ATTACHMENT III

Initial Study/Addendum

La Vista Park Addition

Prepared by

HAYWARD

In Consultation with

DAVID J. POWERS & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & PLANNERS

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SECTION 1.0 INTRODUCTION AND PURPOSE

1.1 PURPOSE OF THE INITIAL STUDY/ADDENDUM

The California Environmental Quality Act (CEQA) recognizes that between the date an environmental document is completed and the date the project is fully implemented, one or more of the following changes may occur: 1) the project may change; 2) the environmental setting in which the project is located may change; 3) laws, regulations, or policies may change in ways that impact the environment; and/or 4) previously unknown information can arise. Before proceeding with a project, CEQA requires the Lead Agency to evaluate these changes to determine whether or not they affect the conclusions in the environmental document.

The City of Hayward, as the Lead Agency, has prepared this Initial Study (IS)/Addendum for the proposed La Vista Park Addition Project ("proposed project") in compliance with the CEQA, the CEQA Guidelines (California Code of Regulations §15000 et. seq.) and the regulations and policies of the City of Hayward, California.

1.1.1 La Vista Development Project Initial Study/Mitigated Negative Declaration

The City of Hayward City Council adopted the La Vista Development Project Initial Study/Mitigated Negative Declaration (IS/MND) (State Clearinghouse [SCH] # 2005062031) in 2005. As approved, the La Vista Development project includes a subdivision for 179 single-family residential lots and related streets, approximately 30 acres of park ("La Vista Park"), including sports fields, playgrounds, water features, picnic areas, and open space areas with trails.

The La Vista Development project ("approved project") also includes offsite improvements, such as installation of a water tank at Garin Reservoir, extending Tennyson Road, and a new connector road between the development and Alquire Parkway. With the exception of the La Vista Park, all other development associated with the La Vista Development project has been constructed. The adopted IS/MND evaluated these offsite improvements, as well as the General Plan land use designation amendments and zoning district amendments required for the development.

Since approval of the IS/MND, changes to the La Vista Park project ("La Vista Park Addition") have been proposed which are the subject of this Addendum. The proposed project consists of expanding the La Vista Park boundary to increase the size of the approved 30-acre park by approximately 26.5 acres. The proposed addition area would be developed with park facilities and amenities, as well as landscaping. This IS/Addendum evaluates the environmental impacts that might reasonably be anticipated to result from implementation of the proposed project. This Addendum has been prepared in accordance with the relevant provisions of CEQA and Section 15164 of the State CEQA Guidelines.

1.2 STATUTORY AUTHORITY

The CEQA Guidelines Section 15162 states that when an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the Lead Agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

    a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
    b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

CEQA Guidelines Section 15164 states that the Lead Agency or a Responsible Agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary, but none of the conditions described in 15162 (see above) calling for preparation of a subsequent EIR have occurred. Pursuant to CEQA Guidelines §15164(d), the Lead Agency shall consider the addendum with the Final EIR prior to making a decision on the project.

1.3 PUBLIC REVIEW PERIOD

This addendum will not be circulated for public review, but will be attached to the adopted MND, pursuant to CEQA Guidelines §15164(c).

1.4 CONSIDERATION OF THE INITIAL STUDY/ADDENDUM AND PROJECT

The City of Hayward will consider the adoption of the Initial Study/Addendum for the project at a regularly scheduled City Council meeting. If adopted, the City may proceed with project approval actions.

1.5 NOTICE OF DETERMINATION

If the project is approved, the City of Hayward will file a Notice of Determination (NOD), which will be available for public inspection and posted within 24 hours of receipt at the County Clerk's Office for 30 days. The filing of the NOD starts a 30-day statute of limitations on court challenges to the approval under CEQA (CEQA Guidelines Section 15075(g)).

SECTION 2.0 PROJECT INFORMATION

2.1 PROJECT TITLE

La Vista Park Addition

2.2 LEAD AGENCY CONTACT

City of Hayward
Development Services Department
Planning Division
777 B Street
Hayward, California 94541

Contact: Elizabeth Blanton, Associate Planner
Phone: (510)-583-4206

2.3 PROJECT LOCATION

The La Vista Park site is located on the north side of Tennyson Road, east of Mission Boulevard (State Highway 238) and west of Garin Regional Park, in the eastern part of Hayward. The La Vista Park Addition site ("project site") is an approximately 26.5-acre area adjacent to western boundary of the approximately 30-acre approved La Vista Development project. The project site is bounded by East 16th Street to the west and Tennyson Road to the south. Figure 2.3-1 illustrates the location of the proposed project within the region, and Figure 2.3-2 shows the project site boundary within the local context and relative to the existing approved La Vista Park boundary. Figure 2.3-3 shows an aerial photograph of the project site and surrounding land uses.

2.4 ASSESSOR'S PARCEL NUMBER

The project site is approximately 26.5 acres and consists of the following assessor parcel numbers (APN):

- APN 078C-0626-001-07
- APN 078C-0626-003-09
- APN 078C-0626-003-16
- Portion of APN 78C-461-12 (0.2 ac)
- Portion of APN 78C-461-13 (0.4 ac)
- Portion of APN 83-461-10 (0.4 ac)
- Portion of 17th Street R/W APN (0.3 ac)

2.5 GENERAL PLAN DESIGNATION AND ZONING DISTRICT

General Plan Designations:	LMDR: Limited Medium Density Residential; and LOS: Limited Open Space

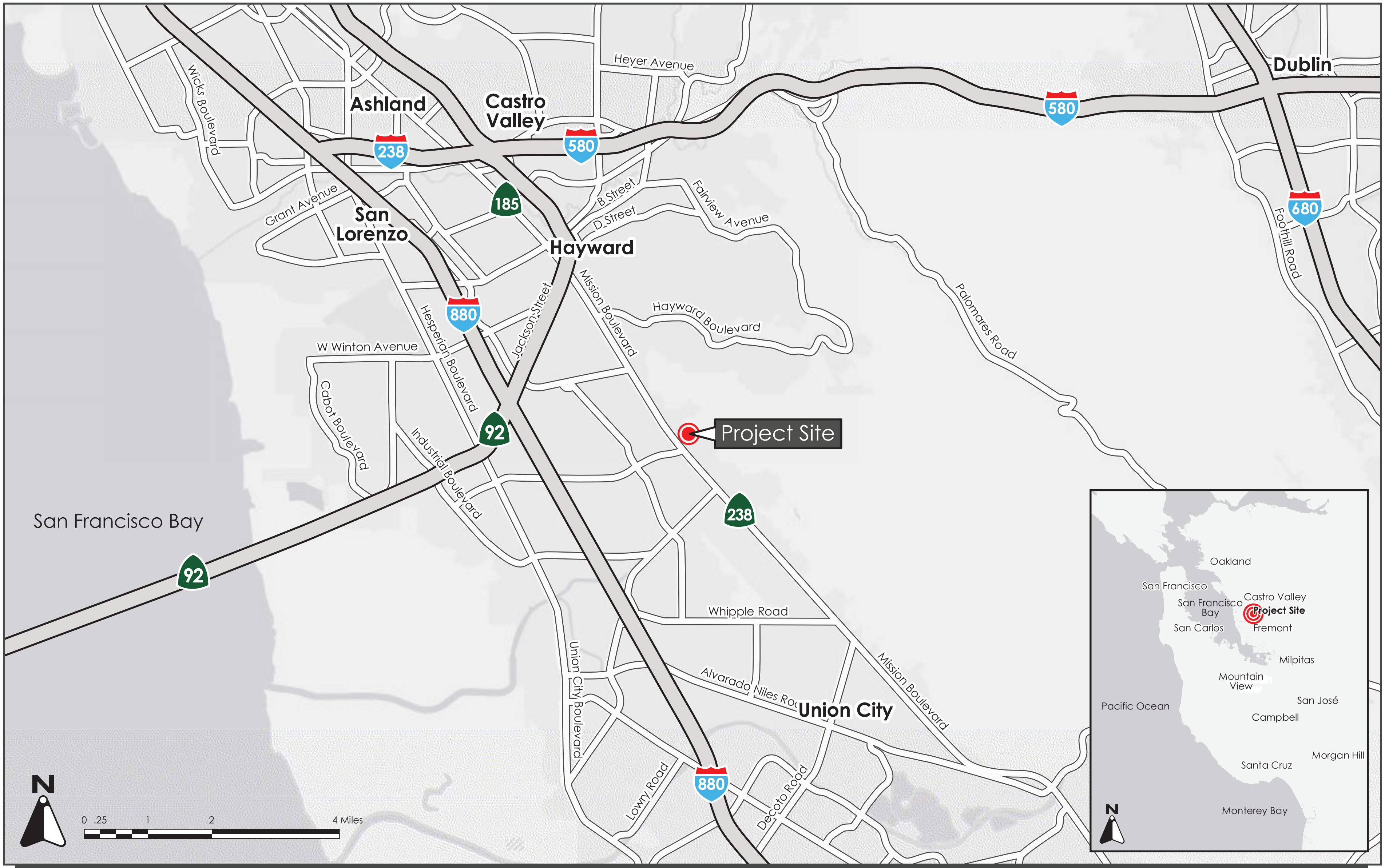
Zoning Districts: RMB4: Medium Density Residential; and
OS: Open Space

2.6 PROJECT RELATED APRPOVALS

The City of Hayward Planning, Public Works – Development Services, Building and Fire departments will have roles of reviewing and making sure the project meets City, State and Federal requirements and standards.

The City of Hayward Public Works – Development Services department will work with Alameda County Public Works Agency to obtain project approval for stormwater quality requirements.

The City of Hayward will work with Hayward Area Recreation and Park District (HARD) to obtain project approval for specific park related requirements.



REGIONAL MAP

FIGURE 2.3-1

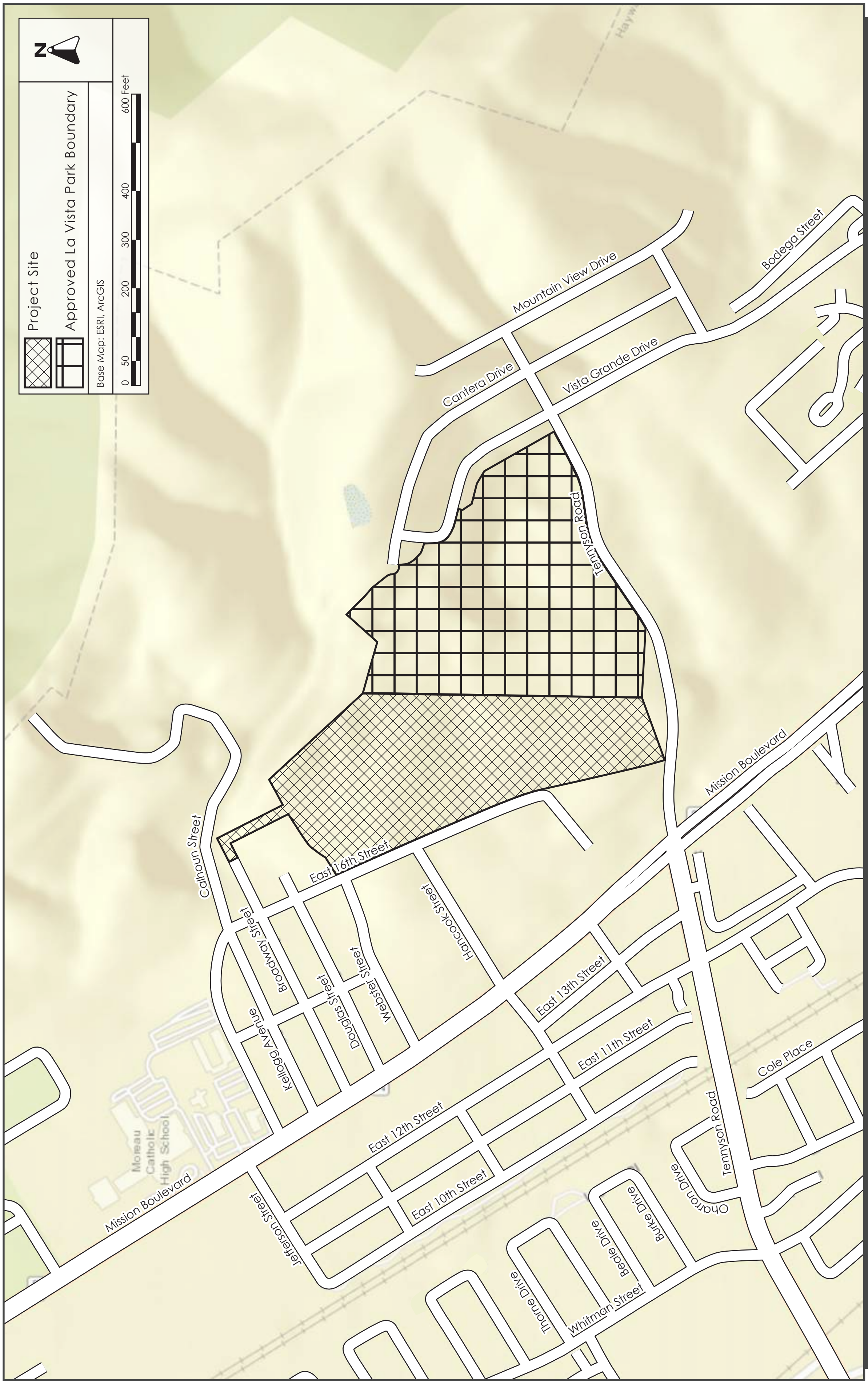
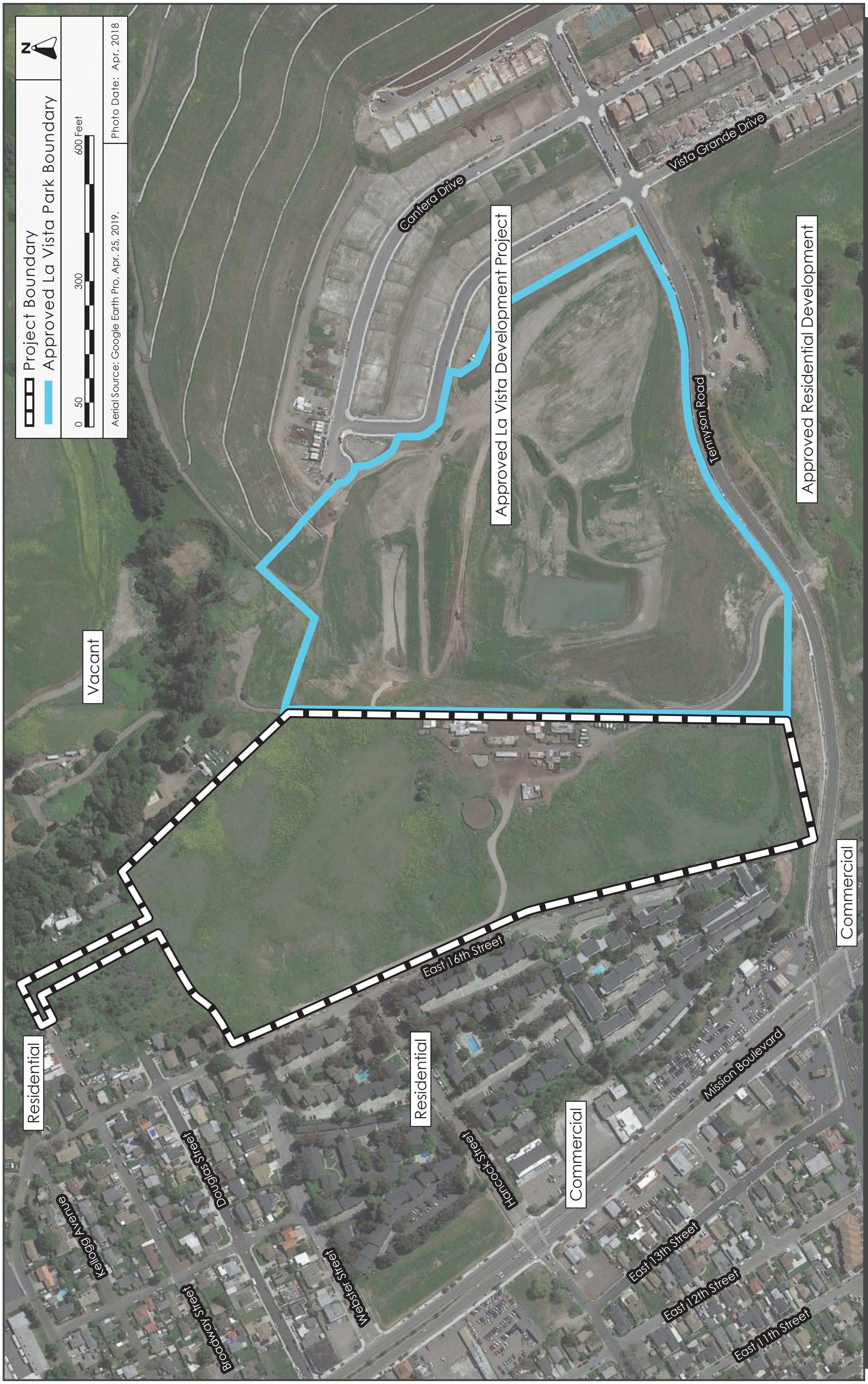


FIGURE 2.3-2

VICINITY MAP



AERIAL PHOTOGRAPH AND SURROUNDING LAND USES

FIGURE 2.3-3

SECTION 3.0 PROJECT DESCRIPTION

3.1 PROJECT OVERVIEW

The project proposes to expand the La Vista Park boundary to increase the size of the park by approximately 26.5 acres. The proposed addition area would be developed with park facilities and amenities, as well as landscaping.

3.1.1 Existing Setting

The majority of the 26.5-acre project site is used for horse grazing. The area is developed with several barns and corral-like structures used for grazing and equestrian purposes. There is also a drinking trough central to the site for horses. Due to the grazing, the project site is primarily characterized by non-native annual grassland and ruderal/disturbed vegetation communities that contain large, dense stands of invasive plant species. Additionally, there is a wetland seep in the central area of the site.

The project site is bounded by Tennyson Road on the south and East 16th Street on the west. Land on the opposite (south) side of Tennyson Road is undeveloped but part of a recently approved residential development project. Areas to the west of East 16th Street are developed with multi-family residential uses. Single-family residential uses surround the northern area of the project site. Figure 2.3-3 provides an aerial photograph of the project site and shows surrounding land uses.

The project site is part of a larger development project, the La Vista Development Project ("approved project"). In 2005, the City of Hayward City Council adopted the La Vista Development Project IS/MND (SCH # 2005062031) in 2005. As approved, the La Vista Development project includes a subdivision for 179 single-family residential lots and related streets, approximately 30 acres of park ("La Vista Park"), including sports fields, playgrounds, water features, picnic areas, and open space areas with trails. The City of Hayward proposes to transform this site into a terraced city park with public amenities enabling yoga, picnicking, public events, farmer's markets and food trucks, art walks, physical activities such as soccer, basketball, cycling, trail running, and walking. The approved La Vista Development project also includes offsite improvements, such as installation of water tank at Garin Reservoir, extending Tennyson Road, and a new connector road between the development and Alquire Parkway.

3.2 PROPOSED PROJECT

The proposed project would amend the approved La Vista Development project boundary to increase the size of La Vista Park. La Vista Park, as approved, is located on two parcels (APN 083-0477-002-00 and APN 083-0477-005-00) and is approximately 30 acres. The proposed project would increase the size by approximately 26.5 acres, for a total size of approximately 56.5 acres. Proposed amenities within the 26.5-acre expansion area include a, children's playground, bicycle terrain park, trails, digital art projection[1] and supplemental parking. A conceptual site plan is depicted in Figure 3.2-1.

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[1] A projector would be mounted discreetly downhill and would project onto the natural hillside. The operation of the digital art projection would be limited to sunrise to sunset.

Source: Surfacedesign, Inc., June 2, 2021.

SITE PLAN

FIGURE 3.2-1

3.2.1 Site Access, Parking, and Circulation

Vehicles would be able to access the La Vista Park Addition from various locations. From Tennyson Road, vehicles will have access to the majority of park amenities from a proposed driveway entrance on the southeast side of the park leading to an approximately 127-space parking terrace. Another access point from Tennyson Road will be available to vehicles, pedestrians and bicyclist located on the southwest side of the park to provide access to the Foothill Trail and bike terrain park. Thru traffic will be limited to emergency/maintenance vehicles, pedestrians and cyclist. A proposed connection from Douglas Street would provide vehicular access the northwestern side of the park and Foothill Trail (refer to Figure 3.2-1). From the lower road/trail, a side fork road will provide emergency fire access to the properties north of the park and allow for pedestrian and bicyclist access thru to the east side of the park. From E 16th Street, a parking lot will provide limited access to the northwestern portion of the park to vehicles and pedestrians.

Bicycle racks would be placed at the northern portion of the parking terraces.

3.2.2 Keyway Construction

Implementation of the project would require the construction of a keyway of reinforced lime- or cement-treated on-site soil near the base of the proposed and existing fill slopes where mapped landslides occur to improve stability and reduce seismic deformations. The keyway would extend across the landslide areas and be deep enough to key into the relatively competent bedrock below the landslide deposits and serpentinite gouge. The proposed keyway and project would preserve the existing seasonal wetland, as described in detail in Section 3.5 of this Initial Study.

3.2.3 Landscaping and Stormwater Control

Large fill slopes are proposed as part of the park development. The proposed site grading includes contouring existing berms of engineered fill into several tall pyramids. Additional grading is planned within and behind an existing engineered fill slope near the southern portion of the site to construct the athletic fields and other park improvements. Grading is intended to balance on site.

An existing stormwater management pond, known as the C.3 basin, has already been constructed in the northern portion of the former quarry. In addition, a detention basin has been constructed behind the existing engineered fill slope near the southern portion of the site, which currently treats the 179-unit housing development to the east. These features will be incorporated into the design of the stormwater management system for the park development As part of the project, the C.3 basin will be reconfigured to encompass the approved soccer field and lawn area as part of the approved La Vista Development project.

The detention basin and stormwater management pond are connected to an existing storm drain system at the site, with an inlet at the detention basin and an inlet at the stormwater management pond. The stormwater management pond is intended to store up to Elevation 250 feet and is underlain by a subdrain. The detention basin will be sized to store surface runoff from a 100-year storm event. The detention basin is anticipated to store water as high as Elevation 227.09 feet for up to 72 hours following a 100-year storm event.

3.2.4 Construction Schedule

Construction of the park will include site grading, utility improvements, low retaining walls, asphalt pavement, concrete flatwork, playground equipment, sod turf, landscaping, hydroseeding, lighting, and irrigation. Construction of the approved La Vista Park and La Vista Park Addition would occur concurrently. Construction is anticipated to occur over a period of 12 to 18 months, however the use of heavy equipment for grading activities is expected to take three to six months.

