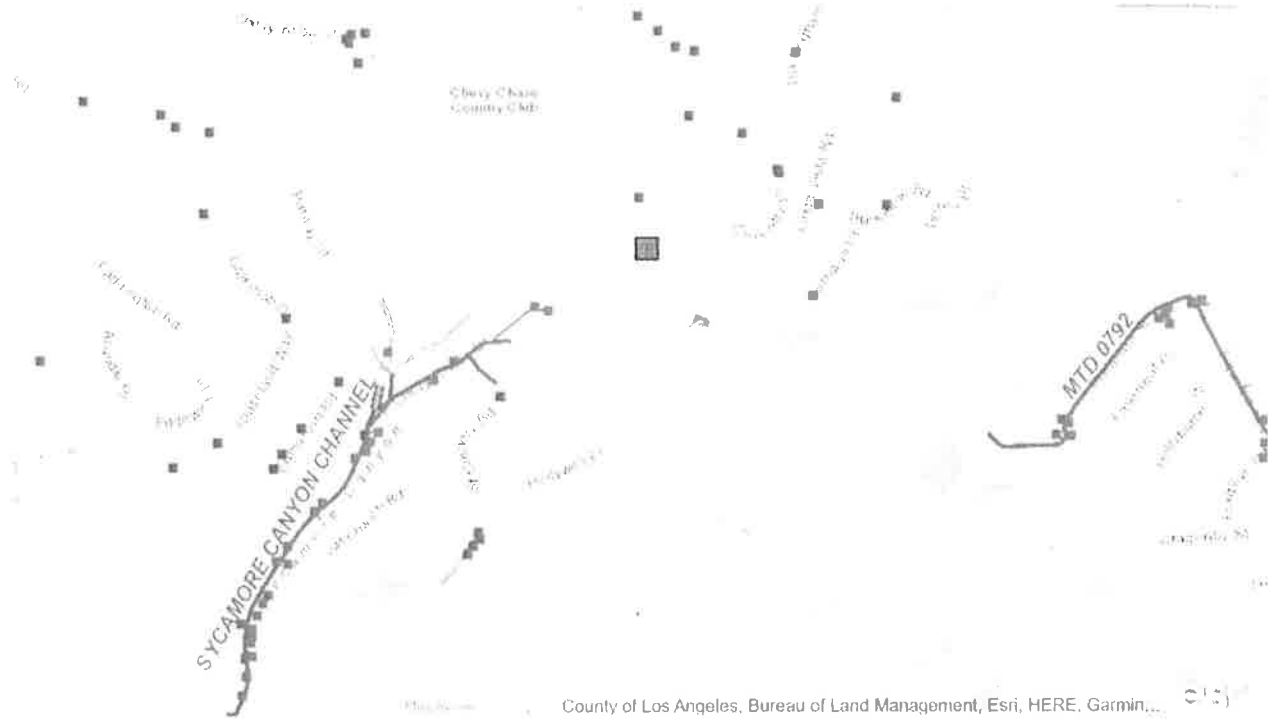






# HYDROLOGY STUDY FOR 3130 CHARING CROSS ROAD GLENDALE CA 91206

## Existing Storm Drain System for the Area





**McKinley & Associates** (818) 240-1358

## Arborist Report

3100 Block Charing Cross Road  
Glendale, California

Prepared for:

Mr. Sam Nazarian  
2048 Ashington Drive  
Glendale, CA 91206

Prepared by:

William R. McKinley, Consulting Arborist  
American Society of Consulting Arborists  
Certified Arborist #WE-4578A  
International Society of Arboriculture  
1734 Del Valle Avenue  
Glendale, CA 91208

Arborists and Environmental Consultants



**McKinley & Associates (818) 240-1358**

August 25, 2020

Mr. Sam Nazarian  
2048 Ashington Drive  
Glendale, CA 91206

Dear Mr. Nazarian:

Recently I was contacted by your Architect, Garo Nazarian regarding a proposed new single family home on one of your vacant hillside lot properties located in the 3100 Block of Charing Cross Road, Glendale. I was instructed to prepare an Arborist Report discussing a nearby native Oak tree and the impact of the proposed construction on this tree. The following report summarizes my findings:

### **Background**

On Tuesday, July 28, 2020 at approximately 11:30 a.m. I arrived at the property located in the 3100 Block of Charing Cross Road, Glendale. The vacant lot is located just east of Chevy Chase Drive on the left side of Charing Cross Road. At our previous meeting, you explained that you owned two hillside lots but that the lot which you wanted to build on was to the right of a large Coast Live Oak which I have identified as Tree #1. There are 4 additional Oak trees on the lot that you will be developing. I was told that you wanted to preserve all the Oak trees and that you needed an Arborist Report to discuss how to minimize the impact of the construction on the trees. The Tree/Site Inspection Section describes my observations concerning the subject tree.

### **Tree/Site Inspection**

**Tree #1** is a Quercus agrifolia or Coast Live Oak. The tree measures 17, 18 and 19 inches in diameter at D.B.H. (Diameter Breast Height) as measured 54 inches above the soil grade. The tree has a drip line, which measures roughly 28 feet from the tree's trunk. The spread of the tree is approximately 56 feet. The height of the tree is estimated to be roughly 55 feet tall. The subject property is located between 3220 Chevy Chase Drive and 3130 Charing Cross Road. The tree is located 24 feet east and uphill from Charing Cross Road. The road cut is 5 feet lower than the uphill lot slope. The Oak tree's trunk is located 25 feet north of the property line of the vacant lot scheduled for development. There is no irrigation or landscape near the trunk of this tree. The subject tree is a multi-trunk native Oak. The tree previously had 3 co-dominant stems which join at a point 2 feet above the ground. On the east side of the tree I noted that 3 other trunks or stems had

**Arborists and Environmental Consultants**





## Tree/Site Inspection-Continued

been previously cut and removed. These measure 8, 20 and 22 inches in diameter just above ground level. There is a large cavity with decay through the center of the 22 inch diameter cut trunk. Turkey Trails fungus was observed growing on the sides of the 20 inch diameter cut trunk. There is epicormic sprouting or suckering taking place near the base of the remaining tree trunks. I observed 3 Ganoderma conks located near the base in the union area between the 17 inch and 18 inch diameter remaining trunks on the northwest side of the tree. There is included bark at the stem or trunk unions. The Oak leans slightly west. The crown appears balanced with minor asymmetry. It is crowded by another Coast Live Oak on the north side. The foliage size and color appears normal. The crown density is fair. Since my last inspection it appears that the 18 inch diameter trunk has failed and has fallen over. The tree is in poor health and condition. Rating: D

**Tree #2** is a Quercus agrifolia or Coast Live Oak. The tree measures 12 and 12 inches in diameter at D.B.H. The tree has a drip line, which measures roughly 25 feet from the tree's trunk. The spread of the tree is approximately 35 feet. The height of the tree is estimated to be roughly 40 feet tall. It is located one foot west of the neighbor's block wall at the top of a steep uphill slope. Jade Plant, Poison Oak and annual grasses grow nearby. No irrigation was observed. The tree has co-dominant stems and included bark. The majority of the tree's crown grows south and crowds another nearby Coast Live Oak. There is minor Western Sycamore Borer insect damage on the bark tissue along the lower trunk of the tree. The crown is unbalanced and asymmetrical. The neighbor's concrete patio covers 50% of the tree's root zone. The crown has been pruned and raised. The foliage size and color appear normal. The crown density is fair. The tree is in slightly below average health and condition. Rating: C-

**Tree #3** is a Quercus agrifolia or Coast Live Oak. The tree measures 20 inches in diameter at D.B.H. The tree has a drip line, which measures roughly 14 feet from the tree's trunk. The spread of the tree is approximately 24 feet. The height of the tree is estimated to be roughly 25 feet tall. It is located near the southwest corner of the subject property. Poison Oak, Laurel Sumac and annual grasses grow nearby. The area is dry and therefore it appears the irrigation is not working. The crown has been pruned and raised. It appears that the tree has sustained fire damage. There is missing bark, heart rot and termite damage on the trunk. The majority of the tree's crown grows north. The crown is unbalanced and asymmetrical. It is crowded by other nearby trees. The foliage size and color appear normal. The crown density is fair. The tree is in poor condition. Rating: D