SECTION 4.0 ENVIRONMENTAL SETTING, CHECKLIST, AND IMPACT DISCUSSION

This Initial Study provides a comparative analysis of the potential impacts associated with the proposed project and those of the approved La Vista Development project analyzed in the adopted IS-MND. This Initial Study uses the standard Environmental Checklist categories from Appendix G of the State CEQA Guidelines but provides answer columns for evaluation consistent with the considerations listed under CEQA Guidelines Section 15162 (a). The answer columns are aimed at identifying the degree to which the issue was analyzed in the previously adopted IS-MND. The checklist also includes a column identifying whether the proposed project constitutes new information of substantial importance relative to each environmental issue. The questions posed in each column are described below.

Where was impact analyzed?
This column provides a cross-reference to the portions of the adopted IS-MND where information and analyses may be found relative to the environmental issue listed under each topic. The cross-references identified in this column correspond with page numbers and section numbers of the adopted IS-MND.

Do proposed changes require major revisions to the adopted IS-MND?
In accordance with Section 15162(a)(1) of the State CEQA Guidelines, this column indicates whether the proposed project would involve new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts that, in turn, would require major revisions of the adopted IS-MND.

Do new circumstances require major revisions to the adopted IS-MND?
In accordance with Section 15162(a)(2) of the State CEQA Guidelines, this column indicates whether changes to the circumstances under which the proposed project is undertaken or implemented have occurred that would involve new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts that, in turn, would require major revisions of the adopted IS-MND.

Is there any new information resulting in new or substantially more severe significant impacts?
In accordance with Sections 15162(a)(3)(A) and 15162(a)(3)(B) of the State CEQA Guidelines, this column indicates whether new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the IS-MND was adopted, shows additional or substantially more severe significant impacts not discussed in the adopted IS-MND.

Do mitigation measures included in the adopted IS-MND address and/or resolve impacts?
In accordance with Sections 15162(a)(3)(C) and 15162(a)(3)(D) of the State CEQA Guidelines, this column indicates whether new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the IS-MND was adopted, shows that mitigation measures in the adopted IS-MND would now be feasible, or identifies new mitigation measures not in the adopted IS-MND that would reduce significant impacts, but which the applicant declines to adopt.

4.1 AESTHETICS

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Have a substantial adverse effect on a scenic vista?	Page 3	No	No	No	N/A
2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Page 3	No	No	No	N/A
3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views[2] of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Pages 3-4	No	No	No	Yes
4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Pages 4-5	No	No	No	Yes

Note: Certain projects within transit priority areas need not evaluate aesthetics (Public Resources Code Section 21099).

Impact AES-1: The project would not have a substantial adverse effect on a scenic vista. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved La Vista Development would be seen against the backdrop of the East Bay Hills, but given the existing conditions on the project site (i.e., disturbed quarry), there would be no impact.

The proposed project would also be seen in context with the East Bay Hills to the east. The project site is directly adjacent to the former quarry area and is also disturbed similar to the approved La Vista Development site. However, disturbance on the project site is due primarily to grazing, rather than quarry operations. Developing the project site with park amenities and landscaping would reduce the visible disturbance on the project site associated with grazing since the park amenities and landscaping would be more compatible with surrounding residential uses. This would not be an adverse effect on views toward the East Bay Hills.

Views of the San Francisco Bay are possible from the project site, as well as the approved project site. The proposed park facilities included in the proposed project, such as a children's playground,

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[2] Public views are those that are experienced from publicly accessible vantage points.

bicycle terrain park, and trails would not obstruct views from or across the project site toward the San Francisco Bay.

Because the project site is disturbed, adjacent to the quarry disturbance, and would develop the project site with similar park uses as those evaluated for the approved La Vista Park, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AES-2: The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved La Vista Development would have no impacts to scenic resources within a state scenic highway because the nearest state scenic highway, Interstate 580 at the San Leandro city limit, is approximately four miles away.

The project site is adjacent to the approved La Vista Development project. No new state scenic highways have been designated in closer proximity to the project site than Interstate 580 at the San Leandro city limit since the IS-MND was adopted in 2005.[3] Therefore, consistent with the approved La Vista Development project, the proposed project would have no impacts to scenic resources within a state scenic highway. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AES-3: The project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. The project would not conflict with applicable zoning and other regulations governing scenic quality. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved project would require tree removal and installation of a water tank, either of which could have potentially significant impacts on visual character. The adopted IS-MND provides Mitigation Measure I-c, which would reduce impacts to less than significant. Mitigation Measure I-c states that tree removals shall be replaced with new trees equal in size and species or value, in accordance with the City's Tree Preservation Ordinance, to be approved by the City Landscape Architect. The mitigation measure also requires the water tank to be painted an earth-tone color or colors.

The proposed project would develop the project site with park facilities and amenities, including landscaping. These features would change the visual character, which currently is characterized with grazing uses and disturbance. The landscaping and park facilities would improve the quality of public views of the site and surrounding compared to existing grazing disturbance and facilities. In addition to landscaping, the proposed park would include walking trails, a children's playground, basketball

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[3] California Department of Transportation (Caltrans). Scenic Highways. Accessed November 10, 2020. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

court, and a bicycle terrain parks. These features would be similar in appearance to components of the approved La Vista Park, such as basketball courts and soccer fields.

The majority of the project site is disturbed ruderal vegetation without trees. However, there is oak woodland at the northern end of the site, where no construction activities are proposed. However, in the event that removal of one or more trees from this area is required, Mitigation Measure I-c from the adopted IS-MND would be required for the proposed project. With implementation of Mitigation Measure I-c, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AES-4:	The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved project would include street lights and exterior lighting on residences that could have potentially significant impacts related to light and glare. The adopted IS-MND provides Mitigation Measure I-d, which would reduce impacts to less than significant. Mitigation Measure I-d requires submittal of a lighting plan as part of the precise development plan, which must be approved by Public Works - Transportation. The lighting plan shall incorporate fixtures that ensure off-site lighting is minimized and that landscape lighting is not directed upward.

The proposed project would expand the La Vista Park boundary of the approved La Vista Development. The proposed project would not increase the number of residential units in the La Vista Development. Therefore, the proposed project would not increase the number or intensity of exterior lighting on residences in the project area. The proposed project would not construct new residential streets with street lighting. However, outdoor lighting could be provided at isolated locations within the proposed park addition area for safety. These lights would be seen in context with other existing light sources in the area. In addition, the project includes a digital art feature that would project imagery onto the hillside. The projector would be focused onto a specific area on the hillside, which would eliminate any light pollution for immediate neighbors (similar to downlighting). The projector would be remotely controlled once installed and setup and would be dimmable. Further, operation Use of the digital art feature outside of these hours would require a permit from the Hayward Area Recreation and Park District. Nonetheless, the proposed project would contribute to overall lighting of the night sky in the area, and Mitigation Measure I-d would be required. With mitigation, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.2 AGRICULTURE AND FORESTRY RESOURCES

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
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?	Page 5	No	No	No	N/A
2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Page 5	No	No	No	N/A
3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	N/A	No	No	No	N/A
4) Result in a loss of forest land or conversion of forest land to non-forest use?	N/A	No	No	No	N/A
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?	Page 5	No	No	No	N/A

Impact AG-1: The project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved project would have no impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance because these agricultural designations do not occur in the La Vista Development project boundary.

The project site is not mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.[4] Therefore, consistent with the approved La Vista Development project, the proposed project would have no impacts on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AG-2:	The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved La Vista Development would have no impacts to lands zoned for agriculture or subject to a Williamson Act contract, because these conditions do not occur in the La Vista Development project boundary.

The project site is zoned *RMB4: Medium Density Residential* and *OS: Open Space*. It is not zoned for agricultural use, and is it is not subject to a Williamson Act contract.[5] Therefore, consistent with the approved La Vista Development project, the proposed project would have no impacts on existing agricultural zoning or Williamson Act contracts. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AG-3:	The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. **(No New or Substantially More Severe Significant Impacts)**

Conflicts with existing zoning for forest land, timberland, and timberland zoned Timberland Production was not discussed in the adopted IS-MND. However, neither the La Vista Development project site or the proposed project site are zoned for forest land or timberland. Therefore, there would be no impact, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AG-4:	The project would not result in a loss of forest land or conversion of forest land to non-forest use. **(No New or Substantially More Severe Significant Impacts)**

Forest land and the potential loss of forest land are not discussed in the adopted IS-MND, as it was not required per the CEQA Checklist at the time the IS-MND was adopted in 2005.

The project site is primarily characterized by non-native annual grassland and ruderal/disturbed vegetation communities that contain large, dense stands of invasive plant species. The removal of isolated or individual trees could be required, but conversion of the forest would not be required. Therefore, the proposed project would have no impacts related to the loss or conversion of forest

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[4] California Department of Conservation. California Important Farmland Finder. 2016. Accessed November 10, 2020. https://maps.conservation.ca.gov/dlrp/ciff/

[5] California Department of Conservation. Alameda County Williamson Act FY 2014/2015. 2015.

land. While forest loss was not evaluated in the adopted IS-MND, this is not new information resulting in a new or substantially more severe significant impact, as the proposed project would have no impact. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AG-5:	The project would not 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 New or Substantially More Severe Significant Impacts)**

As described above, Farmland does not occur within the approved La Vista Development site or the project site. The proposed project would have no impact on Farmland, consistent with the approved project. The proposed project would have no impacts related to converting forest land to a non-forest use. Therefore, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.3 AIR QUALITY

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Conflict with or obstruct implementation of the applicable air quality plan?	Page 5-6	No	No	No	N/A
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?	Page 7	No	No	No	Yes
3) Expose sensitive receptors to substantial pollutant concentrations?	Pages 7-8	No	No	No	Yes
4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Page 8	No	No	No	N/A

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. **(No New or Substantially More Severe Significant Impacts)**

Consistency with the 2017 Clean Air Plan

The most current clean air plan, *Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area* (2017 Clean Air Plan) was adopted by the Bay Area Air Quality Management District (BAAQMD) in April 2017.[6] The legal impetus for the 2017 Clean Air Plan is to update the previous ozone plan, the 2010 Clean Air Plan, to comply with State air quality planning requirements as codified in the California Health & Safety Code. The 2017 Clean Air Plan either has updated or replaced the air quality plans that were discussed in the previously adopted IS-MND; and assumes the same types and level of future development as the City's General Plan.

The proposed project would not conflict with or obstruct the implementation of BAAQMD plans. In fact, implementation of the project would be consistent with BAAQMD's goals to reduce ground level ozone and $PM_{2.5}$ pollution because it would not directly or indirectly increase population beyond levels assumed in the 2017 Clean Air Plan. No new housing or population is proposed or would be developed on the project site, and so the project would be consistent with growth and population forecasts used in the 2017 Clean Air Plan and the General Plan upon which it is based.

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[6] Bay Area Air Quality Management District (BAAQMD). Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. April 2017.

Additionally, the proposed project would provide bicycle and pedestrian paths, which could reduce vehicle trips and associated mobile-source emissions in the immediate area.

Consistency with BAAQMD Thresholds for Criteria Pollutants

Operational criteria pollutant emissions from the proposed project (approximately 26.5 acres) would be below the BAAQMD screening threshold of 2,613 acres for a "City Park" land use type. The proposed project would increase the size of La Vista Park by approximately 26.5 acres, for a total size of approximately 56.5 acres. Therefore, the project would result in a less than significant air quality impact due to operational-related criteria air pollutant emissions.

Construction-related criteria air emissions from the project would be below the BAAQMD screening threshold of 67 acres for a "City Park" land use type. Therefore, the project, which would entail approximately 26.5 acres (or 56.5 acres including the approved La Vista Park), would result in a less than significant air quality impact due to construction-related criteria air pollutant emissions. Additionally, Mitigation Measure III-c in the adopted IS/MND would be applicable to the proposed park addition construction activities. This mitigation measure requires standard dust control measures be implemented during grading.

As the project would not conflict with or obstruct the implementation of an applicable air quality plan, there would be no impact. Accordingly, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AIR-2:	The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that construction of the La Vista Development project could result in increased particulate (PM_{10}) and fine particulate ($PM_{2.5}$) matter. The adopted IS-MND notes that the Bay Area was in non-attainment status for state ambient air quality standards for both PM_{10} and $PM_{2.5}$, as well as state and federal standards for ozone. Therefore, the adopted IS-MND determined that construction of the La Vista Development project would have potentially significant impacts. The adopted IS-MND provides Mitigation Measure III-c, which states that project grading activities shall incorporate standard dust control measures complying with the BAAQMD recommendations for dust control. Project grading plans shall state such measures on the plans. With implementation of Mitigation Measure III-c, the La Vista Development project was determined to have less than significant impacts.

Currently, the Bay Area region does not meet state or federal ambient air quality standards for ground level ozone and $PM_{2.5}$, nor does it meet state standards for PM_{10}. [7] The grading and construction required for the proposed project would generate additional PM_{10} and $PM_{2.5}$ emissions. Therefore, construction of the proposed project could exacerbate the impacts of the La Vista

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[7] Bay Area Air Quality Management District (BAAQMD). Air Quality Standards and Attainment Status. Access November 10, 2020. http://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status

Development project, as described above. Accordingly, Mitigation Measure III-c would be applicable to construction of the proposed project. As described above, this mitigation measure requires implementation of dust control measures during grading activities. With implementation of Mitigation Measure III-c, impacts of the proposed project would be less than significant. Therefore, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact AIR-3:	The project would not expose sensitive receptors to substantial pollutant concentrations. **(Less than Significant Impact with Mitigation Incorporated)**

The adopted IS-MND concluded that construction of the La Vista Development project could expose adjacent residences to elevated levels of fine particulate matter. The adopted IS-MND provides Mitigation Measure III-c, which requires that the project implement dust control measures consistent with BAAQMD recommendations. With implementation of Mitigation Measure III-d, and thus Mitigation Measures III-b and III-c, the La Vista Development project was determined to have less than significant impacts. The adopted IS-MND did not include a discussion of Toxic Air Contaminants (TAC) emissions. TAC emissions are included in this Initial Study/Addendum to reflect the most recent requirements of CEQA and guidance from BAAQMD, which provided numeric thresholds in 2010 to use in evaluating the significance of health risk effects. However, potential impacts related to TAC emissions do not constitute “new information” as defined by CEQA because TAC emissions were known as a potential environmental issue prior to 2005.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors.

Grading activities are anticipated to occur over a period of three to six months. Project grading would involve negligible export and import of soil. Given the close proximity of sensitive receptors to the project site, construction activities are considered to result in potentially significant impacts in terms of excess cancer risk to any infants present or increased annual $PM_{2.5}$ concentrations caused by construction equipment and traffic exhaust and fugitive dust. The following mitigation measure is an updated version of Mitigation Measure III-d, reflecting the most recent requirements of CEQA and guidance from BAAQMD.

Mitigation Measures: The project would implement measures during all phases of construction to reduce exposure to nearby sensitive receptors to TAC emissions.

MM AIR-3.1: The project shall use equipment that has low DPM or zero emissions, implementing the following measures:

- All diesel-powered off-road equipment larger than 25 horsepower, operating on the site for more than two days, shall, at a minimum, meet

U.S. EPA particulate matter emissions standards for Tier 4 engines that altogether achieve an 85 percent or greater reduction in particulate matter exhaust; alternatively (or in combination) use of Tier 3 off-road diesel equipment equipped with Level 3 verified diesel emission control systems or alternatively-fueled or electric equipment (i.e., non-diesel).

- Avoid diesel generator use by supplying line power to the construction site and limiting the use of diesel generators to no more than 100 total hours during the entire construction period.
- Avoid staging of construction equipment near portions of the site that are adjacent to residences.

With implementation of Mitigation Measure III-d and MM AIR-3.1, the project would have a less than significant impact with respect to community health risk caused by construction activities.

Impact AIR-4:	The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved La Vista Development would have no impacts related to objectional odors because residential and park land uses do not generate such odors.

The proposed project would expand the limits of the approved La Vista Development project and provide for additional park amenities and outdoor space. The proposed project does not include other uses not previously evaluated that would otherwise create objectionable odors. Therefore, there would be no impact, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.4 BIOLOGICAL RESOURCES

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
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 (CDFW) or United States Fish and Wildlife Service (USFWS)?	Pages 8 through 11	No	No	No	Yes
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 CDFW or USFWS?	Page 11	No	No	No	N/A
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?	Pages 11 and 12	No	No	No	Yes
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, impede the use of native wildlife nursery sites?	Page 12	No	No	No	N/A
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Pages 12 and 13	No	No	No	Yes
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?	Pages 13 and 30	No	No	No	N/A

The following discussion and analyses are based, in part, on a *Biological Resources Technical Report* prepared by WRA for the for the project. A copy of the analysis is provided as Appendix A to this Addendum.

Impact BIO-1: The project would not 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 CDFW or USFWS. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project has the potential to impact special-status plant and wildlife species because the project is adjacent to Garin Regional Park. Impacts were determined to be less than significant with implementation of Mitigation Measure IV-a. This mitigation measure requires coordination with the USFWS service to determine if additional habitat assessments or protocol surveys are required for Alameda whipsnake or California red-legged frog. If California red-legged frogs or Alameda whipsnake and/or their occupied habitats are determined to be present based on results of habitat assessments or protocol-level surveys, then a project specific California red-legged frog and/or Alameda whipsnake mitigation plan must be developed, approved by the USFWS and the CDFW prior to development, and implemented.

Mitigation Measure IV-a also requires protocol surveys prior to the start of grading and construction for special-status raptor species, including burrowing owl, golden eagle, and loggerhead shrike. If such surveys reveal the presence of nesting Golden Eagles within 0.25 mile and in direct line-of-sight distance from project activity, presence of Western burrowing owls within 250 feet, presence of loggerhead shrikes within 200 feet or presence of any other special-status raptors within 300 feet of project activity, construction activity within the above-specified buffer zones shall be completed before the nesting season or be postponed until after the nesting season.

Alameda Whipsnake

The *Biological Resources Technical Report* concluded that the project area does not have the structure of vegetation communities to be considered core habitat for Alameda whipsnake. However, it is possible that this species could occur incidentally within the project area due to the presence of nearby occupied habitats. Therefore, construction activities may result in a potentially significant impact to Alameda whipsnake under CEQA. The following mitigation measure is an updated version of Mitigation Measure IV-a, reflecting the findings of the *Biological Resources Technical Report* prepared for the expanded project area by WRA.

Mitigation Measure:

MM BIO-1.1: To reduce potential impacts to Alameda whipsnake to a less-than-significant level, the following measures shall be implemented:

- Construction employees will attend a Worker Environmental Awareness Training Program (WEAP) prior to beginning work at the site. The WEAP will consist of a brief presentation by a qualified biologist, which may be given either in-person or via an automated PowerPoint presentation. The program will include a description of visual identification of any special-status species and required habitat, an explanation of the status of these species and their protection, consequences of non-compliance, and a description of the project-specific measures being taken to reduce effects to these species. Documentation of the training (i.e., a sign-in sheet) will be retained at the site and will be submitted with applicable reports.

- An exclusion fence will be placed between the work area and adjacent undeveloped land with potential to support Alameda whipsnake. Fencing will consist of silt fence or suitable substitute (e.g., ERTEC 48-inch high-visibility orange fencing), which will be buried at least 6 inches below the surface (or sealed in a like manner) to prevent incursion under the fence, and will stand at least 36 inches above ground. The fence will also be made of an opaque material. Exclusion fencing will be inspected and maintained throughout the Project. Fencing will be removed only when all construction equipment is removed from the site. The exclusion fence will be checked for breaches on a daily basis by a qualified biologist or an on-site representative.

Implementation of MM BIO-1.1 would reduce potential impacts to individual Alameda whipsnake to less than significant level.

California Red-Legged Frog

The *Biological Resources Technical Report* determined that the project area does not contain marshes, ponds, or slow moving streams suitable to support breeding by the California red-legged frog. This species occurs in the hills to the east of the project area, with the nearest documented occurrence approximately two miles from the project area. However, the project area is bordered to the west by dense urban development which represents a complete barrier to dispersal. For these reasons, it is unlikely that individuals would disperse through the project area due to lack of nearby aquatic habitat. In addition, the project area is grazed and does not provide vegetative cover.

Burrowing Owl

Burrows within the project area may be suitable for use as refugia for burrowing owl during migration or potentially overwintering. Direct impacts to burrowing owl habitat would include loss of potentially suitable grassland habitat. There are few documented observations of burrowing owl in the vicinity, the site is disturbed by periodic discing, and the steep slopes of the site are not optimal conditions for burrowing owl. If owls are present during construction, individuals may be injured or killed by vehicles or construction equipment, or they may be flushed from protective burrows by vehicle traffic or ground disturbance. Burrows, if present, may also be impacted or made inaccessible through ground disturbance or stockpiling of equipment and materials. This may result in injury or mortality to burrowing owl individuals. Therefore, construction activities are considered a potentially significant impact to burrowing owl under CEQA. The following mitigation measure is an updated version of Mitigation Measure IV-a, reflecting the findings of the *Biological Resources Technical Report* prepared for the project by WRA.

Mitigation Measure:

MM BIO-1.2: To reduce potential impacts to burrowing owl to a less-than-significant level, the following measures shall be implemented:

- Prior to the onset of project activities, one preconstruction survey no more than 14 days prior to initial ground disturbance shall be performed in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The pre-construction survey shall include suitable habitat up to 656 feet (200 meters) from proposed activities and be conducted prior to the start of staging and construction, regardless of the time of year. If burrowing owl is detected within the project footprint during the non-nesting season and the burrow cannot be avoided, a burrowing owl exclusion plan shall be prepared and implemented. Mitigation may be required by CDFW as part of the exclusion plan. If burrowing owl is detected outside the project footprint but within the Project Area during the non-nesting season, vehicle traffic and construction noise and visual disturbance shall be minimized to the extent feasible to minimize the potential for flushing overwintering owls from protective burrows. Occupied burrows will not be disturbed during the nesting season (February 1 through August 31) unless, after consultation with the CDFW, a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and capable of independent survival.

Implementation of this mitigation measure will reduce potential impacts to burrowing owl to a less than significant level.

Special-Status and non-Status Native Nesting Birds

The project has the potential to impact white-tailed kite as well as non-status native birds while nesting. Project activities, such as vegetation removal and ground disturbance, have the potential to impact these species by causing direct mortality of eggs or young, or by causing auditory, vibratory, and/or visual disturbance of a sufficient level to cause abandonment of an active nest. If project activities occur during the nesting season, which generally extends from February 1 through August 31, nests of both special-status and non-status native birds could be impacted by construction and other ground-disturbing activities. Disturbance to nesting birds would be considered a potentially significant impact under CEQA. The following mitigation measure is an updated version of Mitigation Measure IV-a, reflecting the findings of the *Biological Resources Technical Report* prepared for the project by WRA.

Mitigation Measure:

MM BIO-1.3: To reduce potential impacts to nesting birds to a less-than-significant level, the following measure shall be implemented:

- Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds. Surveys will encompass the entire construction area and the surrounding 500 feet. An exclusion zone where no construction would be allowed will be established around any active nests of any avian species found in the Project Area until a qualified biologist has determined that all young have fledged and are independent of the nest. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and will be at the discretion of the biologist and, if necessary, USFWS and CDFW. These surveys would remain valid as long as construction activity is consistently occurring in a given area and will be completed again if there is a lapse in construction activities of more than 14 consecutive days during the breeding bird season.

Implementation of MM BIO-1.3 will reduce potential impacts to nesting birds to a less than significant level.

With implementation of Mitigation Measure IV-a and MM BIO-1.1 through MM BIO-1.3, impacts to special-status species would be reduced to less than significant, and the proposed project would have no new or substantially more severe impacts than previously identified in the adopted IS-MND.

Impact BIO-2: The project would not 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 CDFW or USFWS. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project would have no impact on riparian habitat or other sensitive natural communities because these vegetation communities do not exist on the site. As described above, vegetation cover in the proposed park addition area is primarily characterized by non-native annual grassland and ruderal communities that are heavily grazed and contain invasive species. This type of vegetation cover is not a sensitive natural community. The proposed project would have no impact, and there would be no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact BIO-3: The project would not have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means. **(Less than Significant Impact with Mitigation Incorporated)**

The adopted IS-MND determined that implementation of the approved project could result in impacts to onsite wetlands. The adopted IS-MND provides Mitigation Measure IV-c, which requires that wetland delineations/verifications be secured from the U.S. Army Corps of Engineers prior to the issuance of grading permits.

The *Biological Resources Technical Report* determined that there is a small wetland seep (0.005 acre) located on the center of the project site (refer to Figure 3.4-1). It is a non-depressional, seep-fed feature situated on a slope that discharges downslope to the west a short distance before transitioning back to upland grassland. Because of the sloping topography in the vicinity of the seep, this feature is saturated for an extended duration, but it does not pond, and it is not confined to a channel. The seasonal wetland is not adjacent to any streams or other wetland features and is therefore not jurisdictional by the Corps. However, because it meets the wetland definition of the Regional Water Quality Control Board (RWQCB), it may be jurisdictional by that agency. The project would avoid the seasonal wetland by a minimum of 10 feet. However, indirect impacts to the seasonal wetland could still occur during construction as a result of incidental slippage of fill material into the wetland area. Given the proposed changes to the surrounding topography, this is a potentially significant impact that could possibly result in the wetland being inadvertently filled. Because the hydrology source for the seep is subterranean, it is not anticipated that the surrounding grading will result in any significant impacts to the wetland hydrology.

<u>Mitigation Measure:</u>

MM BIO-3.1: Project construction could result in inadvertent impacts to the approximately 0.005-acre seasonal wetland through accidental discharge of fill during construction. Prior to construction, the boundaries of the seasonal wetland will be flagged by a qualified biologist, and the boundary of the wetland will be fenced with construction boundary fencing in combination with silt fencing. The fencing will be maintained throughout the duration of construction and will only be removed once vegetation has established sufficiently to terminate the project's Stormwater Pollution Prevention Plan (SWPPP).

Implementation of MM BIO-3.1 would ensure that onsite seasonal wetlands are not inadvertently impacted during project construction.

Source: WRA Environmental Consultants, April 8, 2021.

LAND COVER TYPES IN THE PROJECT AREA

FIGURE 4.4-2

With implementation of Mitigation Measure IV-c and MM BIO-3.1, impacts to wetlands would be reduced to less than significant, and the proposed project would have no new or substantially more severe impacts than previously identified in the adopted IS-MND.

Impact BIO-4: The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, nor impede the use of native wildlife nursery sites. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the approved La Vista Development project would have no impacts on wildlife movement, migratory corridors, or wildlife nursery sites because the project area is an existing quarry and undeveloped land exists to the south that would allow for an east-west migratory corridor to Garin Regional Park.

Residential development has been approved for areas of the undeveloped land to the south of the La Vista Development since the adoption of the IS-MND in 2005. However, this does not represent new or changed circumstances requiring revisions to the IS-MND because an east-west corridor in this area would have connected the Garin Regional Park to the urbanized area of Hayward. There is no wildlife habitat in the urbanized areas. Therefore, wildlife would have no reason to have used such a corridor for migration or movement.

Similarly, because the proposed park addition area would occur adjacent to the urban development of Hayward, there is no habitat to the west of the project site to which wildlife would migrate across the site to reach. The project site is currently used for grazing and pasture and is not a native wildlife nursery site. Fish habitat does not occur on site. Therefore, the proposed project would have no impact, and there would be no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact BIO-5: The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project would require the removal of 17 trees, and this could conflict with the City's Tree Preservation Ordinance. Impacts were determined to be less than significant with implementation of Mitigation Measure IV-e. This mitigation measure requires that trees protected under the Ordinance that are removed by the project be replaced by similar sized trees of similar species and equal value, as determined by the City's Landscape Architect.

There are very few trees in the proposed park addition area. There is a single palm tree central to project site, and several oak trees at the most northern area of the project site. The proposed park facilities and amenities would be designed to avoid trees to the extent possible because they are assets to parks. However, design constraints may require the removal of some onsite trees. Impacts would be reduced to less than significant with implementation of Mitigation Measure IV-e from the adopted IS-MND, described above. With implementation of Mitigation Measure IV-e, the proposed project would result in no new or substantially more severe impacts than previously identified in the adopted IS-MND.

Impact BIO-6:	The project would not 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 New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that there are no habitat conservation plans applicable to the La Vista Development project area, and that there would be no impact. There are also no adopted habitat conservation plans applicable to the proposed park addition area. Therefore, the proposed project would have no impact, and there would be no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.5 CULTURAL RESOURCES

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	Page 13	No	No	No	N/A
2) Cause a substantial adverse change in the significance of an archaeological resource as pursuant to CEQA Guidelines Section 15064.5?	Pages 13 and 14	No	No	No	N/A
3) Disturb any human remains, including those interred outside of dedicated cemeteries?	Page 14	No	No	No	N/A

The following discussion and analyses are based, in part, on an archaeological survey completed pursuant to the requirements of CEQA for the project site. The archaeological survey was completed by a Registered Professional Archaeologist with *Holman & Associates*. The archaeological survey consisted of a records search at the Northwest Information Center of the California Historic Resources Information System, and a pedestrian survey of the project site completed in May 2019. The archaeology survey report is confidential in nature and can be viewed by qualified personnel at the Development Services Department, Planning Division offices.

Impact CUL-1: The project would not cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5. **(No New or Substantially More Severe Significant Impacts)**

There are no historic resources present within the project site boundaries or adjacent to the project site. Therefore, the proposed project would have no impact on historical resources, and there would be no new or substantially more severe impacts than previously identified in the adopted IS-MND.

Impact CUL-2: The project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that construction of the La Vista Development project would have no impact on archaeological resources because these resources are not known to occur on-site. The adopted IS-MND states that if archaeological resources are discovered during project construction, Section 15064.5 of the State CEQA Guidelines, Public Resources Code 5024.5, and the Caltrans

Environmental Handbook require that construction work stop near the find and an archaeologist evaluate the find to determine its significance.

Based on the findings from the archaeological survey report prepared for the proposed project, there are no archaeological sites recorded within the project site or within a half mile of its boundary. No archaeological resources were observed during the pedestrian survey of the project site. However, given the project site’s location at the base of the East Bay Hills and proximity to drainages in the area, there is moderate potential for previously undiscovered subsurface archaeological resources to occur within the project site. Therefore, grading and construction of the proposed park amenities could disturb and potentially cause adverse changes or destruction of previously undiscovered archaeological resources.

Section 15064.5 of the State CEQA Guidelines, cited in the adopted IS-MND as a reason the project would have no impact, outlines the methods for determining the significance of impacts to archaeological and historical resources. Section 15064.5(f) of the State CEQA Guidelines states:

> “As part of the objectives, criteria, and procedures required by Section 21082 of the Public Resources Code, a lead agency should make provisions for historical or unique archaeological resources accidently discovered during construction. The provisions should include an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available…”

As the lead agency, the City must adhere to Public Resources Code Section 21082, and therefore the requirements to stop work in the event of a find and allow for a qualified archaeologist to evaluate the find and develop mitigation, if applicable, based on the significance of the find. With mandatory adherence to Public Resources Code Section 21082, impacts would be less than significant. The proposed project would have no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact CUL-3: The project would not disturb any human remains, including those interred outside of dedicated cemeteries. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development Project would have less than significant impacts related to human remains because the site has been disturbed by mining activity and human remains are unlikely. The IS-MND states that if human remains are encountered, adherence to state laws and standard grading procedures would reduce impacts to less than significant.

There are no known human burial sites on the project site. However, in the event than construction activities encounter previously undiscovered human remains, adherence to applicable state laws and regulations would prevent significant impacts. These laws and regulations include Health and Safety Code Section 7050.5 and Public Resource Code Sections 5097.94 and 5097.98. Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, the County Coroner must be notified within

48 hours and there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the County Coroner has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. With mandatory adherence to state laws and regulations, the proposed project would have less than significant impacts related to disturbance of human remains. The proposed project would have no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.6 ENERGY

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	N/A	No	No	No	N/A
2) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	N/A	No	No	No	N/A

Impact EN-1: The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation. **(No New or Substantially More Severe Significant Impacts)**

The 2005 IS-MND did not address project energy usage directly, as the requirement to do so was not added to the CEQA Appendix G Initial Study Checklist until 2018. The proposed project consists of expanding the La Vista Park boundary to include an additional approximately 26.5 acres of land. The additional area would be developed with park facilities and amenities, including a children's playground, bicycle terrain park, and bicycle and pedestrian trails. These types of facilities do not consume substantial amounts of energy because they are typically used during the day and are outdoor, avoiding the need for lighting and heating and cooling.

The construction required for the proposed project would not be especially complex or lengthy, minimizing energy consumption. Given the relatively short-term construction period, energy consumption during construction would be minimal, and unnecessary and wasteful use would be avoided. Therefore, impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact EN-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. **(No New or Substantially More Severe Significant Impacts)**

The City's Climate Action Plan sets an overall goal of 100 percent renewable energy generation in Hayward by 2050. The Climate Action Plan was incorporated into the City's General Plan in 2014. As described in Section 2.0, *Project Description*, the General Plan designates the project site as LOS:

Limited Open Space and LMDR: Limited Medium Density Residential. The proposed project would develop park facilities, rather than residential dwelling units, including in areas designated as LMDR: Limited Medium Density Residential. The proposed park facilities would not include residential units or other habitable structures that require heating and cooling, and daily household consumption of electricity. Therefore, the proposed project would consume slightly less energy than planned for in the General Plan, and thus the City's Climate Action Plan. The proposed project would not preclude the City from meeting local or state renewable energy or energy efficiency goals, and impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.7 GEOLOGY AND SOILS

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:					
– 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)?	Pages 14 and 15	No	No	No	N/A
– Strong seismic ground shaking?	Pages 15 and 16	No	No	No	N/A
– Seismic-related ground failure, including liquefaction?	Page 17	No	No	No	N/A
– Landslides?	Page 17	No	No	No	N/A
2) Result in substantial soil erosion or the loss of topsoil?	Page 17	No	No	No	Yes
3) Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Page 17	No	No	No	Yes
4) Be located on expansive soil, as defined in the current California Building Code, creating substantial direct or indirect risks to life or property?	Page 17	No	No	No	Yes
5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Page 18	No	No	No	N/A
6) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	Page 14	No	No	No	N/A

The following discussion and analyses are based, in part, on a *Geotechnical and Geologic Investigation* prepared by Langan Engineering and Environmental Services, Inc. (Langan) for the proposed project. A copy of the analysis, dated May 8, 2020, is provided as Appendix B to this Addendum.

Impact GEO-1:	The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides. **(No New or Substantially More Severe Significant Impacts)**

According to the adopted IS-MND, the La Vista Development is located over a concentrated fault zone measuring 96 to 280 feet wide along the generally recognized active trace of the Hayward fault, as well as an area of discontinuous fault features southeast of the main fault traces. This is consistent with data from the California Department of Conservation, which map portions of the La Vista Development area and the project site as an earthquake fault zone.[8] The adopted IS-MND determined that construction of residences and habitable structures within proximity to the Hayward fault could expose residents to injury, death, or property damage, and impacts would be potentially significant. The adopted IS-MND provides Mitigation Measure VI-ai, which when implemented, reduces impacts to less than significant. Mitigation Measure VI-ai prohibits the construction of residences and habitat structures within 50 feet of the active Hayward fault trace and the incorporation of special foundation designs for homes constructed within the area of discontinuous fault features.

The adopted IS-MND determined that strong seismic ground shaking could occur on the La Vista Development project site, and that impacts would be less than significant with implementation of Mitigation Measure VI-aii. This mitigation measure requires a geotechnical engineer to review final construction plans and ensure that site grading, fault and slope setbacks, structural foundation designs, subdrainage, and so forth are in accordance with the geotechnical report prepared for the project. The mitigation measure requires a certified engineering geologist and geotechnical engineer to be present during grading, excavations, keyways, cuts, etc. in order to verify that actual geologic conditions, fault locations and special foundation zones are as anticipated and that appropriate supplemental recommendation be provided, as necessary. The adopted IS-MND also states that implementation of Mitigation Measure VI-aii would reduce potential impacts associated with landslides to less than significant. Consistent with the adopted IS-MND, the proposed project would be required to implement Mitigation Measure VI-aii. A site-specific *Geotechnical and Geologic Investigation* has been prepared for the proposed La Vista Park Addition. The investigation determined that with incorporation of the prescribed design-level recommendations provided, the seismic and geological hazards associated with the project site would be less than significant.

The proposed project would include constructing park facilities within the active Hayward fault trace, where the potential for rupture or seismic ground shaking is possible. However, the park

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[8] California Department of Conservation. Earthquake Zones of Required Investigation Hayward Quadrangle. 2012. Access June 16, 2020. http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/HAYWARD_EZRIM.pdf

facilities would not be structural. The facilities include an asphalt road/path, bicycling/walking trails, area children's playground, and digital projection art installation. These types of facilities do not have overhanging roofs and ceilings, high walls, or other structural components which during a fault rupture or seismic ground shaking could fail and topple, creating a substantial risk of injury or damage. While a fault rupture or strong seismic ground shaking could damage the proposed park facilities, such as cracking paved trails or twisting fence around the off-leash dog area, the risk of loss, injury, or death would not be substantial. However, the project would involve grading. Therefore, Mitigation Measure VI-aii would be applicable and grading must be in conformance with the geotechnical report recommendations. Neither the approved La Vista Development project area or the proposed project site are located in a liquefaction zone. Impacts would be less than significant with implementation of mitigation. Therefore, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact GEO-2: The project would not result in substantial erosion or the loss of topsoil. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that slopes within the La Vista Development could erode after construction grading is completed. Impacts were determined to be less than significant with implementation of Mitigation Measure VII-b. This mitigation measures states that all exposed areas within the project limits of grading shall be planted with vegetation and temporary stockpiles shall be covered with material to prevent erosion.

Construction of the proposed project would result in more than 1 acre of ground disturbance. Therefore, construction of the project would require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP contains Best Management Practices to control and prevent erosion during construction. Implementation of the SWPPP would prevent substantial erosion and soil loss during construction.

Operation of the proposed project would not require exposed soils. Mitigation VI-aii and Mitigation Measure VII-b would also be applicable to the proposed project. Therefore, temporary soil exposures occurring during construction would be planted with vegetation and covered with erosion control blankets, which would reduce erosion potential during operation. Impacts would be less than significant with mitigation implemented. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact GEO-3: The project would not 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. **(No New or Substantially More Severe Significant Impacts with Mitigation)**

The adopted IS-MND determined that with implementation of Mitigation Measure VI-aii, impacts would be reduced to less than significant. As described above, Mitigation Measure VI-aii requires a geotechnical engineer to review final construction plans and ensure that site grading, fault and slope setbacks, structural foundation designs, sub-drainage, and so forth are in accordance with the geotechnical report prepared for the project. The mitigation measure requires a certified engineering geologist and geotechnical engineer to be present during grading, excavations, keyway construction, cuts, etc. in order to verify that actual geologic conditions, fault locations and special foundation zones are as anticipated and that appropriate supplemental recommendation be provided, as necessary.

The project site consists of land sloping westward, toward existing residential uses along East 16th Street. A landslide has already occurred on project slopes. A site-specific *Geotechnical and Geologic Investigation* has been prepared for the proposed La Vista Park Addition. The investigation determined that slope stabilization measures will need to be implemented at the project site. Such modifications could include eliminating new fills over the mapped landslide extents, using lightweight fill in lieu of conventional soil to reduce the driving forces that cause instability, adding slope drainage, preventing infiltration, and/or constructing a slope retention system to buttress the slopes. The investigation concluded that construction of a keyway of reinforced lime- or cement-treated on-site soil near the base of the proposed and existing fill slopes where mapped landslides occur would improve stability and reduce seismic deformations. The keyway would extend across the landslide areas and be deep enough to key into the relatively competent bedrock below the landslide deposits and serpentinite gouge.

Consistent with the adopted IS-MND, the proposed project would be required to implement Mitigation Measure VI-aii. Therefore, the proposed project would result in no new or more severe significant impacts than previously identified in the adopted IS-MND.

Impact GEO-4: The project would be located on expansive soil, as defined in the current California Building Code, but would not create substantial direct or indirect risks to life or property. **(No New or Substantially More Severe Significant Impacts with Mitigation)**

The *Geotechnical and Geologic Investigation* concluded that the project site contains highly to very highly near-surface expansive soil. Expansive soil is subject to large volume changes during seasonal fluctuations in moisture content. Moisture fluctuations could cause these materials to expand or contract resulting in movement and potential damage to improvements that overlie them. Potential causes of moisture fluctuations include drying of the soil during construction and during dry weather and subsequent wetting from rain, capillary rise, landscape irrigation, poor drainage, and type of plant selection. Additionally, expansive soil has a tendency to creep downslope over time and can contribute to slope instability in cut and fill slopes. Consistent with the adopted IS-MND, the proposed project would be required to implement Mitigation Measure VI-aii. The *Geotechnical and Geologic Investigation* included the following design recommendations to reduce impacts from expansive soil:

- Maintaining the moisture content of the soil by regular spraying until final improvements are constructed;
- Planting vegetation, irrigating appropriately, and mulching to maintain the moisture content of the soil;
- Expansive soil shall be moisture-conditioned;

- At-grade improvements, including foundations, slabs, and concrete flatwork, should be designed and constructed to resist the effects of the expansive soil;
- Foundations below the zone of severe moisture change shall be supported in accordance with the design-level recommendations;
- Select, non-expansive fill shall be placed below exterior slabs, OR; in-situ lime treatment of the expansive soil can be performed. The amount and type of lime shall be determined by a qualified contractor. The reduced swell potential of expansive soil on-site shall be verified post-treatment with laboratory Atterberg limits testing.

Implementation of Mitigation Measure VI-aii would ensure that project is designed and constructed based on the recommendations of the *Geotechnical and Geologic Investigation.* A geotechnical engineer would also review the final construction plans and ensure that site grading, fault and slope setbacks, structural foundation designs, subdrainage, and so forth are in accordance with any recommendations made in the project geotechnical report. Therefore, the proposed project would result in no new or more severe significant impacts than previously identified in the adopted IS-MND with mitigation incorporated.

Impact GEO-5:	The project would not 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 New or Substantially More Severe Significant Impacts)**

The proposed project would not include the use of septic tanks or alternative waste water disposal systems. Therefore, consistent with the La Vista Development project, the proposed project would have no impact. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact GEO-6:	The project would not directly or indirectly destroy a unique paleontological resource or site or unique geological features. **(No New or Substantially More Severe Significant Impacts)**

The La Vista Development project was determined to have no impacts to paleontological resources in the adopted IS-MND.

The proposed park addition area is underlain primarily by rhyolite and greenstone geologic units.[9] Rhyolite is an igneous rock, and greenstone forms from metamorphosed (altered) basalt, which is also igneous. Igneous rocks form when molten rock (i.e., magma) cools and solidifies.[10] Because of the extreme heat levels and changes in pressure that igneous rocks undergo during formation, they do not contain organic material or fossils.

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[9] United States Geological Survey. Preliminary Geologic Map of the Hayward Quadrangle, Alameda and Contra Cost Counties, California. Open File Report 80-540. 1980.

[10] National Park Service. Geology: Igneous Rocks. Accessed April 25, 2019. https://www.nps.gov/subjects/geology/igneous.htm

A small area of the project site is underlain with micaceous shale rocks associated with the Knoxville Formation. Fossils are reported to be locally abundant in shale in the Knoxville Formation.[11] However, considering very little of the project site is mapped as shale, and the area that is mapped is at the far northern boundary where construction is not proposed, disturbance to potential paleontological resources would not occur. The proposed project would have no impact, and there would be no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

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[11] United States Department of the Interior. Upper Cretaceous and Lower Tertiary Rocks Berkeley and San Leandro Hills California. Geological Survey Bulletin 1251-J. 1968.

4.8 GREENHOUSE GAS EMISSIONS

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the EIR?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment?	N/A	No	No	No	N/A
2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?	N/A	No	No	No	N/A

Greenhouse gas (GHG) emissions were not included in the Appendix G of the CEQA Guidelines when the IS-MND was adopted in 2005 but have since been added following 2010 legislation. However, potential impacts related to GHG emissions do not constitute "new information" as defined by CEQA because GHG emissions were known as a potential environmental issue prior to 2005.[12] Since the time the IS-MND was adopted in 2005 the City has taken numerous actions towards promoting sustainability in Hayward, including efforts at reducing GHG emissions. For example, the City adopted a Climate Action Plan in 2009 and then incorporated it into its General Plan in 2014. The Climate Action Plan contains policies with an overall objective to reduce GHG emissions 20 percent below 2005 levels by 2020, 62.7 percent below 2005 levels by 2040, and 82.5 percent below 2005 levels by 2050.