**Tree #4** is a Quercus agrifolia or Coast Live Oak. The tree measures 4 & 5 inches in diameter at D.B.H. The tree has a drip line, which measures roughly 15 feet from the tree's trunk. The spread of the tree is approximately 15 feet. The height of the tree is estimated to be roughly 15 feet tall. It is located downhill, 10 feet southwest of Tree #3. It appears to be the neighbor's tree. Poison Oak, Geranium, Laurel Sumac and annual



### **Tree/Site Inspection-Continued**

grasses grow nearby. The tree leans and grows west toward Charing Cross Road. The crown has been pruned and raised. The crown is unbalanced and asymmetrical. It has co-dominant stems, included bark and weak structure. The foliage size and color appear normal. The crown density is fair. The tree is in below average condition. Rating: D+

**Tree #5** is a Quercus agrifolia or Coast Live Oak. The tree measures 6 inches in diameter at D.B.H. The tree has a drip line, which measures roughly 20 feet from the tree's trunk. The spread of the tree is approximately 20 feet. The height of the tree is estimated to be roughly 12 feet tall. It is located 5 feet south of Tree #2 and 2 feet west of the neighbor's wall and patio. It is surrounded by Jade Plant. No irrigation was observed. The tree's crown has been pruned and raised. The crown grows west. The tree is unbalanced and asymmetrical. The foliage size and color appear normal. The crown density is sparse. The tree is in poor health and condition. Rating: D

### **General Observations**

The subject property is situated in a single family home hillside residential neighborhood in the City of Glendale. The subject property and the nearby homes in the neighborhood are attractive and well maintained. The area where the proposed new single family home would be located is on a moderately sloped hillside rising above Charing Cross Road. The area was once Chaparral and Oak Woodland Plant Communities. The vacant lots have been cleared of vegetation and only a few native Coast Live Oak trees remain. Tree #1 canopy encroaches slightly inside the subject property however the Site Plan indicates that the proposed single family home will be constructed just outside the dripline of the Coast Live Oak identified in this report as Tree #1. The impact upon this tree by the construction of the proposed single family home appears to be minor. The proposed single family home will not encroach upon the driplines of Tree #2, Tree #3, Tree #4 and Tree #5. There will be minimal impact to these trees.

### **Recommendation**

Based upon my inspection of the subject tree and property it is my professional opinion that it is possible to construct the proposed single family home if the following recommendations are followed:

- 1) Prior to any demolition, grading or construction the General Contractor shall install a temporary 5 foot high orange, plastic, tree protection fence at the dripline of the Coast Live Oak or the farthest point possible.
- 2) Temporary tree protection fence must be maintained in a vertical, upright position and should not be removed until the project is ready for landscaping and irrigation.



### **Recommendation-Continued**

- 3) Excavation for plumbing, electrical, gas and other utilities within the drip line of the Oak tree should be minimized.
- 4) The contractor must protect the roots, trunk, limbs, branches and foliage from damage during construction.
- 5) Prohibit dumping of concrete, mortar, cement, stucco, paint, excess soil and other foreign materials within the drip line of the Oak trees.
- 6) Designate a wash-out area outside and away from the Oak trees and comply with all environmental disposal regulations required by the City.
- 7) Parking or storing vehicles, equipment or building materials within the drip line of the Oak tree must be prohibited.
- 8) Roots which are torn, ripped or otherwise damaged during excavation shall be pruned back to the side of the excavation with a clean, sharp pruning tool and the root ends shall be kept covered and wetted until backfill can occur.
- 9) Irrigation work should be surface mounted within the drip line of the Oaks and there should be no watering within the last 6 feet of the trunk of the Oaks.
- 10) If landscaping is going to be included as part of this project then I would recommend using California native plants that are drought tolerant and have low water requirements near the Oaks. The area within the drip line of the Oak trees should be mulched with a 2 to 4 inch layer of landscape bark or mulch.
- 11) Structural and end weight reduction pruning on Tree #1 is recommended. The tree is structurally weak and decay is present in the lower trunk areas.
- 12) The proposed construction project should be supervised and monitored by an I.S.A. Certified Arborist. I would also recommend annual arborist inspections for Tree #1 to monitor the extent and level of decay in this Oak tree.