Impact GHG-1: The project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. **(No New or Substantially More Severe Significant Impacts)**

As described above, the GHG emissions of the approved La Vista Development Project were not evaluated in the adopted 2005 IS-MND. However, it is certain that construction and operation of the approved project would generate GHG emissions. The use of the equipment required to construct the La Vista Development Project would be the primary sources of GHG emissions during construction. Operational emissions would be generated from energy consumption heating, cooling and other electrical uses at the residential units and community center, as well as mobile-source emissions from the vehicle trips generated by the La Vista Development Project. The proposed project would not alter the residential component, or the community center included in the approved La Vista Development Project. Therefore, the GHG emissions generated by these components of approved project would remain unaffected by the proposed changes to the park project.

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[12] As explained in a series of cases, most recently in *Concerned Dublin Citizens v. City of Dublin (2013) 214 Cal. App. 4th 1301*. Also see, *Citizens of Responsible Equitable Development v. City of San Diego (2011) 196 Cal. App. 4th 515*.

The proposed project would expand the La Vista Park boundary and provide additional park facilities and amenities, including bicycle and pedestrian paths, children’s playground, bicycle terrain park, and trails, and digital projection art installation. The proposed park would be in proximity to residential uses in an urban area. Therefore, many park users would be expected to walk or bicycle to the park. The proposed paths would promote active transportation modes, such as walking, running, and cycling, and would not generate new vehicle trips. Therefore, the proposed project would not substantially increase the level of mobile-source emissions beyond what would result from the approved La Vista Development Project. The operation of the additional park amenities and facilities would require very little energy or fuel consumption, generally limited to routine maintenance activities, such as trimming grass around paths. According to the BAAQMD, parks of 360 acres or less generate GHG emissions below levels of significance. These levels of significance are based on GHG reduction goals set by the state for 2030, applying a 40 percent reduction to the 2020 target. For the reasons stated above, operational emissions of the proposed project would not substantially increase the level or severity of GHG emissions associated with the approved La Vista Development Project.

Because the proposed project would expand the size of the La Vista Park, it would require the use of construction equipment over a longer period of time. However, the expansion would not substantially increase the construction period compared to the approved La Vista Development Project. As noted previously, construction of the approved La Vista Park and the proposed La Vista Addition would occur concurrently. Additionally, construction would be short-term and temporary and not generate GHG emissions over a long period of indefinite time. Accordingly, the proposed project would not substantially increase the level or severity of GHG emissions associated with the approved La Vista Development Project.

Impact GHG-2: The project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. **(No New or Substantially More Severe Significant Impacts)**

The BAAQMD prepared the 2017 Clean Air Plan as required under the state and federal Clean Air Acts. The 2017 Clean Air Plan focuses on two closely related BAAQMD goals: 1) protecting public health; and 2) protecting the climate. Consistent with the GHG reduction targets adopted by the state, the 2017 Clean Air Plan lays the groundwork for BAAQMD’s long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of methane and other “super-GHGs” that are potent climate pollutants in the near term, and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

The City adopted its original Climate Action Plan in 2009 and then incorporated it into its General Plan in 2014. Thus, the City’s General Plan functions as a climate action plan and contains numerous policies and implementation programs that are intended to reduce GHG emissions. Many of these policies focus on encouraging active modes of transportation, such as bicycling and walking, in order to reduce mobile-source GHG emissions. Other policies focus on energy efficiency, water conservation and recycling, and waste reduction. As a park project, some of the General Plan policies most applicable to the proposed project include:

> **Policy M-5.2 Pedestrian System.** The City shall strive to create and maintain a continuous system of connected sidewalks, pedestrian paths, creekside walks, and utility greenways throughout the city that facilitates convenient and safe pedestrian travel, connects neighborhoods and centers, and is free of major impediments and obstacles.
>
> **Policy M-6.2 Encourage Bicycle Use.** The City shall encourage bicycle use in all neighborhoods, especially where short trips are most common.
>
> **Policy NR-4.12 Urban Forestry.** The City shall encourage the planting of native and diverse tree species to reduce heat island effect, reduce energy consumption, and contribute to carbon mitigation.
>
> **Policy PFS-7.7 Municipal Collection of Recyclables and Organics.** The City shall continue to require its franchisee to arrange for regular collection of recyclables and organics from all municipal facilities.
>
> **Policy PFS-7.8 Recycling Collection at City Facilities and Parks.** The City shall continue to require its franchisee to provide outdoor recycling collection containers at, and services to, all City parks and related facilities.

The proposed project would be consistent with these policies. The proposed pedestrian and bike paths would promote active transportation modes, which could reduce vehicle trips in the area. The park addition would connect the previously approved La Vista Park with the existing residential neighborhoods to the west of the project site with pedestrian and bicycle trails. On-site trees would be preserved, and the proposed project includes additional landscaping of the site. Recyclable receptacles would be placed at La Vista Park, in accordance with policies PFS-7.7 and PFS-7.8. These measures would also be consistent with the goals of the 2017 Clean Air Plan. Therefore, the proposed project would support the purpose and goals of reducing the emissions of GHGs, including the BAAQMD's 2017 Clean Air Plan and the City's General Plan and Climate Action Plan. Impacts would be less than significant, and the proposed project would have no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.9 HAZARDS AND HAZARDOUS MATERIALS

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Page 18	No	No	No	N/A
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?	Pages 18 through 20	No	No	No	Yes
3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Page 20	No	No	No	N/A
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, will it create a significant hazard to the public or the environment?	Pages 20 and 21	No	No	No	N/A
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, result in a safety hazard or excessive noise for people residing or working in the project area?	Page 21	No	No	No	N/A
6) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	Page 21	No	No	No	N/A
7) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Page 22	No	No	No	Yes

Impact HAZ-1: The project would not create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project involves residential and park uses that would not require the routine transport, use, or disposal of hazardous materials. The La Vista Development project was determined to have no impact.

The proposed project would expand the boundary of the approved La Vista Development project to increase the size of La Vista Park. The proposed project would develop additional park facilities and amenities, such as a bicycle terrain park and digital projection art installation. However, the proposed project does not include new uses that would require the routine transport, use, or disposal of hazardous materials, and it would have no impact. Therefore, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HAZ-2: The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development site contains imported fill that may contain serpentine fragments. Serpentine rock often contains chrysolite asbestos, and asbestos are considered hazardous material. The adopted IS-MND also states that redevelopment of the La Vista Quarry could release hazardous materials that were used for the quarry operations. Impacts were determined to be reduced to less than significant with implementation of Mitigation Measure III-b, Mitigation Measure VII-b(1), and Mitigation Measure VII-b(2). Mitigation Measure III-b requires implementing an asbestos dust control plan approved by BAAQMD during construction. The plan must include specific measures to control the release of dust, such as keeping active stockpiles covered. Mitigation Measure VII-b(1) requires all asbestos containing materials to be placed at least 10 feet below the finished surface within the La Vista Development. Mitigation Measure VII-b(2) requires contacting the Alameda County Environmental Health Department, BAAQMD, California Department of Toxic Substances Control, and the Hazardous Materials Division of the Hayward Fire Department, for required site clearances, necessary permit and facility closure with regard to demolition and removal of hazardous material from the quarry site.

Serpentinite was discovered during borings conducted by Langan during their geotechnical and geologic investigation of the expanded park project site. Additionally, soils from the La Vista Development area could be transported and used for fill in the proposed park addition area. Thus, Mitigation Measure III-b and Mitigation Measure VII-b(1) would apply to the proposed project. Mitigation Measure VII-b(2) would continue to apply to the La Vista Development project, but would not be required for the proposed park addition because the proposed addition would not occur within the quarry area. With implementation of applicable mitigation measures, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HAZ-3: The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined the La Vista Development project would have no impact because there are no schools within one-quarter mile of the site. There are also no planned or existing schools within one-quarter mile of the proposed project site. Therefore, the proposed project would have no impact, and it would result in no new or substantially more severe significant impacts than previously identified in the IS-MND.

Impact HAZ-4: The project would not 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, create a significant hazard to the public or the environment. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the La Vista Development Project would have no impact because the site is not listed on the California Department of Toxic Substances Control's Cortese list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

In order to determine whether the project site is included on the Cortese list or if new sites in the area have been added to the Cortese list since adoption of the IS-MND in 2005, the following state regulatory databases were queried on April 23, 2019:

- Department of Toxic Substances Control's EnviroStor database[13]
- Department of Toxic Substances Control's list of hazardous waste facilities subject to correction action[14]
- State Water Resources Control Board's GeoTracker database[15]
- State Water Resources Control Board's list of solid waste disposal sites[16]
- State Water Resources Control Board's list of active Cease and Desist Orders and Cleanup and Abatement Orders[17]

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[13] California Department of Toxic Substances Control. EnviroStor [database]. 2019. Accessed April 23, 2019. https://www.envirostor.dtsc.ca.gov/public/

[14] California Department of Toxic Substances Control. List of Hazardous Waste Facilities Subject to Corrective Action. Accessed April 23, 2019. https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/

[15] State Water Resources Control Board. GeoTracker [database]. Accessed April 23, 2019. https://geotracker.waterboards.ca.gov/

[16] State Water Resources Control Board. Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit. Accessed April 23, 2019. https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf

[17] State Water Resources Control Board. List of Active CDO and CAO from Water Board. 2019. Accessed April 23, 2019. https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CDOCAOList.xlsx

The proposed park addition area does not appear in these databases or lists. Therefore, the proposed project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

According to the EnviroStor database, the La Vista Development project site is a voluntary cleanup site, but cleanup work has been completed and no further action is required. The cleanup was necessary in association with the former quarry operations that occurred on site. The proposed park addition area has been used for grazing and was not part of the former quarry operations. For these reasons, the proposed project would have no impact, similar to the approved La Vista Development project. The proposed project would have no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HAZ-5: The project would not be 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. The project would not result in a safety hazard or excessive noise for people residing or working in the project area. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the La Vista Development Project would have no impact because there are no airports within 2 miles of the site. The proposed project site is also more than 2 miles from the nearest airport. Additionally, the project site is outside of the influence area of the Hayward Executive Airport, which is the nearest airport to the project site. Therefore, the proposed project would have no impact, and it would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HAZ-6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states the extension of Tennyson Road and Alquire Parkway, and the connector road linking those extensions, roadways and utility lines that are proposed to cross the Hayward earthquake fault trace could be damaged during a seismic event. This could impair evacuation and emergency response activities during an emergency event, and impacts were determined to be less than significant with implementation of Mitigation Measure VII-g. This mitigation measure requires recommendations of a geotechnical engineer be incorporated into the La Vista Development project design as they relate to roads and utility lines.

The project site would not alter or modify existing or approved roadway configurations, including any of which may be used in an evacuation route. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan. Therefore, there would be no impact, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND. Mitigation Measure VII-g would remain applicable to approved La Vista Development project, but would not be required for the proposed park addition because it does not include new through streets crossing the Hayward fault trace.

Impact HAZ-7:	The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. **(No New or Substantially More Severe Significant Impacts)**

The IS-MND states that residential development included in the La Vista Development project would be in an area susceptible to fire, but that strict adherence to the City's Urban/Wildland Interface Guidelines would reduce the risk of wildland fire to residents. However, the IS-MND determined construction of the project would increase the potential for a wildland fire in the area. Impacts were determined to be less than significant with implementation of Mitigation Measure VII-h. This mitigation measure requires installation of a water tank at the Garin Reservoir prior to commencement of construction, as well as constructing roadways suitable for fire access before beginning other construction activities involving combustible materials. Mitigation Measure VII-h also requires development and implementation of a fuel management plan, acceptable to the Hayward Fire Department, throughout construction of project.

The proposed project would expand the La Vista Park boundary. It would not increase the number of residences or occupants compared to the approved La Vista Project and analyzed in the adopted IS-MND. The proposed project would also result in no increase in structures. Construction of the project would occur adjacent to the approved La Vista Development project, and therefore would occur in similar weather and fuels. Thus, the potential for wildfire to ignite from project construction activities would be similar to activities analyzed for the La Vista Development project in the adopted IS-MND. Mitigation Measure VII-h is specific to accessing areas where construction of residences would be ongoing in order to fight fires and attempt to prevent damage to the residences and to prevent the fire from spreading to areas of existing structures. The proposed park addition would not include internal residential streets. Therefore, only the part of Mitigation Measure VII-h pertaining to development and implementation of a fuel management plan, acceptable to the Hayward Fire Department, throughout construction of project is applicable. With implementation of a fuel management plan pursuant to Mitigation Measure VII-h, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND

4.10 HYDROLOGY AND WATER QUALITY

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Pages 22 and 23	No	No	No	Yes
2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Page 23	No	No	No	N/A
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:					
– result in substantial erosion or siltation on- or off-site;	Pages 23 and 24	No	No	No	N/A
– substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	Page 24	No	No	No	N/A
– 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	Pages 24 and 25	No	No	No	N/A
– impede or redirect flood flows?	Page 25	No	No	No	N/A
4) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Page 25	No	No	No	N/A
5) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Pages 22 through 25	No	No	No	N/A

Impact HYD-1:	The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that there would be potential for the La Vista Development Project to degrade water quality as a result of erosion of soils from the project site and discharge as sedimentation in surface waters. Impacts were determined to be reduced to less than significant with implementation of Mitigation Measure VIII-a. This mitigation measure requires implementation of a Storm Water Pollution Prevention Plan and Stormwater Quality Protection Plan during construction. Pursuant to Mitigation Measure VIII-a, the plans for the La Vista Development project shall incorporate Best Management Practices designed in accordance with applicable provisions of the Alameda County Clean Water Program NPDES permit Section C.3, including the hydraulic sizing criteria, which will ensure that storm water runoff is treated prior to discharge from the site and that runoff rates are such that downstream impacts are reduced to the maximum extent practical.

The proposed project would require grading and ground disturbance during construction. This ground disturbance would loosen and expose soils, increasing the potential for soil erosion and resultant sedimentation of surface waters. Ground disturbance required for construction of the proposed project would exceed one acre, and therefore, development and implementation of a construction Storm Water Pollution Prevention Plan is required by regulation. Additionally, Mitigation Measure VIII-a would also apply to the proposed project. The Storm Water Pollution Prevention Plan would contain Best Management Practices for reducing erosion, controlling runoff, and preventing downstream sedimentation. Implementation of Mitigation Measure VIII-a would also ensure storm drainage during operation is adequate and prevents sedimentation. Accordingly, with implementation of mitigation, impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the IS-MND.

Impact HYD-2:	The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the City's municipal water system would service the La Vista Development project, and groundwater sources would not be used. The adopted IS-MND states that while the La Vista Project would add impervious surface to the area, the remaining hillside areas to the east would allow for sufficient infiltration of precipitation and groundwater recharge. Impacts were determined to be less than significant.

The proposed project would involve the development of additional park facilities and amenities, some of which may include impervious surfaces. However, the increase in impervious surface would be incremental and negligible, as the majority of the proposed project site would remain pervious and allow for infiltration of precipitation and runoff from park facilities. Additionally, the proposed project would not increase impervious surface area in the hillsides east of the La Vista Development project. In addition, the proposed project would involve decommissioning of an existing agricultural well. Decommission of the well would mean that the project would not rely on groundwater, thereby decreasing the use of groundwater on the site. For these reasons, impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HYD-3: The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project includes a storm drainage system that could result in erosion affecting downstream properties. The IS-MND determined that impacts would be reduced to less than significant with implementation of Mitigation Measure VIII-c. This mitigation measure requires that project plans include best management practices, including erosion and sedimentation control measures, to treat all water prior to discharge, and that discharge rates do not exceed existing rates of runoff. The adopted IS-MND states that the La Vista Development project could generate stormwater runoff that exceeds the capacity of downstream facilities. Impacts were determined to be less than significant with implementation of Mitigation Measure VIII-e. This mitigation measure requires that the project detention basins and drainage system be designed in accordance with Alameda County Flood Control and Water Conservation District's standards. The mitigation measure requires that stormwater runoff from the site does not exceed existing runoff volumes.

The proposed project would not alter the course of a stream or river. The proposed project would involve the development of additional park facilities and amenities, some of which may include impervious surfaces. However, the increase in impervious surface would be incremental and negligible, as the majority of the proposed project site would remain pervious and allow for infiltration of precipitation and runoff from park facilities. Runoff from impervious areas would flow overland, in a westerly direction, away from the detention basins included in the La Vista Development project. Therefore, the proposed project would not increase discharge rates from the approved La Vista Development project detention basin and would not contribute to erosion downstream of the basins. Areas of the proposed project site that are not developed with park facilities would retain existing vegetation cover or would be seeded to restore vegetation cover following project construction. This would reduce the potential for both on- and off-site erosion. Vegetation cover would also slow overland flow velocities, allowing for water to more easily infiltrate and avoid increasing offsite discharge volumes. Impacts of the proposed project would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

The adopted IS-MND states that the La Vista Development project would have no impacts related to flooding on- or off-site as a result of altering drainage patterns. The proposed project would not impede stormwater flows, which could otherwise cause stormwater to collect or pool and inundate areas. Because a majority of the park addition area would remain pervious, precipitation and runoff from proposed park facilities would infiltrate the ground surface and not contribute to substantial increases in stormwater runoff volumes. The proposed project would not result in flooding on-site or off-site. There are no floodplains on the project site,[18] and thus, the proposed project would not impede or obstruct flood flows. For these reasons, the proposed project would have no impact. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HYD-4: The project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project site is not within special flood hazard zones (i.e., 100-year floodplain), areas susceptible to inundation following failure of a dam or levee, or areas subject to inundation from tsunami or seiche. Therefore, the adopted IS-MND determined that the proposed project would have no impacts related to flooding or inundation.

According to the Federal Emergency Management Agency, the proposed project site is not within 100-year floodplain.[19] Similar to the approved La Vista Development project, the project site is several hundred feet above sea level, including the San Francisco Bay. Therefore, the project site would not be susceptible to flooding or inundation from tsunami. There are no large bodies of water near the project site where seiche could occur. Accordingly, the proposed project would have no impact, and there would be no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. **(No New or Substantially More Severe Significant Impacts)**

This CEQA checklist item was added to the State CEQA Guidelines in 2019 and did not exist in 2005 when the IS-MND was adopted. Therefore, this checklist item is not directly addressed in the adopted IS-MND. However, this checklist item is indirectly evaluated in the Hydrology and Water Quality section of the IS-MND. As described therein, the La Vista Development project would not substantially interfere with groundwater recharge or aquifer volumes or storage capacity. Construction of the La Vista Development project requires implementation of a Storm Water Pollution Prevention Plan, which includes best management practices to prevent erosion and sedimentation of surface waters. Pursuant to Mitigation Measure VIII-a in the adopted IS-MND, and described above, runoff from the La Vista Development project site must be treated prior to discharge. Accordingly, the approved La Vista Development project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. As previously mentioned, the project would also involve decommissioning of an existing agricultural well.

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[18] Federal Emergency Management Agency. *Flood Insurance Rate Map, Alameda County, California and Incorporated Areas* [map no. 06001C0293G]. August 2009.

[19] Ibid.

As described above, the proposed project would also implement a Storm Water Pollution Prevention Plan during construction and would not result in substantial increases in runoff. The proposed project would add minimal impervious surfaces to the area and would not interfere with groundwater recharge. Therefore, impacts of the proposed project would be less than significant. There would be no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.11 LAND USE AND PLANNING

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Physically divide an established community?	Page 25	No	No	No	N/A
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?	Pages 25 and 26	No	No	No	N/A

Impact LU-1: The project would not physically divide an established community. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the La Vista Development project would have no impacts related to dividing established communities. The proposed park addition area is currently used for grazing and pasture and is fenced. The proposed project would provide pedestrian and bicycle paths through the area, providing connection between established communities to the west and the approved residential development to the south and east. Therefore, the proposed project would not divide communities. There would be no impact, and the proposed project would have no new or substantially more severe significant impacts that previously identified in the adopted IS-MND.

Impact LU-2: The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the La Vista Development project would have less than significant impacts. The impacts of the proposed project are evaluated in this Addendum document in context with applicable plans, policies, and regulations. As described in this document, the proposed project would have no significant impacts related to conflicts with land use plans, policies, or regulations. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.12 MINERAL RESOURCES

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Result in the loss of availability of a known mineral resource that will be of value to the region and the residents of the state?	Page 26 and 27	No	No	No	N/A
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?	Page 27	No	No	No	N/A

Impact MIN-1: The project would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project would occur at the site of the former La Vista Quarry. Impact were determined to be less than significant because the City's General Plan states that other quarries in the region would be adequate to meet the City's demand.

In an effort to maintain availability of sand, gravel, and crushed rock for long-term construction needs, the California Division of Mines and Geology has classified aggregate mineral zones throughout the state. The only designated mineral resource "sector" of regional significance in Hayward is the La Vista Quarry.[20] As described above, the adopted IS-MND previously evaluated development of the La Vista Quarry with the La Vista Park. Accordingly, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact MIN-2: The project would not 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 New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project would occur at the site of the former La Vista Quarry. Impact were determined to be less than significant because the City's General Plan states that other quarries in the region would be adequate to meet the City's demand.

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[20] California Division of Mines and Geology. Mineral Land Classification Map: Aggregate Resources Only Alameda County. 1982.

The City's General Plan identifies 11 past, present, or prospective mining sites in Hayward, including the La Vista Quarry. The La Vista Quarry site is noted as the only designated mineral resources of regional significance. As described above, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.13 NOISE

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project result in:					
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?	Pages 27 and 28	No	No	No	Yes
2) Generation of excessive groundborne vibration or groundborne noise levels?	Page 28	No	No	No	N/A
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?	Page 28	No	No	No	N/A

Impact NOI-1: The project would not result in 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. **(No New or Substantially More Severe Significant Impacts)**

Construction Impacts

The adopted IS-MND states that construction of the La Vista Development project would require the use of heavy equipment, such as graders, that could have potentially significant short-term noise impacts on nearby residences. Impacts were determined to be less than significant with implementation of Mitigation Measure XI-a. This mitigation measure requires the development and implementation of a construction noise management plan. The plan must be approved by the City prior to issuance of grading permits and shall contain a listing of hours of construction operations, use of mufflers on equipment, limitations of on-site speed limits, identification of haul routes, and identification of noise monitors.

Like the approved La Vista Development project, construction of the proposed project would require the use of heavy equipment such as dozers, backhoes, graders, compactors, and dump trucks. This equipment would increase ambient noise levels in proximity to the project site. As described above, the closest sensitive noise receptors to the project site are the residences along East 16th Street, approximately 50 feet west of the western boundary of the project site.[21] Equipment that would be most often used for project construction, such as dozers, backhoes, graders, compactors, and dump trucks generate noise levels of between 80 and 85 dBA at 50 feet from the equipment.[22] Noise levels of 80 dBA are above existing ambient noise levels at the residences along East 16th Street, which are not currently near loud noise sources, such as major freeways.

The majority of grading and construction activities required for the proposed project would occur more than 100 feet from the western project boundary. This would reduce construction noise at the residences near the boundary throughout most of the construction period. Further, construction activities would be in conformance with the City's Noise Ordinance. The Ordinance requires construction to be performed between 10:00 a.m. and 6:00 p.m. on Sundays and holidays and 7:00 a.m. and 7:00 p.m. on other days. Limiting construction to these times would reduce the potential for construction noise to impact the hours when most people are asleep or at home. Additionally, Mitigation Measures XI-a from the adopted IS-MND would be required for the proposed project. With implementation of Mitigation Measure XI-a, the proposed project would have no new or substantially more severe significant impacts that previously identified in the adopted IS-MND. Impacts would be less than significant.

Operation Impacts

The adopted IS-MND states that the residential and park uses included in the La Vista Development project would generate less noise than the quarry operations that was active when the IS-MND was being prepared. Because noise levels would decrease during operation of the La Vista Development project, after closure of the quarry, impacts were determined to be less than significant.

The proposed park addition area would be developed with park facilities and amenities, including asphalt road/path, bicycling/walking trails, area children's playground, digital projection art installation, and a bicycle terrain park. The operation of these facilities and amenities would generate noise levels similar to the uses associated with the approved La Vista Park evaluated in the adopted IS-MND. For example, the proposed bicycle terrain park would generate noise from users riding and shouting, similar to persons using basketball courts included in the approved La Vista Park. However, the proposed park addition would locate these uses and activities closer to residences to the west than the former quarry operations are located. Nonetheless, the park activities would generate sounds typical of the residential community, such as people talking and children playing. Additionally, use of the park facilities would occur primarily during daytime hours, when fewer people sleep and are less sensitive to noise. For these reasons, operational impacts would be less than significant and would not exceed applicable standards. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact NOI-2:	The project would not result in generation of, excessive groundborne vibration or groundborne noise levels. **(No New or Substantially More Severe Significant Impacts)**

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[21] Future residents of the Parcel Group 3 project (not approved) would be located adjacent to the project site. The development would consist of 176 affordable housing units and approximately 36,000 square feet of public community school.

[22] Federal Transit Administration. Transit Noise and Vibration Impact Assessment. May 2006.

The adopted IS-MND states that the La Vista Project would have less than significant impacts related to vibration. Because the proposed project would expand the boundary of the approved La Vista Development project to the west, it would facilitate construction activities within closer proximity to the residences west of the project site. Construction activities would generate groundborne vibration. According to the Federal Transit Administration, large bulldozers and loaded trucks, such as those that could be used for project construction, generate vibration levels of 87 and 86 vibration velocity decibels (VdB), respectively, at 25 feet from the equipment.[23]

The Federal Transit Administration states that vibration levels of 90 VdB can damage buildings that extremely susceptible to vibration, such as historic buildings. Timber and masonry buildings, such as the residences to the west of the project site, are susceptible to damage when vibration levels reach 94 VdB.[24] Construction of the proposed project would generate vibration levels of less than 90 VdB, and therefore would not cause damage to existing structures in the vicinity. As described above under Impact NOI-1, construction of the proposed project would be limited to daytime hours. This would prevent groundborne vibration from occurring during the nighttime hours, when most residents are home and when most people sleep and would be most aware of vibration. For these reasons, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact NOI-3:	The project would not be 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. The project would not expose people residing or working in the project area to excessive noise levels. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the La Vista Development Project would have no impact because there are no airports within 2 miles of the site and the site is outside of the Hayward Executive Airport's influence area. The proposed project site is also outside of the influence area of the Hayward Executive Airport and more than 2 miles from the nearest airport. Therefore, the proposed project would have no impact, and it would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

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[23] Federal Transit Administration. Transit Noise and Vibration Impact Assessment. May 2006.
[24] Ibid.

4.14 POPULATION AND HOUSING

	Where was Impact Analyzed in the IS-MND	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
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)?	Page 28	No	No	No	N/A
2) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Page 29	No	No	No	N/A

Impact POP-1: The project would not 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). **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the residential development included in the La Vista Development project would increase population by approximately 550 people. Impacts were determined to be less than significant because growth of 550 people was anticipated in the City's General Plan.

The proposed project would not alter the residential component of the approved La Vista Development project. The proposed project would expand the boundary of La Vista Park to provide an additional approximately 26.5 acres of parkland. The area would be developed with park facilities and amenities. Park facilities and amenities would not generate population growth, directly or indirectly. Because the proposed project would not alter the residential component of the proposed project, impacts would remain less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact POP-2: The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. **(No New or Substantially More Severe Significant Impacts)**

There are no people residing on the project site and there is no housing on the site. Therefore, the proposed project would not displace people or housing. There would be no impact, consistent with the approved La Vista Development project. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.15 PUBLIC SERVICES

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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:					
1) Fire Protection?	Page 29	No	*No*	No	N/A
2) Police Protection?	Page 29	No	*No*	No	N/A
3) Schools?	Page 29	No	*No*	No	N/A
4) Parks?	Page 30	No	*No*	No	N/A
5) Other Public Facilities?	N/A	No	*No*	No	N/A

Impact PS-1: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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 fire protection services. **(No New or Substantially More Severe Significant Impacts)**

The proposed project would expand the La Vista Park boundary by approximately 26.5 acres. The proposed project would not result in additional population growth beyond what was analyzed in the adopted IS-MND for the La Vista Development Project. The additional park area would include paths, which could be used for firefighting access in the event of an emergency. Because the proposed project would not result in population growth and generate increased demand for fire protection services, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact PS-2: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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 police protection services. **(No New or Substantially More Severe Significant Impacts)**

The proposed project would expand the La Vista Park boundary by approximately 26.5 acres. The proposed project would not result in additional population growth beyond what was analyzed in the adopted IS-MND for the La Vista Development Project. The additional park area would include paths, which could be used for police access in the event of an emergency. Because the proposed project would not result in population growth and generate increased demand for police protection services, impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact PS-3: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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 schools. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the residential component of the La Vista Development Project would generate students and increase enrollment at applicable schools. Impacts were determined to be less than significant pursuant to state law requiring developers to pay school impact mitigation fees.

The proposed project would not alter the residential component of the approved La Vista Development project. Therefore, the proposed project would not alter the number of students generated as a result of the La Vista Development project. The proposed project would expand the boundary of La Vista Park to provide an additional approximately 26.5 acres of parkland. The area would be developed with park facilities and amenities. Park facilities and amenities would not generate population growth that could result in increased enrollment at schools. School impact fees would still be required for the La Vista Development project, pursuant to state law. Therefore, impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact PS-4: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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 parks. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the potential impacts of constructing the La Vista Park are analyzed and disclosed in the IS-MND, and that no other impacts are anticipated. The proposed project would expand the La Vista Park boundary and develop additional park facilities and amenities, such as a area children’s playground, trails, and a bicycle terrain park. The impacts of the proposed project are evaluated in this Addendum document in context with the approved La Vista Development project, including the approved La Vista Park. As stated in this document, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact PS-5:	The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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 other public facilities. **(No New or Substantially More Severe Significant Impacts)**

The proposed project would expand the boundary of the approved La Vista Park component of the La Vista Development project. The proposed project would not modify or alter the residential component of the La Vista Development project. Therefore, the proposed project would not increase population or result in an associated demand for public facilities, such as libraries. New government facilities or alterations to existing facilities would not be required as a result of the proposed project. Impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.16 RECREATION

		Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
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 will occur or be accelerated?	Page 30	No	No	No	N/A
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?	Page 30	No	No	No	N/A

Impact REC-1: The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The proposed project would not generate new residents or population growth that would increase demand for parks and other recreational facilities. The proposed project would provide an additional approximately 26.5 acres of parkland in Hayward. This could reduce use at other existing parks in the area. Therefore, impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact REC-2: The project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the potential impacts of constructing the La Vista Park are analyzed and disclosed in the IS-MND, and that no other impacts are anticipated. The proposed project would expand the La Vista Park boundary and develop additional park facilities and amenities, such as a children's playground, bicycle terrain park, and trails. The impacts of the proposed project are evaluated in this Addendum document in context with the approved La Vista Development project, including the approved La Vista Park. As stated in this document, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.17 TRANSPORTATION

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
1) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian facilities?	Pages 31 & 33	No	No	No	N/A
2) For a land use project, conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	N/A	No	No	No	N/A
3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible land uses (e.g., farm equipment)?	Page 32	No	No	No	N/A
4) Result in inadequate emergency access?	Page 32	No	No	No	N/A

Impact TRN-1: The project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian facilities. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that the approved La Vista Development Project would have no impact on programs, plans, ordinances, or policies addressing alternative transportation, including transit, bicycle, and pedestrian transportation.

The proposed project would not alter the pedestrian and bicycle facilities included in the approved La Vista Development Project. The proposed project would expand the boundary of the approved La Vista Park and construct additional bicycle and pedestrian paths. Therefore, the proposed project, consistent with the approved project, would not conflict with programs, plans, ordinances, or policies addressing alternative transportation, including transit, bicycle, and pedestrian transportation.

The adopted IS-MND determined that the approved La Vista Development Project would generate vehicle trips on the roadway network during peak hours. The adopted IS-MND states that the additional vehicle trips would be associated with the residential component of the project, and the La Vista Park would not generate substantial traffic during peak hour. Impacts on the roadway system were determined to be less than significant.

The proposed project would expand the La Vista Park boundary and provide additional park facilities and amenities, including children’s playground, basketball court, bicycle terrain park, and trails. The proposed park would be in proximity to residential uses in an urban area. Therefore, many park users would be expected to walk or bicycle to the park. The proposed paths would promote active transportation modes, such as walking, running, and cycling, and would not generate new vehicle trips. Consistent with the adopted IS-MND determination, the park uses would not generate substantial peak hour traffic trips, and impacts would be less than significant. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact TRN-2: The project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). **(No New or Substantially More Severe Significant Impacts)**

This CEQA checklist item was added to the Guidelines in 2018 and so did not exist in 2005 when the IS-MND was adopted. Therefore, this checklist item and vehicle miles traveled (VMT) are not evaluated in the IS-MND. However, it does not constitute new circumstances requiring revisions to the IS-MND because the adverse environmental impacts of vehicle travel, including air pollution and traffic noise have been known for decades. Further, the additional project features being proposed (e.g. bike trails, picnic areas, playground) as part of the La Vista Park Addition are not in themselves expected to generate significant amounts of new trips (or VMT) beyond what was already approved in the 2005 IS-MND and that conditions (e.g. origins of the trips) has also not significantly changed.

The proposed project would expand the La Vista Park boundary and provide additional park facilities and amenities, including bicycle and pedestrian paths, children's playground, a basketball court, and a bicycle terrain parks. As established in the City's Transportation Impact Analysis Guidelines, the City of Hayward uses VMT as the metric to assess transportation impacts from new development. Screening criteria have been established to determine which projects require a detailed VMT analysis. If a project meets the relevant screening criteria, it is considered to have a less than significant VMT impact. According to these screening criteria, projects with local public serving public facilities[25], such as the project, do not require a VMT analysis. The majority of the trips to the proposed park are expected to be drawn either from a concentrated local area or will be internal trips between the areas of the approved project (and as such not "new" trips and not generating additional VMT); and that the majority of these trips are expected to be done by walking or biking. It is expected that users of the proposed basketball court would serve local users. The remaining park features (e.g., bicycle and pedestrian paths, children's playground, and bicycle terrain park) are considered passive uses. Further, the proposed park would be in proximity to existing and planned residential uses in an urban area. Therefore, many park users would be expected to walk or bicycle to the park, resulting in no new VMT. The proposed paths would promote active transportation modes, such as walking, running, and cycling, that do not generate VMT. Therefore, impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

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[25] Public facilities are publicly owned or controlled such as police stations, fire stations, passive parks, public utilities, and other similar facilities. Local serving public facilities improve people's proximity to recreation, safety, and other important community needs.

Impact TRN-3:	The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined the La Vista Development project would have no impacts related to increased roadway hazards. The proposed project would not alter or modify the approved roadway network included in the La Vista Development project and analyzed in the adopted IS-MND. The proposed project would expand the approved La Vista Park boundary and provide additional park facilities and amenities. These facilities and amenities would be located off of the roadway network. Therefore, consistent with the La Vista Development project, the proposed project would have no impact. The proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact TRN-4:	The project would not result in inadequate emergency access. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project provides two public roads into and out of the development, which the Hayward Fire Department determined was adequate for emergency access. The adopted IS-MND determined the La Vista Development project would have no impact.

The proposed project would not alter or modify the approved roadway network included in the La Vista Development project and analyzed in the adopted IS-MND. The proposed project would not alter access to existing or planned residential development surrounding the project site. The proposed paths would provide access to interior areas of the La Vista Park in the event of an emergency. Therefore, the proposed project would have no impact and would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.18 TRIBAL CULTURAL RESOURCES

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project 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:					
1) 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)?	Pages 13 and 14	No	No	No	N/A
2) 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.	N/A	No	No	No	N/A

CEQA legislative amendments contained in AB 52 require, as of 2015, evaluation of whether a project would affect tribal cultural resources. For this reason, the 2005 IS-MND included no discussion of tribal cultural resources. For non-exempt projects, culturally affiliated tribes have the opportunity to request notification by the lead agency and to consult on the potential for a project to affect tribal cultural resources. This requirement applies to projects subject to a Notice of Intent to Adopt a Negative Declaration/Mitigated Negative Declaration or Notice of Availability of a Draft EIR. Given the proposed park expansion project is covered by an Addendum to the previously adopted 2005 IS-MND, AB 52 notification and consultation requirements do not apply. The following discussion and analyses are based, in part, on an archaeological survey completed pursuant to the requirements of CEQA for the project site. The archaeological survey was completed by a Registered Professional Archaeologist with Holman & Associates. The archaeological survey consisted of a records search at the Northwest Information Center of the California Historic Resources Information System, and a pedestrian survey of the project site completed in May 2019. Results of the archaeological survey are administratively confidential and summarized in a letter report, which can be viewed by qualified personnel at the Development Services Department, Planning Division offices.

Impact TCR-1:	The project would not cause a substantial adverse change in the significance of a tribal cultural resource that is 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). **(No New or Substantially More Severe Significant Impacts)**

Impact TCR-2:	The project would not cause a substantial adverse change in the significance of a tribal cultural resource that is 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. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND does not directly or explicitly evaluate impacts to tribal cultural resources. However, the adopted IS-MND determined that the La Vista Development project would have no impact to cultural resources, which would include resource listed or potentially eligible for listing in the California Register of Historical Resource or other registers, as well as tribal cultural resources. The adopted IS-MND states that if archaeological resources are discovered during project construction, Section 15064.5 of the State CEQA Guidelines, Public Resources Code 5024.5, and the Caltrans Environmental Handbook require that construction work stop near the find and an archaeologist evaluate the find to determine its significance.

As described in the archaeological survey report, there are no records of historical resources within the project site boundary or within one half-mile of the project site boundary. No historical resources, listed or otherwise, were observed during the pedestrian survey of the project site completed as part of the archaeological survey. However, as described in Section 3.5, Cultural Resources, given the sites proximity to drainages and the East Bay Hills, there would be potential for construction activities to encounter previously undiscovered resources.

Section 15064.5 of the State CEQA Guidelines, cited in adopted IS-MND as a reason the project would have no impact, outlines the methods for determining the significance of impacts to archaeological and historical resources. Section 15064.5(f) of the State CEQA Guidelines states:

> “As part of the objectives, criteria, and procedures required by Section 21082 of the Public Resources Code, a lead agency should make provisions for historical or unique archaeological resources accidently discovered during construction. The provisions should include an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available…”

As the lead agency, the City must adhere to Public Resources Code Section 21082, and therefore the requirements to stop work in the event of a find and allow for a qualified archaeologist to evaluate the find and develop mitigation, if applicable, based on the significance of the find. As described in Section 3.5, *Cultural Resources*, Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, the County Coroner must be notified within 48 hours and there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the County Coroner has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. With mandatory adherence to state laws and regulations, the proposed project would have less than significant impacts related to disturbance of tribal cultural resources. The proposed project would have no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.19 UTILITIES AND SERVICE SYSTEMS

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
Would the project:					
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?	Page 30	No	No	No	N/A
2) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Pages 30-31	No	No	No	N/A
3) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Page 31	No	No	No	N/A
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?	Page 31	No	No	No	N/A
5) Be noncompliant with federal, state, and local management and reduction statutes and regulations related to solid waste?	Page 31	No	No	No	N/A

Impact UTL-1: The project would not 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 New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project would generate demand for wastewater treatment and water, but that existing facilities are adequate. Impacts were determined to be less than significant.

The proposed project would alter the existing drainage pattern on the project site. Unstable slopes would be graded and stabilized, and park facilities, such as paths and the bicycle terrain park would be constructed. The proposed project would negligibly increase impervious surface area, as most park facilities would be unpaved and without structure roofs. Therefore, much of the precipitation falling on the site would infiltrate the ground. Precipitation that flows overland as runoff would be minimal, and existing and approved stormwater drainage systems would be adequate.

The proposed project would include landscaping that would require irrigation and increase the demand for water. However, the majority of the project site would remain as open space, and would not be irrigated. Water would be from existing utilities in the area. The project would not require the construction of new or altered water facilities. The project would decommission an existing agricultural well, thereby decreasing the amount of groundwater used on site.

The proposed project would require electric power for outdoor auxiliary lighting and for the digital projection art installation. Connections would be existing electric utilities in the area. The minimal amount of electricity required for the proposed project would not result in the construction of new electric facilities, such as power plants or substations.

This Addendum evaluates the potential impacts of the proposed project, including the utility connections that would be required, as described above. As described throughout this document, the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact UTL-2:	The project would not have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that Hayward has a "virtually unlimited water supply from the Hetch-Hetchy System." Accordingly, the IS-MND determined that the La Vista Development project would increase demand for water, but impacts would be less than significant.

The proposed project require water for irrigation of landscaped areas. Domestic water would be used for irrigation purposes. Considering the majority of the project site would not be irrigated, and that landscaping would constitute a minimal area, the City's supply of water would be adequate, even during multiple dry years. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND. As stated previously, the project would decommission an existing agricultural well, thereby decreasing the amount of groundwater used on site.

Impact UTL-3:	The project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the Hayward Water Pollution Control Facility has adequate capacity for wastewater treatment demand generated by the La Vista Development project. Impacts were determined to be less than significant.

The proposed project would not develop the project site with residences, business, or other facilities that generate wastewater. Therefore, the proposed project would result in no increased demand for wastewater treatment than what was previously evaluated for the La Vista Development project in the adopted IS-MND. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact UTL-4:	The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND determined that existing landfill capacity would be adequate for the La Vista Development project, and impacts would be less than significant. Construction of the project would generate demolition waste, but this waste would be a single occurrence and minimal. Trashcans for solid waste collection would be located throughout the La Vista Park. However, uses such as pedestrian paths, bicycle terrain park, and a digital projection art installation would not generate substantial amounts of solid waste. The addition of several trashcans in La Vista Park, in proximity to uses that typically generate little solid waste, would not exceed the capacity of the landfill. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact UTL-5:	The project would not be noncompliant with federal, state, and local management and reduction statutes and regulations related to solid waste. **(No New or Substantially More Severe Significant Impacts)**

The adopted IS-MND states that the La Vista Development project would comply with applicable statutes and regulations related to solid waste. The adopted IS-MND determined that impacts would be less than significant. As described above, the proposed project would generate very little solid waste. Nonetheless, the project would be compliant with mandatory regulations and statutes related to solid waste, such as the City’s solid waste diversion regulations, found in Chapter 5, Article 1 of the Hayward Municipal Code. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.20 WILDFIRE

	Where was Impact Analyzed in the IS-MND?	Does the Proposed Project Require Major Revisions to the IS-MND?	Do New Circumstances Require Major Revisions to the IS-MND?	New Information Resulting in New or Substantially More Severe Significant Impacts?	Do IS-MND Mitigation Measures Address and/or Resolve Impacts?
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
1) Substantially impair an adopted emergency response plan or emergency evacuation plan?	N/A	No	No	No	N/A
2) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	N/A	No	No	No	N/A
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?	N/A	No	No	No	N/A
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?	N/A	No	No	No	N/A

These four checklist items were added to Appendix G of CEQA Guidelines in 2019. Therefore, impacts pertaining to these checklist items were not specifically evaluated in the IS-MND, which was adopted in 2005. However, the IS-MND did evaluate in the Hazards and Hazardous Materials section whether the La Vista Development project would expose people or structures to a significant risk involving wildland fires. The IS-MND states that residential development included in the La Vista Development project would be in an area susceptible to fire, but that strict adherence to the City’s Urban/Wildland Interface Guidelines would reduce the risk of wildland fire to residents. However, the IS-MND determined construction of the project would increase the potential for a wildland fire in the area. Impacts were determined to be less than significant with implementation of Mitigation Measure VII-h. This mitigation measure requires installation of a water tank at the Garin Reservoir prior to commencement of construction, as well as constructing roadways suitable for fire access before beginning other construction activities involving combustible materials. Mitigation Measure VII-h also requires development and implementation of a fuel management plan, acceptable to the Hayward Fire Department, throughout construction of project.