### **Summary/Conclusion**

In conclusion, it is my professional opinion that it is possible to construct a new single family home on this vacant lot while preserving the existing Coast Live Oaks identified in this report. Based upon the Site Plan illustrations it would appear that the proposed single family home will be constructed just outside of the dripline of the Oak trees. The impact of this project on the Oak trees will be minimal at most. The installation of the



**Summary/Conclusion-Continued**

temporary orange, plastic, tree protection fence at the dripline of the Oak trees prior to site demolition, grading and construction is critical to the protection of these Oak trees. If the above stated recommendations are complied with during construction I feel confident that the Oak trees will be preserved and will add beauty and value to the property and the neighborhood for many years to come.

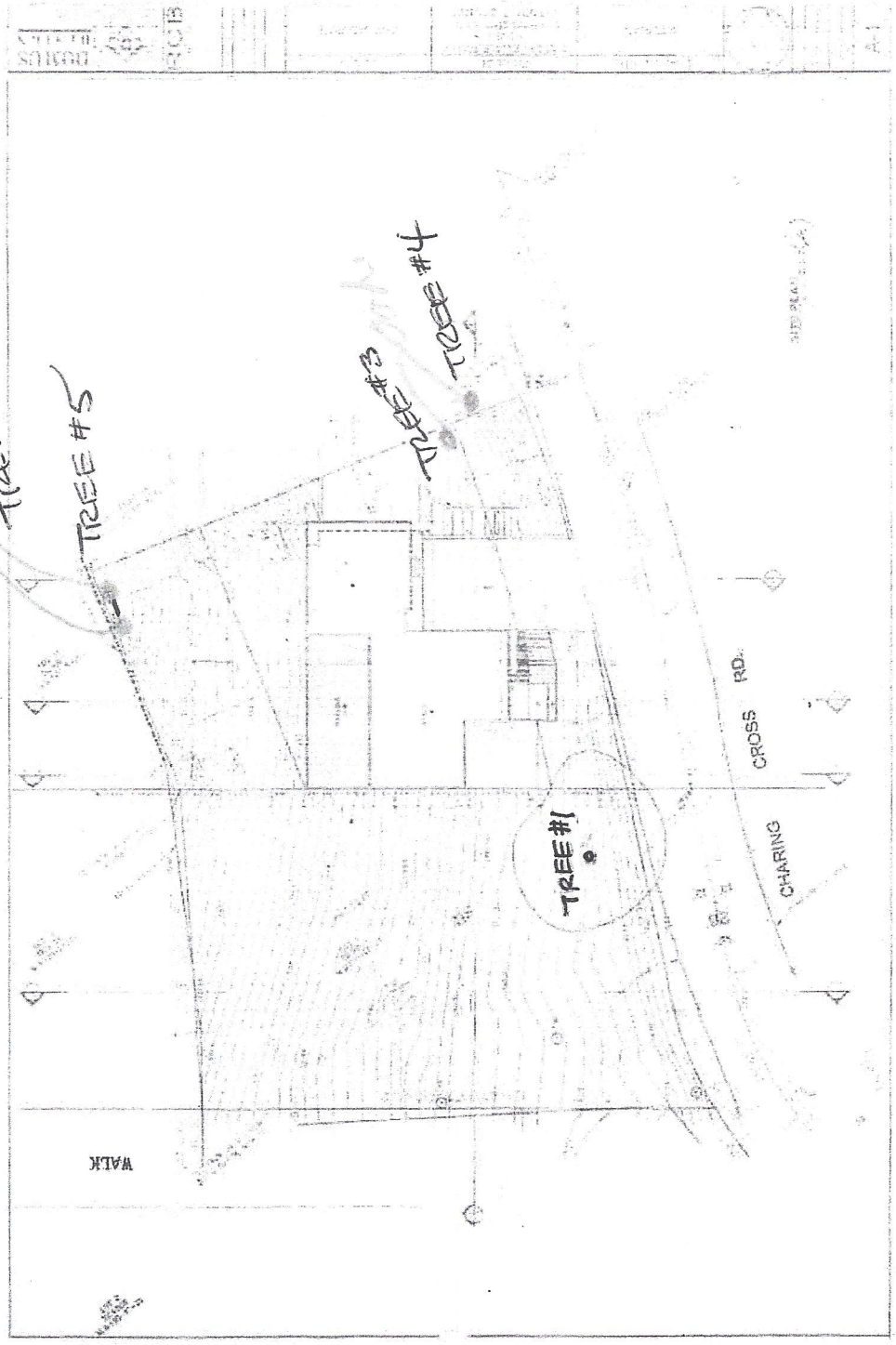
**Limitations**

Information contained in this report covers only those areas that were examined and reflects the condition of those areas at the time of inspection. The inspection was limited to visual examination of accessible areas without excavation, drilling or boring. Arboriculture is not an exact science and there is much that is still to be learned about trees. The observations and recommendations provided in this report reflect the latest research, knowledge and training available through university and professional research. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or the property in question may not arise in the future.

I sincerely hope you find this information useful in assisting you in preserving the Coast Live Oak trees located on or near your property. Thank you for the opportunity to serve you and your environmental and arboricultural needs. If you have any further questions, please feel free to contact me during the day on my business cell phone at (818) 426-2432 or you may call my office phone at (818) 240-1358.

Yours truly,

  
William R. McKinley, Consulting Arborist  
American Society of Consulting Arborists  
Certified Arborist #WE-4578A  
International Society of Arboriculture







TREE #1





TREE #1