Impact WF-1: The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. **(No New or Substantially More Severe Significant Impacts)**

The project site would not alter or modify existing roadway configurations, including any of which may be used in an evacuation route. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan. Therefore, there would be no impact, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact WF-2: The project would not, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. **(No New or Substantially More Severe Significant Impacts)**

The proposed project would expand the La Vista Park boundary. No new buildings or inhabited structures would be constructed. Therefore, there would be no project occupants exposed to pollutant concentrations from a wildfire or to an uncontrollable wildfire. The proposed project would have no impact and would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact WF-3: The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The proposed park would develop the park addition area with an asphalt road/path, bicycle and walking trails, children's playground, digital projection art installation, and a bicycle terrain park. These facilities would require routine maintenance, such as cutting and removing vegetation overgrowth from walking trails. These activities could exacerbate fire risk, especially if performed during the fire season on days of high fire risk. However, the approved La Vista Development project would also require the same routine maintenance activities be performed for the approved La Vista Park facilities. Therefore, the proposed project would not introduce a new source of ignition or fire to the area, as the approved La Vista Development project would already require these same sources be present for routine maintenance of the approved La Vista Park. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

Impact WF-4: The project would not 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. **(No New or Substantially More Severe Significant Impacts)**

The project site consists of land sloping westward, toward existing residential uses along East 16th Street. A landslide has already occurred on project slopes. The landslide was a result of geologic and seismic conditions and not due to post-fire slope instability. The proposed project would remediate the landslide area and stabilize slopes. Therefore, the project would lessen the risk of a landslide, as current slope conditions are more unstable than would be the proposed slope conditions. Impacts would be less than significant, and the proposed project would result in no new or substantially more severe significant impacts than previously identified in the adopted IS-MND.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant 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?	☐	☒	☐	☐
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)?	☐	☒	☐	☐
3) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Impact MFS-1: The project does not 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)**

As discussed in prior sections of this Initial Study, the proposed project would not degrade the quality of the environment, substantially affect biological resources, or eliminate important examples of California history or prehistory with implementation of the identified best management practices and mitigation measures. As discussed in Section 4.3, Air Quality, implementation of Mitigation Measure III-c, Mitigation Measure III-d, and MM AIR-3.1 would reduce potentially significant impacts from fugitive dust and toxic air contaminants to a less than significant level. As discussed in Section 4.4, Biological Resources, implementing Mitigation Measure IV-a, MM BIO-1.1, MM BIO-1.2, MM BIO-1.3, and MM BIO-3.1 would reduce impacts to biological resources to a less than significant level. As discussed in Section 4.5, Cultural Resources, with adherence to state laws and standard grading procedures the project would result in a less than significant impact on cultural and tribal cultural resources. As discussed in Section 4.6, Geology and Soils, the project's potential effects on geology and soils would be reduced to less than significant with implementation of Mitigation Measure VI-aii and Mitigation Measure VII-b. As described in Section 4.9, Hazards and Hazardous Materials, Measure III-b, Mitigation Measure VII-b(1), and Mitigation Measure VII-b(2) would reduce impacts to less than significant. Temporary water quality impacts and post-construction water quality impacts would be reduced to less than significant with implementation of Mitigation Measure VIII-a and Mitigation Measure VIII-c identified in Section 4.10, Hydrology and Water Quality. Groundborne vibration generated by construction equipment would be reduced to a less than significant level with implementation of Mitigation Measure XI-a. All significant project-level impacts can be mitigated to a less than significant level. **(Less than Significant Impact with Mitigation Incorporated)**

Impact MFS-2:	The project does not have impacts that are individually limited, but cumulatively considerable. **(Less than Significant Impact with Mitigation Incorporated)**

Under Section 15065(a)(3) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects "that are individually limited, but cumulatively considerable." As defined in Section 15065(a)(3) of the CEQA Guidelines, cumulatively considerable means "that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

Because criteria air pollutant and GHG emissions would contribute to regional and global emissions of such pollutants, the identified thresholds developed by BAAQMD and used by the City of Hayward were developed such that a project-level impact would also be a cumulatively considerable impact. The project would not result in a significant emissions of criteria air pollutants or GHG emissions and, therefore, would not make a substantial contribution to cumulative air quality or GHG emissions impacts. The discussion of project criteria pollutant impacts presented in Section 4.3 also reflects cumulative conditions, and the project would not contribute to significant cumulative impacts. The project's contribution to cumulative climate change impacts was presented in Section 4.8 as less than cumulatively considerable. Therefore, the proposed project would not make a substantial contribution to cumulative air quality or GHG emissions impacts.

With the implementation of the identified best management practices and mitigation measures, the proposed development would not result in significant aesthetics, geological, hydrological, or noise impacts. Therefore the project would not contribute to cumulative impacts to these resources, as these are specific to the site, and do not have the potential to contribute to or combine with localized, specific conditions on other development sites across the City over the planning horizon of the General Plan.

The project would result in less than significant impacts to energy use, land use, population and housing, public services, and recreation without the imposition of best management practices, or mitigation measures. Furthermore, potential impacts associated with these resource areas are accounted for in the City of Hayward General Plan and the City of Hayward General Plan EIR. Under Section 15152(f) of the CEQA Guidelines, where a lead agency has determined that a cumulative effect has been adequately addressed in a prior EIR, the effect is not treated as significant for purposes of later environmental review and need not be discussed in detail. Additionally, the project would not impact agricultural or forestry resources or mineral resources, therefore there is no potential for cumulative impacts to these resources. Nor are there any cumulative impacts associated with wildfire risk, as the project would not alter or modify existing roadway configurations, including any of which may be used in an evacuation route. In addition, the project does not propose any new buildings or structures.

The proposed project, in conjunction with cumulative projects, would not result in the loss of sensitive habitat. Pre-construction nesting bird surveys are required as mitigation, therefore, the project would not contribute to a significant cumulative impact on migratory birds.

The proposed project could result in temporary cultural and hazardous materials impacts during construction. With adherence to applicable state laws and regulations and implementation of mitigation measures identified in this Initial Study, construction-level impacts would be mitigated to a less than significant level and would not be considered cumulatively considerable.

Given the above considerations, impacts associated with the proposed development would not result in a significant cumulative impact.

Impact MFS-3: The project does not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. **(Less than Significant Impact with Mitigation Incorporated)**

Consistent with Section 15065(a)(4) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to cause substantial adverse effects on human beings, either directly or indirectly. Under this standard, a change to the physical environment that might otherwise be minor must be treated as significant if people would be significantly affected. This factor relates to adverse changes to the environment of human beings generally, and not to effects on particular individuals. While changes to the environment that could indirectly affect human beings would be represented by all of the designated CEQA issue areas, those that could directly affect human beings include construction air quality, hazardous materials, and noise. Implementation of mitigation measures and adherence to General Plan, City Code, and state and federal regulations described in this document, would avoid significant impacts. No other direct or indirect adverse effects on human beings have been identified.

SECTION 5.0 CONCLUSION

As demonstrated in the discussions above regarding the potential effects of the proposed project, substantial changes are not proposed to the La Vista Development project nor have substantial changes in circumstances occurred that would require major revisions to the adopted IS-MND prepared for the La Vista Development project. Significant impacts beyond those identified and analyzed in the adopted IS-MND would not occur as a result of the proposed project. Overall, the proposed project would result in no new information of substantial importance that would have new or more severe significant impacts or new mitigation measures from what was identified for the La Vista Development project in the adopted IS-MND. As such, the proposed project would not result in conditions identified in State CEQA Guidelines Section 15162, and supplemental environmental review or a Subsequent EIR or IS-MND is not required for the proposed project. Again, it should be noted that the proposed project would be subject to all mitigation measures from the adopted IS-MND for the La Vista Development project, as applicable. Based on the above analysis, this Addendum to the previously adopted IS-MND for the La Vista Development project has been prepared in accordance with Section 15164 of the State CEQA Guidelines.

SECTION 6.0 REFERENCES

The analysis in this Initial Study is based on the professional judgement and expertise of the environmental specialists preparing this document, based upon review of the site, surrounding conditions, site plans, and the following references:

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SECTION 7.0 LEAD AGENCY AND CONSULTANTS

7.1 LEAD AGENCY

Elizabeth Blanton, Senior Planner

7.2 CONSULTANTS

David J. Powers & Associates, Inc.
Environmental Consultants and Planners

- Akoni Danielsen, Principal
- Natalie Noyes, Senior Project Manager
- Matthew Moore, Assistant Project Manager
- Ryan Osako, Graphics Artist

SECTION 8.0 ACRONYMS AND ABBREVIATIONS

APN	Assessor's parcel number
BAAQMD	Bay Area Air Quality Management District
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
dBA	A-weighted decibels
EIR	Environmental Impact Report
GHG	Greenhouse gas
IS-MND	Initial Study-Mitigated Negative Declaration
NOD	Notice of Determination
PM_{10}	Particulate matter
$PM_{2.5}$	Fine particulate matter
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminants
USFWS	United States Fish and Wildlife Service
VdB	Vibration velocity decibels
VMT	Vehicle miles traveled
WEAP	Worker Environmental Awareness Training

Initial Study/Addendum Appendices

La Vista Park Addition

Prepared by

HAYWARD

In Consultation with

DAVID J. POWERS & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & PLANNERS

September 2021

Appendix A

BIOLOGICAL RESOURCES TECHNICAL REPORT

LA VISTA PARK

HAYWARD, ALAMEDA COUNTY, CALIFORNIA

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JUNE 2021

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LIST OF PREPARERS

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Molly Brewer – Wildlife Biologist
Neal Jander – GIS Analyst

LIST OF ACRONYMS

BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
ESA	Federal Endangered Species Act
Inventory	California Native Plant Society Inventory of Rare and Endangered Plants of California
NCCP	Natural Community Conservation Plan
NMFS	National Marine Fisheries Service
OHWM	Ordinary High Water Mark
Rank	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SWRCB	State Water Resource Control Board
USFWS	U.S. Fish and Wildlife Service
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

This Biological Technical Report evaluates existing biological resources, potential impacts, and mitigation measures (if required) for the proposed expansion of the La Vista Park Project planned for the area north of Tennyson Road and east of Mission Boulevard in Hayward, Alameda County, California (Figure 1, Appendix A). The proposed project (Project) would amend the approved La Vista Development project boundary to increase the size of La Vista Park by approximately 27 acres. The proposed addition would be developed with park facilities and amenities, such as a playground, frisbee golf course, and trails, as well as landscaping.

1.1 Overview and Purpose

This report provides an assessment of biological resources within the Project Area and immediate vicinity. The purpose of the assessment was to develop and gather information on sensitive biological communities and special-status plant and wildlife species to support an evaluation of the Project under the California Environmental Quality Act (CEQA). This report describes the results of the site visit, which assessed the Project Area for (1) the presence of sensitive biological communities, special status plant species, and special status wildlife species, (2) the potential for the site to support special-status plant and wildlife species. Based on the results of the site assessment, potential impacts to sensitive biological communities and special status species resulting from the proposed project were evaluated. If the project has the potential to result in significant impacts to these biological resources, measures to avoid, minimize, or mitigate for those significant impacts are described.

A biological resources assessment provides general information on the presence, or potential presence, of sensitive species and habitats. Additional focused studies (such as protocol level species surveys) may be required to support regulatory permit applications or to implement mitigation measures included in this report. This assessment is based on information available at the time of the study and on-site conditions that were observed on the dates the site was visited. Conclusions are based on currently available information used in combination with the professional judgement of the biologists completing this study.

1.2 Project Description

1.2.1 Existing Setting

The majority of the Project Area, generally the area consisting of the former Caltrans right-of-way parcels, is used for horse grazing. The area is developed with several barns and corral-like structures used for grazing and equestrian purposes. There is also a well and drinking trough central to the site for horses. The project site is primarily characterized by non-native annual grassland and ruderal/disturbed vegetation communities that contain large, dense stands of invasive plant species. Additionally, there is a small wetland seep in the central portion of the site.

The Project Area is bound by Tennyson Road on the south and East 16th Street on the west. Land on the opposite (south) side of Tennyson Road is undeveloped but part of a recently approved residential development project. Areas of the west of East 16th Street are developed with multi-family residential uses. Single-family residential uses surround the northern portion of the Project Area.

The Project Area is an expansion of a park that was previously approved as part of the La Vista Development Project. In 2005, the Hayward City Council adopted the La Vista Development Project Initial Study/Mitigated Negative Declaration (State Clearinghouse # 2005062031). As approved, the La Vista Development project includes a subdivision for 179 single-family residential lots and related streets, approximately 30 acres of park ("La Vista Park"), and open space areas with trails. The City of Hayward proposes to transform this site into a terraced city park with public amenities enabling yoga, picnicking, public events, farmer's markets and food trucks, art walks, gardening, physical activities such as soccer, basketball, cycling, trail running, and walking, and science, adventure, and water play activities.

1.3 Proposed Project

La Vista Park, as previously approved, is located on two parcels (APN 083-0477-002-00 and APN 083-0477-005-00) and is approximately 30 acres. The proposed Project would amend the approved La Vista Development project boundary to increase the size of La Vista Park by approximately 27 acres, for a total size of approximately 57 acres. Proposed amenities within the 27-acre expansion area include a frisbee golf course, basketball court, children's playground, trails, picnic areas, supplemental parking, and a wetland mitigation area.

The proposed Project includes the construction of a geotechnical keyway, oriented north-south and located in the center of the Project Area. The keyway is necessary to provide geotechnical stability to the slope. One potential location for the keyway intersects a seasonal wetland, and the other is located farther upslope, above the wetland. Construction of the keyway would entail excavation of a 30 to 40-foot deep trench which would be backfilled by engineered fill and subsurface drainage infrastructure. The backfill and drainage infrastructure would reduce the risk of slope failure through introducing stable fill and reducing the flow of surface and subsurface water down the slope.

1.3.1 Site Access, Parking, and Circulation

Vehicles would be able to access La Vista Park from Tennyson Road via a two-way roadway leading to a 127-space parking terrace located in the southeast corner of the approved La Vista Development project boundary. A 2.75-mile path and trail network would allow bicycles and pedestrians to access the site from Tennyson Road, Mission Boulevard, and from the future La Vista residential area. Bicycle racks would be placed at the northern portion of the parking terraces.

1.3.2 Landscaping and Stormwater Control

Large fill slopes are proposed as part of the park development. The proposed site grading includes contouring existing berms of engineered fill into several tall pyramids. Additional grading is planned within and behind an existing engineered fill slope near the southern portion of the site to construct the athletic fields and other park improvements.

An existing stormwater management pond, known as the C.3 basin, has already been constructed in the northern portion of the former quarry. In addition, a detention basin has been constructed behind the existing engineered fill slope near the southern portion of the site. These features will be incorporated into the design of the stormwater management system for the park development, which will handle runoff from the La Vista housing development. The C.3 basin will be incorporated into the design with relatively few modifications. The detention basin will be enlarged to encompass the planned soccer field and lawn area.

1.3.3 Construction

Construction of the park will include site grading, utility improvements, low retaining walls, asphalt pavement, concrete flatwork, sod turf, landscaping, hydroseeding, lighting, and irrigation.

1.4 Summary of Results

Table 1 below provides a summary of the determinations that were made as part of the evaluation of biological resources at the site.

Table 1. Summary of Biological Resources Evaluation

CEQA ASSESSMENT CATEGORY[1] IV. -BIOLOGICAL RESOURCES	BIOLOGICAL RESOURCES CONSIDERED	RELEVANT LAWS AND REGULATIONS	RESPONSIBLE REGULATORY AGENCY	SUMMARY OF FINDINGS & REPORT SECTION[2]
Question A. Special-status species	Special-status Plants Special-status Wildlife Designated Critical Habitat	Federal Endangered Species Act (ESA) California Endangered Species Act (CESA) California Native Plant Protection Act Migratory Bird Treaty Act Bald and Golden Eagle Protection Act (BGEPA)	U.S. Fish and Wildlife Service (USFWS) National Marine Fisheries Service (NMFS) California Department of Fish and Wildlife (CDFW)	Potentially significant impacts were identified for Alameda whipsnake, burrowing owl, white-tailed kite, and nesting birds. Mitigation measures are included that reduce those impacts to a level that is less than significant. **See Section 7.1 for more information**
Question B. Sensitive natural communities & riparian habitat	Sensitive Natural Communities Streams, Lakes, & Riparian Habitat	California Fish and Game Code (CFGC) Porter-Cologne Act Clean Water Act (CWA)	California Department of Fish and Wildlife (CDFW) U.S. Army Corps of Engineers (Corps) U.S. Environmental Protection Agency (EPA) State Water Resources Control Board Regional Water Quality Control Board	One potentially significant impact was identified to a wetland vegetation community and a mitigation measure is included that reduces that impact to a level that is less than significant. **See Section 7.2 for more information**

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[1] *CEQA Questions have been summarized here; see Section 6.2 for details.*

[2] *As given in this report; see Section 7.0 subheadings*

CEQA ASSESSMENT CATEGORY[1] IV. -BIOLOGICAL RESOURCES	**BIOLOGICAL RESOURCES CONSIDERED**	**RELEVANT LAWS AND REGULATIONS**	**RESPONSIBLE REGULATORY AGENCY**	**SUMMARY OF FINDINGS & REPORT SECTION[2]**
Question C. State and federally protected wetlands	Wetlands Unvegetated surface waters	Clean Water Act (CWA) Sections 404/401 Porter Cologne Act	U.S. Army Corps of Engineers (Corps) U.S. Environmental Protection Agency (EPA) State Water Resources Control Board Regional Water Quality Control Board	Potentially significant impacts were identified to a wetland plant community and mitigation measures included that reduce those impacts to a level that is less than significant. **See Section 7.3 for more information**
Question D. Fish & wildlife corridors	Essential Fish Habitat Wildlife Corridors	California Fish and Game Code Magnuson-Stevens Fishery Conservation & Management Act	California Department of Fish and Wildlife (CDFW) National Marine Fisheries Service (NMFS)	No potentially significant impacts were identified **See Section 7.4 for more information**
Question E. Local policies	Protected Trees Other biological protections	City of Hayward Tree Preservation Ordinance General Plan	City of Hayward	No potentially significant impacts were identified. **See Section 7.5 for more information**
Question F. Local, state, federal conservation plans	Habitat Conservation Plans Natural Community Conservation Plans	Federal Endangered Species Act (ESA) Natural Community Conservation Planning Act (NCCPA)	U.S. Fish and Wildlife Service (USFWS) California Department of Fish and Wildlife (CDFW)	No potentially significant impacts were identified. **See Section 7.6 for more information**

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts. Table 1 shows the correlation between these regulations and each Biological Resources question in the Environmental Checklist Form (Appendix G) of the CEQA guidelines.

2.1 Federal and State Regulatory Setting

2.1.1 Vegetation and Aquatic Communities

CEQA provides protections for particular vegetation types defined as sensitive by the California Department of Fish and Wildlife (CDFW), and aquatic communities protected by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that provide protection for these resources are summarized below.

Sensitive Natural Communities: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFW 2020a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2020b). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2020) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act.

Waters of the United States, Including Wetlands: The United States Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Waters of the State, Including Wetlands: The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB and nine RWQCBs protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a project does not require a federal permit, but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream", which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

2.1.2 Special-status Species

Endangered and Threatened Plants, Fish, and Wildlife. Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of "endangered" and "threatened" plant and animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing, and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. Take under the ESA is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance, and impacts to habitat for listed species. Actions that may result in "take" of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features "essential to the conservation of the species". Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (California Fish and Game Code 2050 et seq.) prohibits a "take" of any plant and animal species that the California Fish and Game Commission determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to "candidate species" which are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species. This category includes specific plant and wildlife species that are designated in California Fish and Game Code (CFGC) as protected even if not listed under CESA or the ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 "rare" or "endangered" plant species, and prevents "take", with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Special Protections for Nesting Birds and Bats. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America's eagle species (bald [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Species of Special Concern, Movement Corridors, and Other Special Status Species under CEQA. To address additional species protections afforded under CEQA, CDFW has developed a list of special species as "a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status." This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Inventory of Rare and

Endangered Plants of California (Inventory; CNPS 2020a) with California Rare Plant Ranks (Rank) of 1, 2, and some species with Rank 3, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 species and all Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Plant species in the *Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties (web application*) (Lake 2020) with a rating of A1 (occurs in two or fewer regions in the two counties) or A2 (otherwise threatened) receive consideration under sections 15380 and 15125(a) of CEQA and are considered “locally rare” for the purposes of this report. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Local Regulatory Setting

City of Hayward General Plan. The City of Hayward General Plan contains policies pertaining to biological resources categories relevant to the Project. The Goal numbers and summaries are as follow:

- **Sensitive Habitats (Goal NR-1.2)**
  The City shall protect sensitive species habitats from “urban development and incompatible land uses”
- **Plant Species (Goal NR-1.2, NR-1.3, NR-1.7, NR-1.9)**
  The City shall protect sensitive plant species and their habitats; protect mature native trees; and protect native plant species in natural areas and promote their use in public landscaping
- **Wildlife Species (Goal NR-1.1, NR-1.2, NR-1.3)**
  The City shall protect sensitive wildlife species and their habitats.

City of Hayward Tree Preservation Ordinance. The City of Hayward Tree Preservation Ordinance requires a permit for the removal or destruction or the cutting of branches of 1 inch in diameter of any protected tree from any parcel of property in the City. The Ordinance defines a “Protected Tree” as:

1. Trees having a minimum trunk diameter of 8 inches measured 54 inches above the ground. When measuring a multi-trunk tree, the diameters of the largest three trunks shall be added together;

2. Street trees or other required trees such as those required as a condition of approval, Use Permit, or other Zoning requirement, regardless of size;

3. All memorial trees dedicated by an entity recognized by the City, and all specimen trees that define a neighborhood or community;

4. Trees of the following species that have reached a minimum of 4 inches diameter trunk size:

   a. Big leaf maple (*Acer macrophyllum*)
   b. California buckeye (*Aesculus californica*)
   c. Madrone (*Arbutus menziesii*)
   d. Western dogwood (*Cornus nuttallii*)
   e. California sycamore (*Platanus racemosa*)
   f. Coast live oak (*Quercus agrifolia*)

   g. Canyon live oak (*Quercus chrysolepis*)
   h. Blue oak (*Quercus douglasii*)
   i. Oregon white oak (*Quercus garryana*)
   j. California black oak (*Quercus kelloggii*)
   k. Valley oak (*Quercus lobata*)
   l. Interior live oak (*Quercus wislizeni*)
   m. California bay (*Umbellularia californica*)

5. Any tree or trees of any size planted as a replacement for a Protected Tree

The City of Hayward may require mitigation for the removal or destruction or the cutting of branches of 1 inch in diameter of Protected Trees as a condition of approval for a tree permit. Residential applicants are generally required to replace Protected Trees with like-size, like-kind trees or an equal value tree or trees as determined by the Landscape Architect of the City. The replacement trees shall be located on-site wherever possible.

3.0 ASSESSMENT METHODOLOGY

On August 28, 2020, WRA, Inc. (WRA) biologists traversed the Project Area on foot to map vegetation, aquatic communities, and unvegetated land cover types, document plant and wildlife species present, and evaluate habitat on-site for the potential to support special status species as defined by CEQA. Follow-up site visits were conducted on March 1, 8, and 25 and April 1, 2021. Prior to the site visits, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive biological communities (e.g., wetlands) and special-status species (e.g., endangered plants), including:

- Soil Survey of Alameda County, California, Western Part (USDA 1981)
- SoilWeb (CSRL 2020)
- Hayward 7.5-minute quadrangle (USGS 2018)
- Contemporary aerial photographs (Google Earth 2020)
- Historical aerial photographs (NETR 2020)
- National Wetlands Inventory (USFWS 2020)
- CNDDB (CDFW 2020b)
- CNPS Inventory (CNPS 2020a)
- Consortium of California Herbaria 2 (CCH2 2020)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2020)
- eBird Online Database (eBird 2020)
- CDFW Publication, California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- CDFW and University of California Press publication California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2020b)
- California Natural Community List (CDFW 2020a)
- Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties (web application) (Lake 2020)
- City of Hayward Former Highway 238 Bypass Due Diligence Review (WRA 2016)

Database searches (i.e., CNDDB, CNPS) focused on the Hayward and surrounding eight U.S. Geological Survey 7.5-minute quadrangles for special-status plant and wildlife. Figure 2 and Figure 3 in Appendix A contains observations of special-status species documented in the CNDDB within a 5-mile radius of the Project Area.

Following the remote assessment, WRA biologists completed a field review over the course of 1 day to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic natural communities (e.g., wetlands) are present, and (4) if special-status species are present[3].

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[3] *Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 4.2 if the site assessment would constitute a formal or protocol-level species survey.*

3.1 Vegetation Communities and Other Land Cover Types

During the site visit, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic communities, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys. In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation), and follow the California Natural Community List (CDFW 2020a) and A Manual of California Vegetation, Online Edition (CNPS 2020b). These resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists. When undescribed variants are used, it is noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.

The site was simultaneously investigated for the presence of wetlands and other aquatic resources following the methods described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("Corps Manual"; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* (Corps 2008), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley 2008). Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above. Aquatic communities which are mapped in the NMFS Essential Fish Habitat Mapper (NMFS 2020), or otherwise meet criteria for designation as Essential Fish Habitat (EFH) are indicated as such in the community description below in Section 5.1. The presence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994) and based on best professional judgement of biologists completing the field surveys.

3.2 Special-status Species

3.2.1 General Assessment

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database review as described above. Presence of suitable habitat for special-status species was evaluated during the site visit based on physical and biological conditions of the site, as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Project Area was then determined according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site in the recent past.

If a more thorough assessment was deemed necessary, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2. If designated critical habitat is present for a species, the extent of critical habitat present and an evaluation of critical habitat elements is provided as part of the species discussions below. All plant and wildlife species encountered were recorded and are summarized in Appendix B. Plant nomenclature follows Jepson Flora Project (2020).

3.3 Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (CDFW 2020c). Additionally, aerial imagery (Google Earth 2020) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Project Area. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly).

4.0 ECOLOGICAL SETTING

The approximately 27-acre Project Area is located in Hayward, Alameda County, California, east of Mission Boulevard and approximately 0.75 mile south of California State University, East Bay. The Project Area includes all areas affected by the Project. Additional detailed of the local setting are below.

4.1 Soils and Topography

The overall topography of the Project Area is generally steep, with the area along the western boundary flat to gently sloped, with elevations ranging from approximately 80 to 280 feet above sea level. According to SoilWeb (CSRL 2020), the Project Area is underlain by two soil mapping units: Altamont clay, 15 to 30 percent slopes and Altamont clay, 30 to 50 percent slopes (Appendix A – Figure 4). The parent soil series of all the Project Area's mapping units is summarized below.

<u>Altamont Series</u>: This series consists of deep, clay soils weathered from fine-grained sandstone and shale, and it is situated on sloping to very steep uplands at elevations ranging from 100 to 4,480 feet (CSRL 2020, USDA 1981). These soils are well drained, with medium to high runoff and slow permeability (CSRL 2020, USDA 1981), and they are not considered hydric (USDA 2020a).

4.2 Climate and Hydrology

The Project Area is located at the base of the Diablo Range, in central Hayward. The average monthly maximum temperature in the area is 67.6 degrees Fahrenheit, while the average monthly minimum temperature is 51.0 degrees Fahrenheit. Predominantly, precipitation falls as rainfall between November and April with an annual average precipitation of 14.6 inches (USDA 2020b). The local watershed is Ward Creek-Frontal San Francisco Bay Estuaries (HUC 12: 180500040804) and the regional watershed is San Francisco Bay (HUC 8: 18050004). There are no blue-line streams in the Project Area (USGS 2018), and no aquatic resources mapped in the National Wetland Inventory (USFWS 2020a) or California Aquatic Resources Inventory (SFEI 2020). Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land-use

The majority of the Project Area is an undeveloped grassland hillslope used as a horse pasture. Developed areas include a road, a horse corral and cluster of various small built structures, vehicles, and associated unvegetated areas. The small, northernmost portion of the Project Area is not grazed. Detailed plant community descriptions are included in Section 5.1 below, and all observed plants are included in Appendix B. Surrounding land uses include urban residential, undeveloped areas, and the adjacent (to the southeast) portion of the La Vista Park development that is currently under construction (Google Earth 2020). Historically, the Project Area appears to have been used for agricultural purposes. The southern portion was an orchard, and in the northern portion, there is evidence of grazing and vegetation clearing. In the 1960s, a small area in the northwest portion of the site was used as a quarry (NETR 2020).

5.0 ASSESSMENT RESULTS

5.1 Vegetation Communities and Other Land Cover

WRA observed three land cover types within the Project Area: developed, non-native annual grassland, and seasonal wetland. The non-sensitive land cover types in the Project Area include developed areas and non-native annual grassland, while the sensitive community is seasonal wetland. Land cover types are summarized in Table 2 and illustrated in Figure 5 (Appendix A). A list of all plant species observed within the Project Area is included as Appendix B.

Table 2. Land Cover Types

COMMUNITY/LAND COVERS	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN PROJECT AREA
Terrestrial Community/Land Cover			
Developed	Non-sensitive	N/A	3.18
Non-native Annual Grassland	Non-sensitive	N/A	23.32
Aquatic Resources			
Seasonal Wetland	Sensitive	N/A	<0.01

5.1.1 Terrestrial Land Cover

Developed (no vegetation alliance). CDFW Rank: none. The developed land cover type is not described by CDFW (2020a, CNPS 2020b). A total of 3.18 acres of developed areas were mapped within the Project Area. Developed areas consist of:

- An assemblage of barns, shacks, vehicles, debris piles, wooden fencing, a horse corral, sparse landscaped plants, and other small built structures, as well as unvegetated areas adjacent to these structures, along the southeastern boundary;
- a gravel and dirt road that enters/exits at the northwest boundary of the Project Area, parallels the western boundary, and then bends sharply east to the cluster of built structures and enters/exits at the southeastern boundary

Photo 1. Photograph of typical developed area on-site.

In the developed areas, the vegetation is typically absent, consisting of sparse weeds typical of highly disturbed areas such as black mustard (*Brassica nigra*), milk thistle (*Silybum marianum*), and stinkwort (*Dittrichia graveolens*). This land cover type is not considered sensitive by CDFW or any other regulatory entity.

Non-native Annual Grassland (no vegetation alliance). CDFW Rank: none. Non-native annual grasslands are known throughout California on all aspects and topographic positions and are underlain by a variety of substrates. In the Project Area, non-native annual grasslands occupy 23.32 acres (88 percent of the Project Area). It is comprised of elements of the following vegetation alliances that are too small and intermixed to map separately, and neither of which is considered sensitive by the CDFW or other regulatory agencies:

Photo 2. Photograph of typical non-native annual grassland on-site.

- Wild oats and annual brome grasslands (*Avena* spp. – *Bromus* spp. Herbaceous Semi-natural Herbaceous Alliance)
- Upland mustards or star-thistle fields (*Brassica nigra* – *Centaurea* [*solstitialis, melitensis*] Herbaceous Semi-natural Alliance)

The vast majority of this land cover type is heavily grazed by horses, and large portions of it are also disced. As such, it is characterized by non-native annual species typical of disturbed conditions such as black mustard, wild oats (*Avena* sp.), foxtail barley (*Hordeum murinum*), soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), and yellow star-thistle (*Centaurea solstitialis*). Artichoke thistle (*Cynara cardunculus* ssp. *flavescens*) occurs at low cover but is widespread. Scattered trees and shrubs, both wild and ornamental, are present at low cover, particularly along fence lines, including coyote brush (*Baccharis pilularis* ssp. *consanguinea*), blue gum (*Eucalyptus globulus*), blue elderberry (*Sambucs nigra* ssp. *caerulea*), Peruvian pepper tree (*Schinus molle*), coast live oak (*Quercus agrifolia*), and holly oak (*Q. ilex*). The small proposed road area in the northern portion of the Project Area is fenced off from the rest of the Project Area, and as a result, less disturbance occurs there. There is an existing infrequently used dirt road in a portion of it, and there was some evidence of the clearing of woody vegetation, but it did not appear to have been grazed in 2020. The annual grasses were dense, and the thatch layer was thick. Tree and shrub species were present at a higher density than the rest of the Project Area, but the area they occupied was too small to map separately. Tree and shrub species were a mix of native and non-native species including coyote brush, holly oak, coast live oak, Italian buckthorn (*Rhamnus alaternus*), cherry plum (*Prunus cerasifera*), and toyon (*Heteromeles arbutifolia*).

5.1.2 Aquatic Resources

Photo 3. Photograph of the seasonal wetland, looking downslope (west).

Seasonal Wetland (no vegetation alliance). CDFW Rank: none. Seasonal wetland as a general land cover type is not described by CDFW (2020a) or CNPS (2020b), and the vegetation within this feature in the Project Area does not fit any described vegetation alliance. Seasonal wetlands are areas that are inundated and/or saturated for part of the year, typically during the wet season (between October and March), and which are dominated by hydrophytic vegetation cover. Within the Project Area, there is a small, single, 0.005-acre seasonal wetland in the center of the site. It is a non-depressional, seep-fed feature situated on a slope that discharges downslope to the west a short distance before transitioning back to upland grassland. Because of the sloping topography in the vicinity of the seep, this feature is saturated for an extended duration, but it does not pond, and it is not confined to a channel.

The wetland is grazed by horses and has evidence of tire ruts. The vegetation is dominated by herbaceous species such as curly dock (*Rumex crispus*), Mexican rush (*Juncus mexicanus*), and kikuyu grass (*Pennisetum clandestinum*). Himalayan blackberry (*Rubus armeniacus*) is also present. The Dominance Test hydrophytic vegetation indicator, the Redox Dark Surface hydric soil indicator, and the Saturation and High Water Table wetland hydrology indicators were met. The seasonal wetland is not adjacent to any streams or other wetland features and is therefore not jurisdictional by the Corps. However, because it meets the wetland definition of the RWQCB, it may be jurisdictional by that agency.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a review of the resource databases listed in Section 4.0, 61 special-status plant species have been documented in the vicinity of the Project Area. All species documented from the greater vicinity are unlikely or have no potential to occur for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Project Area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Project Area;
- Topographic conditions (e.g., valley bottoms, montane) necessary to support the special-status plant species are not present in the Project Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Project Area;

- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the Project Area;

- Land use history and contemporary management (e.g., grading, discing, intensive grazing) has degraded the localized habitat necessary to support the special-status plant species.

5.2.2 Special-status Wildlife

Of the 48 special-status wildlife species documented in the vicinity of the Project Area, most are excluded from the Project Area based on a lack of habitat features. Features not found within the Project Area that are required to support special-status wildlife species include:

- Vernal pools
- Perennial aquatic habitat (e.g. streams, rivers or ponds)
- Tidal marsh areas
- Old growth redwood or fir forest
- Serpentine soils to support host plants
- Sandy beaches or alkaline flats
- Presence of specific host plants
- Cliffs or large rocky outcrops
- Caves, mine shafts, or abandoned buildings

The absence of such habitat features eliminates components critical to the survival or movement of most special-status species found in the vicinity. Given the Project Area's relative proximity to sensitive habitats on the San Francisco Bay, many species documented nearby are additionally obligates to marine or tidal marsh habitats which are not present on or in the immediate vicinity of the Project Area. Three special status species have potential to occur in the immediate vicinity of or in portions of the Project Area: white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), and Alameda whipsnake (AWS; *Masticophis lateralis euryxanthus*). A summary of these species and their potential habitats within the Project Area are summarized in Table 3. A more detailed discussion is below.

Table 3. Potential Special-status Wildlife

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE PROJECT AREA
Formally Listed Wildlife (FESA, CESA)			
Masticophis lateralis euryxanthus	Alameda whipsnake	Federal Threatened, State Threatened	Documented occurrences in grassland and oak woodland east of the Project Area. Individuals may be incidentally present within grassland in the Project Area from oak woodland near northern boundary, although the Project Area is not considered core habitat for this species.
Other Special-status Plants (CEQA, other)			
Athene cunicularia	burrowing owl	SSC	Ground squirrel burrows within the Project Area may provide refugia for burrowing owl during migration stopover or potentially overwintering.
Elanus leucurus	white-tailed kite	CFP	Off-site woodland bordering the Project Area and shrubs within the Project Area may provide suitable nesting habitat for this species and grasslands within the site could provide foraging habitat. This species has been observed in the vicinity.

Photo 5. Ground squirrel activity within the Project Area.

Burrowing owl (*Athene cunicularia*). CDFW Species of Special Concern. Moderate Potential. The burrowing owl occurs as a year-round resident and winter visitor in much of California's lowlands, inhabiting open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grassland, although human-modified areas such as agricultural lands and airports are also used (Poulin et al. 1993). This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and in northern California, it is typically found in close association with California ground squirrels (*Otospermophilus beecheyi*). Man-made substrates such as pipes or debris piles may also be occupied in place of burrows. Prey consists of insects and small vertebrates. Breeding typically takes place from March to July. Ground squirrel burrows were observed within the Project Area that may provide refugia for burrowing owl.

Nesting has not been documented in the vicinity of the Project Area, and owls are only likely to use the area for migration stopovers or potentially overwintering. Compaction and disturbance of the soil due to grazing activity and discing, as well as the steep topography of the Project Area decrease the likelihood that owls occur. Burrowing owl is rarely documented in the vicinity of the Project Area (CDFW 2020, eBird 2020). However, because suitable refugia is present and the Project Area is within this species' range, burrowing owl has a moderate potential to occur.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. Trees and shrubs that may support nesting by this species are present within and adjacent to the Project Area. Grazing reduces prey availability and the Project Area is in close proximity to dense urban development with a high level of anthropogenic disturbance, decreasing likelihood for this species to nest within the Project Area.

Alameda whipsnake (*Masticophis lateralis euryxanthus*). Federal Threatened Species, State Threatened Species. Moderate Potential. AWS was listed as California State Threatened on June 6, 1971, Federal Threatened December 5, 1997 (62 FR 64306), and critical habitat was designated October 2, 2006 (71 FR 58176). The range of AWS is restricted to the inner Coast Range in western and central Contra Costa and Alameda Counties (USFWS 2006). The historical range of AWS has been fragmented into five disjunct populations: Tilden-Briones, Oakland-Las Trampas, Hayward-Pleasanton Ridge, Sunol-Cedar Mountain, and Mount Diablo-Black Hills (USFWS 1997).

The physical and biological features for AWS include: scrub/shrub communities with a mosaic of open and closed canopy; woodland or annual grassland plant communities contiguous to lands containing scrub communities; lands containing rock outcrops, talus, and small mammal burrows within or in proximity to scrub communities; and accessible dispersal habitat (USFWS 2006). Use of habitats other than scrub by AWS is now known to be more common, especially for corridor movement. Thus, habitats, including grassland and riparian communities, adjacent to scrub habitat are considered essential to AWS conservation (USFWS 2006). Rock outcroppings are important, as they are a favored location for lizard prey.

This species is documented to occur in the hills east of the Project Area (CDFW 2020). The narrow strip of oak woodland north of the Project Area provides connectivity to occupied habitat. As such, this species may occasionally disperse into the Project Area. However, the Project Area lacks may of the key features to support AWS including woodland, scrub, and rocky outcroppings, and is not connected directly with areas of rock outcrops or scrub. In addition, development east and west of the Project Area serve as a barrier to dispersal, reducing the likelihood for the species to occur. The species may incidentally occur within the Project Area, but the Project Area is not essential or core habitat for Alameda whipsnake.

5.3 Wildlife Corridors and Native Wildlife Nursery Sites

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier 1992, Soule and Terborgh 1999). It is useful to think of a “landscape linkage” as being valuable in a regional planning context, a broad scale mapping of natural habitat that functions to join two larger habitat blocks. The term “wildlife corridor” is useful in the context of smaller, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2006).

The Project Area is not within a designated wildlife corridor (CalTrans 2010). The site is bordered by dense urban development to the east, west and south. The Project Area itself is undeveloped and borders open space with sparsely developed areas to the northeast of the Project Area. Therefore, it is possible for wildlife to roam into the Project Area from adjacent open space areas. However, the Project Area does not link those sparsely developed open space areas to other open space areas containing meaningful wildlife habitat. Because the Project Area does not provide a meaningful connection between two areas of undeveloped core habitat it does not function as a wildlife corridor.

6.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

a) 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 Game or U.S. Fish and Wildlife Service;
b) 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 Game or U.S. Fish and Wildlife Service;

c) 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;
d) 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;
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These thresholds were utilized in completing the analysis of potential project impacts for CEQA purposes. For the purposes of this analysis, a “substantial adverse effect” is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing biological communities may be considered less than significant if those impacts are speculative, beneficial, de minimis, and/or would not affect the resiliency of a local population.

7.0 IMPACTS AND MITIGATION EVALUATION

Using the CEQA analysis methodology outlined in Section 6.2 above, the following section describes potential significant impacts to sensitive resources within the Project Area as well as suggested mitigation measures which are expected to reduce impacts to less than significant.

7.1 Special-status Species

This section analyzes the Project's potential impacts and mitigation for special-status species in reference to the significance threshold outlined in CEQA Appendix G, Part IV (a):

> *Does the project have the potential to 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 Game or U.S. Fish and Wildlife Service?*

Potential impacts and mitigation for potentially significant impacts are discussed below

Alameda whipsnake

Alameda whipsnake is documented to occur in the hills east of the Project Area. The Project Area does not have the structure of vegetation communities to be considered core habitat for Alameda whipsnake. However, it is possible that this species could occur incidentally within the Project Area due to the presence of nearby occupied habitats. Project activities including grading and operation of heavy equipment may result in injury or harassment of individuals if incidentally present during construction. Therefore, construction activities may result in a **potentially significant impact** to Alameda whipsnake under CEQA.

> **Potential Impact BIO-1:** Construction activities and Project operations may directly impact Alameda whipsnake through ground disturbance and vehicle traffic.

To reduce potential impacts to Alameda whipsnake to a less-than-significant level, the following measures shall be implemented:

> **Mitigation Measure BIO-1:** Employees on the Project will attend a Worker Environmental Awareness Training Program (WEAP) prior to beginning work at the site. The WEAP will consist of a brief presentation by a qualified biologist, which may be given either in-person or via an automated PowerPoint presentation. The program will include a description of visual identification of any special-status species and required habitat, an explanation of the status of these species and their protection, consequences of non-compliance, and a description of the Project-specific measures being taken to reduce effects to these species. Documentation of the training (i.e., a sign-in sheet) will be retained at the site and will be submitted with applicable reports.
>
> **Mitigation Measure BIO-2:** An exclusion fence will be placed between the work area and adjacent undeveloped land with potential to support AWS. Fencing will consist of silt fence or suitable substitute (e.g., ERTEC 48-inch high-visibility orange fencing), which will be buried at least 6 inches below the surface (or sealed in a like manner) to prevent incursion under the fence, and will stand at least 36 inches above ground. The fence will also be made of an opaque

material. Exclusion fencing will be inspected and maintained throughout the Project. Fencing will be removed only when all construction equipment is removed from the site. The exclusion fence will be checked for breaches on a daily basis by a qualified biologist or an on-site representative.

Mitigation Measure BIO-3: Within 48 hours prior to construction activities, a qualified biologist will conduct surveys for AWS in and adjacent to the work area. A qualified biologist will be on-site during initial ground disturbing activities, including fence installation. The qualified biologists will be given authority to stop any work that may result in take of AWS. If at any time a AWS is observed within the work area, work will be halted until the animal leaves the work area of its own volition.

Implementation of these mitigation measures will reduce potential impacts to AWS to a level that is less than significant.

Burrowing owl

Burrows within the Project Area may be suitable for use as refugia for burrowing owl during migration or potentially overwintering. Direct impacts to burrowing owl habitat would include loss of potentially suitable grassland habitat. There are few documented observations of burrowing owl in the vicinity, the site is disturbed by periodic discing, and the steep slopes of the site are not optimal conditions for burrowing owl. Given the marginal nature of the site as consistent habitat for burrowing owl, as well as the fact that the majority of the site will be managed in a similar condition to the present, potential impacts to habitat are considered less than significant. If owls are present during construction, individuals may be injured or killed by vehicles or construction equipment, or they may be flushed from protective burrows by vehicle traffic or ground disturbance. Burrows, if present, may also be impacted or made inaccessible through ground disturbance or stockpiling of equipment and materials. This may result in injury or mortality to burrowing owl individuals. Therefore, construction activities are considered a **potentially significant impact** to burrowing owl under CEQA.

Potential Impact BIO-2: Construction activities and Project operations may directly impact burrowing owl through ground disturbance and vehicle traffic, or they may impact potential habitat through ground disturbance or staging or stockpiling construction materials, which would be considered potentially significant impacts.

To reduce potential impacts to burrowing owl to a less-than-significant level, in addition to **Mitigation Measure BIO-1** the following measure shall be implemented:

Mitigation Measure BIO-4: Prior to the onset of Project activities, one pre-construction survey no more than 14 days prior to initial ground disturbance shall be performed in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The pre-construction survey shall include suitable habitat up to 656 feet (200 meters) from proposed activities and be conducted prior to the start of staging and construction, regardless of the time of year. If burrowing owl is detected within the Project footprint during the non-nesting season and the burrow cannot be avoided, a burrowing owl exclusion plan shall be prepared and implemented. Mitigation may be required by CDFW as part of the exclusion plan. If burrowing owl is detected outside the Project footprint but within the Project Area during the non-nesting season,

> vehicle traffic and construction noise and visual disturbance shall be minimized to the extent feasible to minimize the potential for flushing overwintering owls from protective burrows. Occupied burrows will not be disturbed during the nesting season (February 1 through August 31) unless, after consultation with the CDFW, a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and capable of independent survival.

Implementation of this mitigation measure will reduce potential impacts to burrowing owl to a level that is less than significant.

Special-status and non-status native nesting birds

The Project has the potential to impact white-tailed kite as well as non-status native birds while nesting. Project activities, such as vegetation removal and ground disturbance, have the potential to impact these species by causing direct mortality of eggs or young, or by causing auditory, vibratory, and/or visual disturbance of a sufficient level to cause abandonment of an active nest. If Project activities occur during the nesting season, which generally extends from February 1 through August 31, nests of both special-status and non-status native birds could be impacted by construction and other ground-disturbing activities. Disturbance to nesting birds would be considered a **potentially significant impact** under CEQA.