17332





TREE #2 TREE #5





TREE #5

TREE #2





TREE #4

TREE #3





TREE #4

TREE #3





TREE #4



# *Curriculum Vitae*

## **WILLIAM R. MCKINLEY – MCKINLEY & ASSOCIATES**

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Website: <http://www.mckinleyarborists.com/>

Work (818) 426-2432  
Home (818) 240-1358

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### **SUMMARY of QUALIFICATIONS**

Practicing Consulting Arborist. Member of American Society of Consulting Arborists (ASCA). Certified Arborist, International Society of Arboriculture since September 30, 1999. I.S.A. Arborist #WE-4578A. Recognized Oak Tree Expert throughout Southern California. Prepare arborist reports for developers, homeowners and attorneys. Assess the landscape value of trees. Assess and identify hazardous trees in the landscape. Provided hillside and Oak Woodland landscape and irrigation recommendations. Provide expert witness testimony on arboriculture related cases. Public speaker and presenter at community service group meetings, homeowner's association meetings and speaker at professional seminars and conferences. Presenter at Trees, People and Our Urban Environment Seminar, March 2002. Arbor Day Guest Speaker, City of Glendale, March 2005. Tree City USA Award Presenter – Glendale Arbor Day 2010, Tree City USA Award Presenter – Glendale Arbor Day 2012, Arbor Day Guest Speaker, Glendale, March 2014.

### **FULL TIME EMPLOYMENT HISTORY**

#### **City of Glendale, Parks, Recreation & Community Services**

##### **Park Services Manager-Contract Administration**

**2001-present**

Performs contract administration for Park Services Section. Manage grounds maintenance for sports fields, community buildings, parks, medians, and historic areas. Administers the City's landscape maintenance contract. Writes contract specifications. Administers the bidding process. Awards contracts to successful bidders. Conducts construction meetings and oversees the construction and inspection for these projects. Performs and assumes all former duties and responsibilities under the former Administrative Analyst position. Writes arborist reports. Hazardous tree assessment. Serves as expert witness in tree related cases.

##### **Administrative Analyst**

**1988-2001**

Administer landscape maintenance contract for medians, reservoirs, pump houses and misc. areas. Administer and supervise the Division's Work Management System involving the scheduling and tracking of work and performance of over 50 full-time employees. Supervise one part-time data entry employee and supervise and coordinate with the California Conservation Corps, Boy Scouts and other community service volunteers in the parks. Supervise, monitor and report water and utility usage in the parks. Administer and supervise all tree planting projects and programs including the Arbor Day and Urban Forest Donation programs. Assist with budget preparation and acquisition of capital equipment. Prepare Capital Improvement Project specifications and assist with administering contracts. Administer the City of Glendale's Indigenous Oak Tree Ordinance. Coordinate with Planning, Permit Services, Engineering, Building, Neighborhood Services and Fire Department to insure the care and protection of trees, both during and after construction. Review grading, construction, landscape and irrigation plans. Modify and approve plans as necessary to protect indigenous trees. Perform field inspections on hazardous trees and make recommendations to park staff and the public. Serve as code enforcement officer and paralegal during Administrative Office Hearings regarding Indigenous Oak Tree Ordinance. Perform tree and landscape appraisals. Served as special show and marketing consultant to the Glendale Rose Pruning and Garden Show Committee.

##### **Assistant Planner-Parks**

**1983-1988**

Assisted in park inventory development and implementation of the Work Management System. Served as guest speaker at the National Parks and Recreation Conference on the subject of computers and their role in park maintenance. Supervised the Capital Improvement Project Construction at Pacific Park and Brand Park. Coordinated with and supervised California Conservation Corps. Crews in planting, staking and tying hundreds of trees as part of the Arbor Day Program. Served as Arbor Day Co-Chairman, Glendale Rose Pruning & Garden Show Co-Chairman and President of Glendale Beautiful. Served as Ways and Means Chairman C.P.R.S. District XIV.

## EDUCATION

- 1983 California Polytechnic University, Pomona  
Bachelor of Science Degree, Park Administration  
Graduated Magna Cum Laude, Grade Point Average: 3.57
- 1983-Present CEU's-University of California, Landscape Contract Maintenance, Hazardous Tree Identification & Assessment, Specimen Tree Appraisal, Advanced Tree Appraisal Theory and Practice, Tree and Landscape Liability – Trees and the Law, Oak Tree Symposium Graduate, Knowledge of oak tree physiology and native plant habitat, ASCA 2007 Consulting Academy, National Arbor Day Foundation Graduate, Symposiums: Construction Around Trees: Trees and the Law, Recognized Tree Expert: City of Los Angeles, County of Los Angeles, City of Pasadena, City of La Canada Flintridge, City of Burbank, City of Calabasas, County of Ventura, City of Santa Clarita.

## HONORS & ACTIVITIES

- 1999 - Present - Certified Arborist-International Society of Arboriculture  
1996-1999 - Secretary/Treasurer, C.P.R.S. Park Operations Section  
1994-1995 - President, C.P.R.S. District XIV  
1994-1995 - Treasurer, Glendale Beautification Advisory Council  
1992-1994 - Treasurer, C.P.R.S. District XIV  
1993, 1994, 1995 C.P.R.S. Park Operations Scholarship  
First, Second and Third Year, Graduate, Pacific Southwest Maintenance Mgmt. School  
1988-1990 – President, Glendale Beautiful  
1980, 1981 - Twice placed on Dean's Honor List  
1982 - Who's Who in American Colleges and Universities  
1978 - Recipient of Wayne Striker Memorial Scholarship  
1975 - Awarded Eagle Scout Rank, Boy Scouts of America  
Member - American Society of Consulting Arborists (ASCA)  
Member - International Society of Arboriculture  
Member - Western Chapter, International Society of Arboriculture  
Member – Glendale Beautiful  
Past Member - National Arbor Day Foundation  
Past Member - California Oak Foundation

## REFERENCES

- |  |                |
|--|----------------|
| Randall S. Stamen, Attorney/Arborist       | (951) 787-9788 |
| Susan & Gary Sims, Sims Tree Specialists   | (951) 685-6662 |
| Peter & Diana Harnisch, Harnisch Tree Care | (626) 444-7997 |

## PROFESSIONAL SERVICE FEE

- |                 |   |                   |
|-----------------|---|-------------------|
| Site Inspection | - | \$100.00 per hour |
| Consultation    | - | \$125.00 per hour |
| Arborist Report | - | \$150.00 per hour |
| Public Hearing  | - | \$200.00 per hour |
| Arbitration     | - | \$225.00 per hour |
| Deposition      | - | \$250.00 per hour |
| Court Witness   | - | \$350.00 per hour |