> **Potential Impact BIO-3:** Project construction activities have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

To reduce potential impacts to nesting birds to a less-than-significant level, the following measure shall be implemented:

> **Mitigation Measure BIO-5:** Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds. Surveys will encompass the entire construction area and the surrounding 500 feet. An exclusion zone where no construction would be allowed will be established around any active nests of any avian species found in the Project Area until a qualified biologist has determined that all young have fledged and are independent of the nest. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and will be at the discretion of the biologist and, if necessary, USFWS and CDFW. These surveys would remain valid as long as construction activity is consistently occurring in a given area and will be completed again if there is a lapse in construction activities of more than 14 consecutive days during the breeding bird season.

Implementation of this mitigation measure will reduce potential impacts to nesting birds to a level that is less than significant.

7.2 Sensitive Land Cover Types

This section addresses the question:

> *b) Does the Project 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 Game or U.S. Fish and Wildlife Service;*

Seasonal wetland is the only sensitive land cover type in the Project Area. The Project will avoid the seasonal wetland by a minimum of 10 feet. However, indirect impacts to the seasonal wetland could still occur during construction as a result of incidental slippage of fill material into the wetland area. Given the proposed changes to the surrounding topography, this is a **potentially significant impact** that could possibly result in the wetland being inadvertently filled. Because the hydrology source for the seep is subterranean, it is not anticipated that the surrounding grading will result in any significant impacts to the wetland hydrology.

> **Potential Impact BIO-3:** Project construction could result in inadvertent impacts to the approximately 0.005-acre seasonal wetland through accidental discharge of fill during construction.
>
> **Mitigation Measure BIO-6:** Prior to construction, the boundaries of the seasonal wetland will be flagged by a qualified biologist, and the boundary of the wetland will be fenced with construction boundary fencing in combination with silt fencing. The fencing will be maintained throughout the duration of construction and will only be removed once vegetation has established sufficiently to terminate the project’s Stormwater Pollution Prevention Plan (SWPPP).

Implementation of this mitigation measure will reduce this potential impact to a level that is ***less than significant***.

7.3 Aquatic Resources

This section analyzes the Project’s potential impacts and mitigation for wetlands and other areas presumed or determined to be within the jurisdiction of the Corps or RWQCB in reference to the significance threshold outlined in CEQA Appendix G, Part IV (c):

> *c) Does the Project have the potential to have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;*

All potential impacts and mitigation to wetlands are discussed above in Section 7.2. The only sensitive natural community present within and adjacent to the Project footprint is a wetland potentially subject to RWQCB jurisdiction. Potential impacts to the wetland are covered by **Potential Impact BIO-3** and **Mitigation Measure BIO-6**.

7.4 Wildlife Corridors and Native Wildlife Nursery Sites

This section analyzes the Project's potential impacts and mitigation for habitat corridors and linkages in reference to the significance threshold outlined in CEQA Appendix G, Part IV (d):

> *d) Does the Project have the potential to 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;*

As noted in Section 3.3, the Project Area does not function as a migratory wildlife corridor. In addition, the finished condition of the park will function in much the way it does under current conditions in allowing periodic movement into and out of the Project Area. Based on these factors, the Project will result in **no impact** to migratory corridors and habitat linkages.

7.5 Local Policies and Ordinances

This section analyzes the Project's potential impacts and mitigation based on conflicts with local policies and ordinances in reference to the significance threshold outlined in CEQA Appendix G, Part IV (e):

> *e) Does the Project have the potential to conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;*

Local plans and policies related to biological resources examined in this analysis are:

- City of Hayward General Plan
- City of Hayward Tree Preservation Ordinance

The Project Area has moderate potential to support burrowing owl, white-tailed kite, and Alameda whipsnake, and the City of Hayward General Plan goals include the protection of sensitive wildlife species and their habitats. Potentially significant impacts to these species are described in Section 7.1 above and would be mitigated for through the implementation of **Mitigation Measures BIO-1, BIO-2, and BIO-3.** Within implementation of these measures, the Project would not conflict with the General Plan.

Removal of trees may include removal or trimming of trees that meet criteria for a tree pruning/removal permit from the City of Hayward. These potential impacts will include removal of a small arroyo willow and a Canary Island date palm. Compliance with tree removal requirements is not required for City-sponsored projects, and removal of these trees will not conflict with City Code.

7.6 Habitat Conservation Plans

This section analyzes the Project's potential impacts and mitigation based on conflicts with any adopted local, regional, and state habitat conservation plans in reference to the significance threshold outlined in CEQA Appendix G, Part IV (f):

> *f) Does the Project have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

The Project Area is not located within the plan area of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan and therefore would not have the potential to conflict with any such plans.

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APPENDIX A – FIGURES

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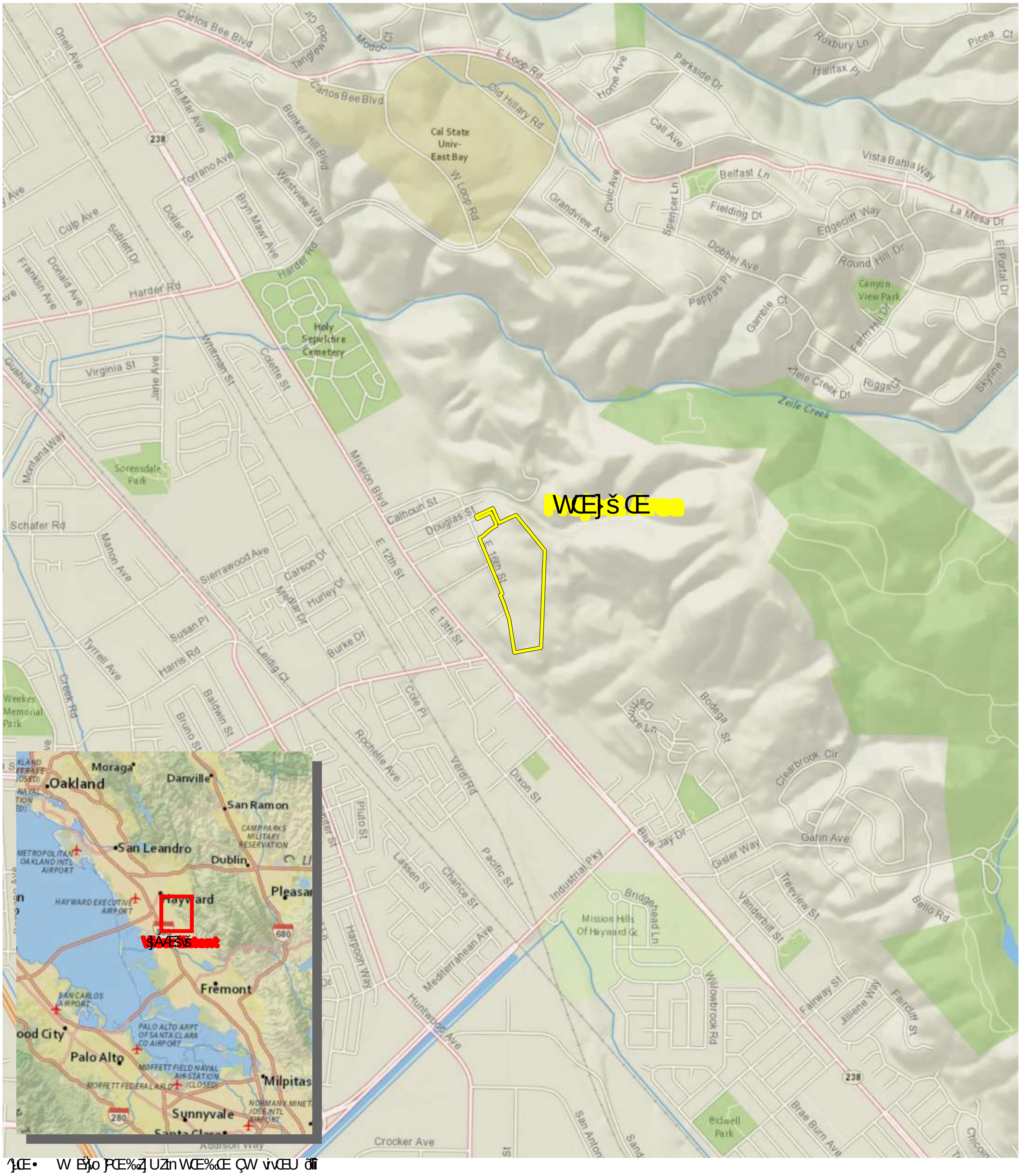

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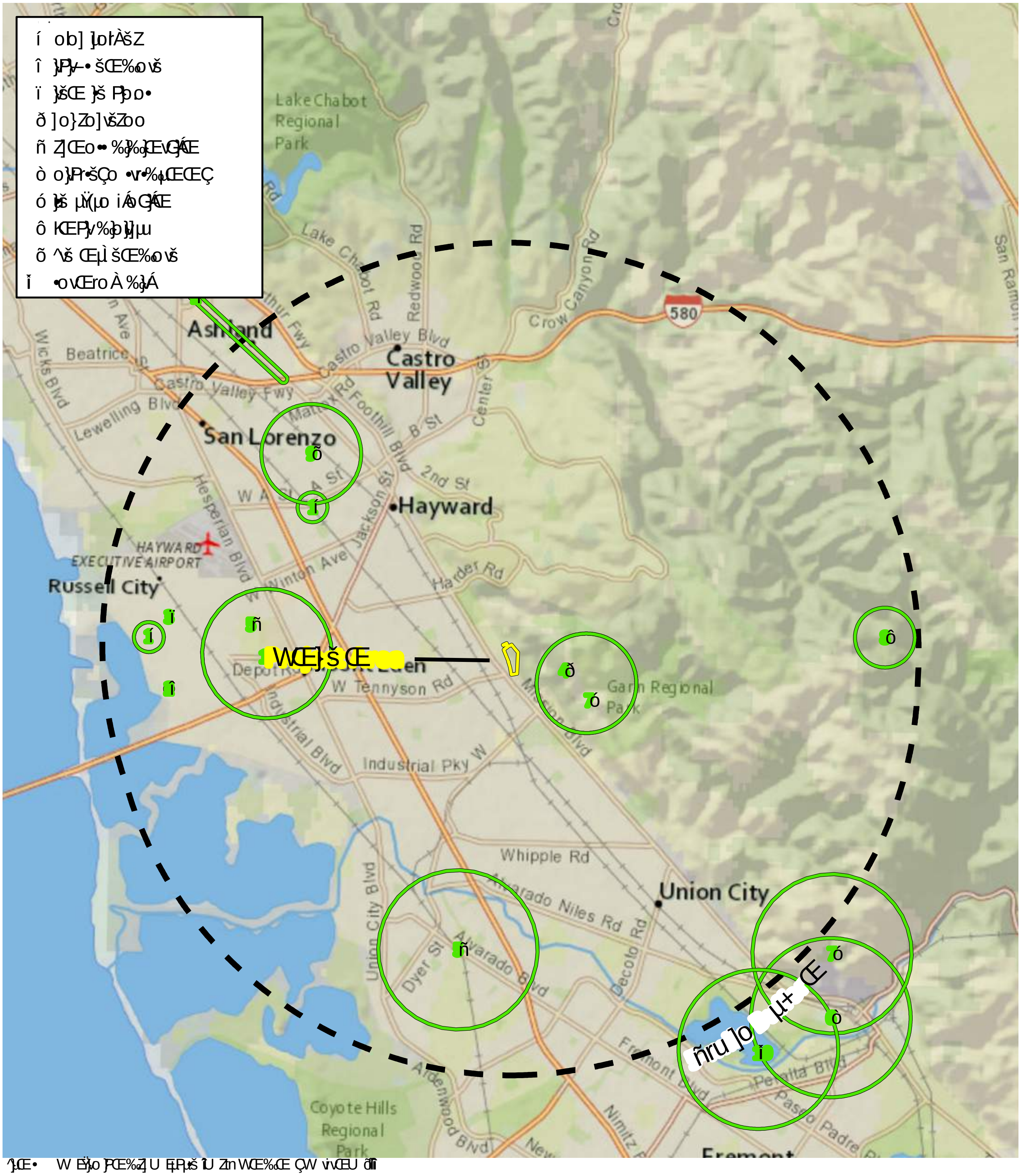

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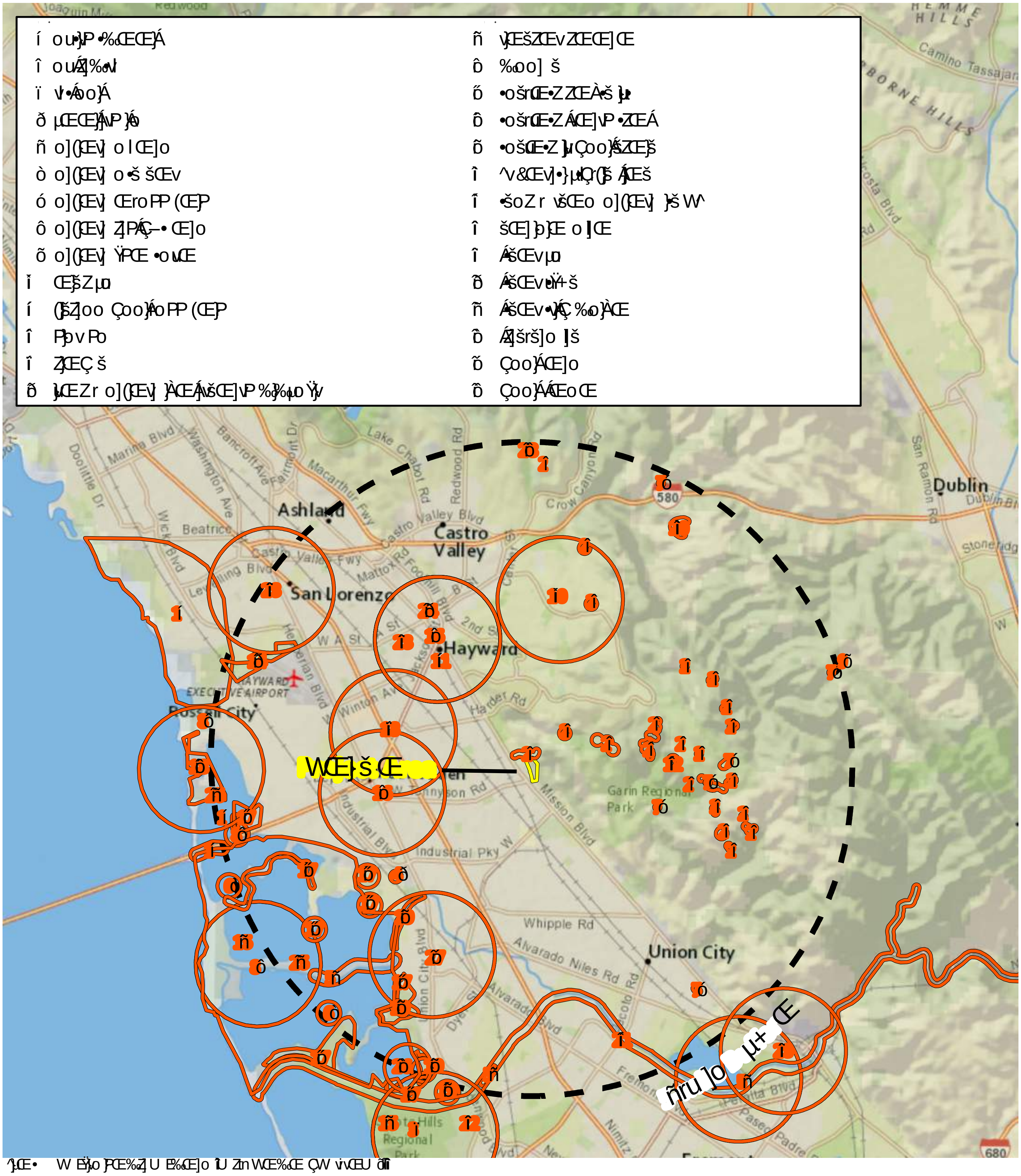

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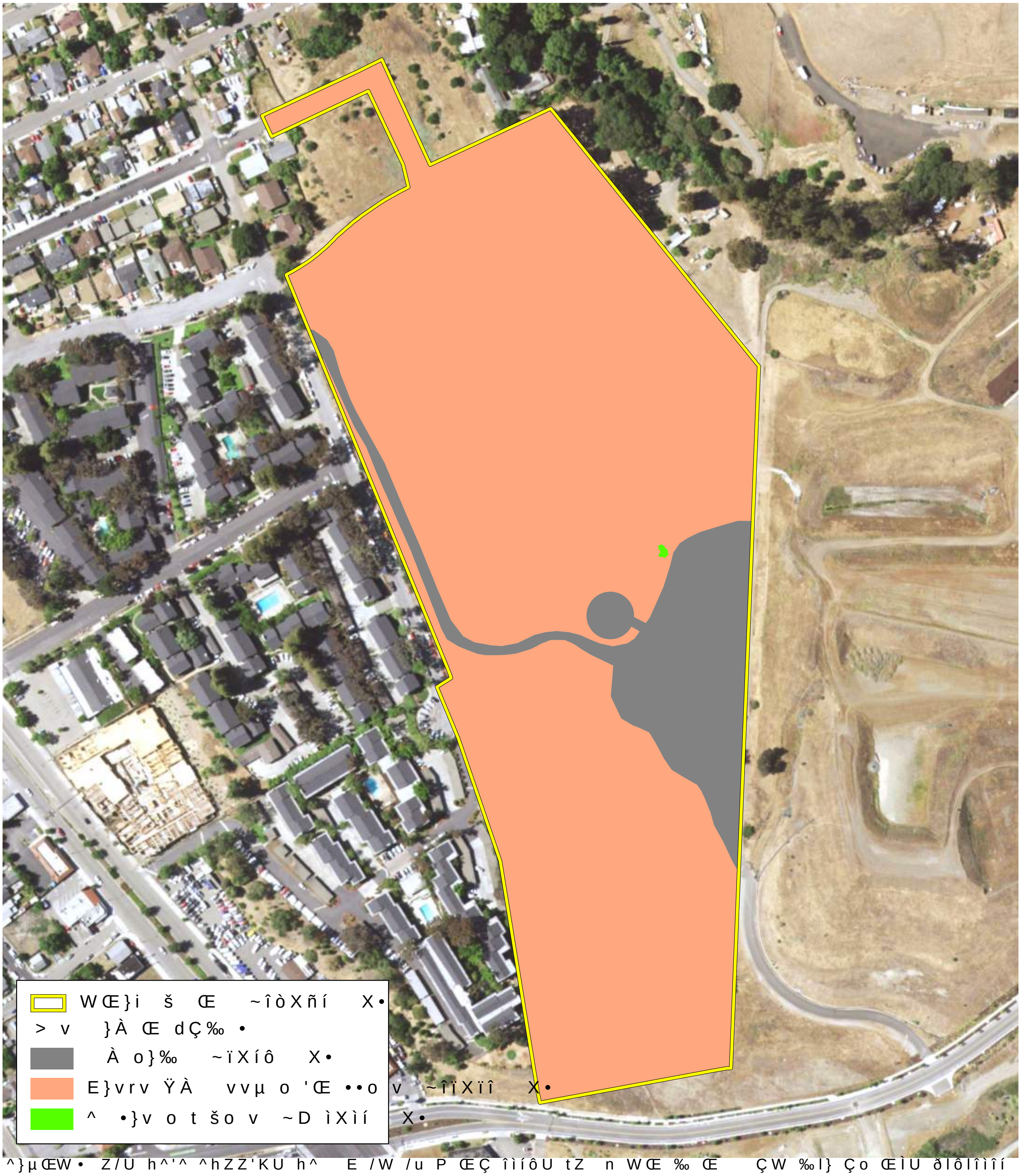

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APPENDIX B – SPECIES OBSERVED IN AND AROUND THE PROJECT AREA

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Appendix B: Table 1. Plant Species Observed on August 28, 2020.

SCIENTIFIC NAME	COMMON NAME	ORIGIN	FORM	RARITY STATUS[1]	CAL-IPC STATUS[2]	WETLAND STATUS[3]
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC
Atriplex prostrata	Fat-hen	non-native	annual herb	-	-	FACW
Avena sp.	Wild oats	non-native (invasive)	annual grass	-	Moderate	-
Baccharis pilularis ssp. *consanguinea*	Coyote brush	native	shrub	-	-	-
Beta vulgaris ssp. *maritima*	Sea beet	non-native	perennial herb	-	-	-
Brachypodium distachyon	Purple false brome	non-native (invasive)	annual, perennial grass	-	Moderate	-
Brassica nigra	Black mustard	non-native (invasive)	annual herb	-	Moderate	-
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
Bromus rubens	Red brome	non-native (invasive)	annual grass	-	High	UPL
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	non-native (invasive)	annual herb	-	Moderate	-
Centaurea solstitialis	Yellow starthistle	non-native (invasive)	annual herb	-	High	-
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
Convolvulus arvensis	Field bindweed	non-native	perennial herb, vine	-	-	-
Cynara cardunculus ssp. *flavescens*	Artichoke thistle	non-native	perennial herb	-	-	-
Cynodon dactylon	Bermuda grass	non-native (invasive)	perennial grass	-	Moderate	FACU

Dittrichia graveolens	Stinkwort	non-native (invasive)	annual herb	-	Moderate	-
Epilobium ciliatum	Slender willow herb	native	perennial herb	-	-	FACW
Eucalyptus globulus	Blue gum	non-native (invasive)	tree	-	Limited	-
Festuca perennis	Italian rye grass	non-native (invasive)	annual, perennial grass	-	Moderate	FAC
Foeniculum vulgare	Fennel	non-native (invasive)	perennial herb	-	High	-
Hedera helix	English ivy	non-native (invasive)	vine, shrub	-	High	FACU
Helminthotheca echioides	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-	Limited	FAC
Heteromeles arbutifolia	Toyon	native	shrub	-	-	-
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	non-native (invasive)	annual grass	-	Moderate	FAC
Hordeum murinum	Foxtail barley	non-native (invasive)	annual grass	-	Moderate	FACU
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW
Kickxia elatine	Sharp point fluellin	non-native	perennial herb	-	-	UPL
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU
Lythrum hyssopifolia	Hyssop loosestrife	non-native (invasive)	annual, perennial herb	-	Limited	OBL
Malva pseudolavatera	Cretan mallow	non-native	shrub	-	-	-
Marrubium vulgare	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU

Medicago polymorpha	Bur clover	non-native (invasive)	annual herb	-	Limited	FACU
Nasturtium officinale	Watercress	native	perennial herb (aquatic)	-	-	OBL
Pennisetum clandestinum	Kikuyu grass	non-native (invasive)	perennial grass	-	Limited	FACU
Phalaris aquatica	Harding grass	non-native (invasive)	perennial grass	-	Moderate	FACU
Phoenix canariensis	Canary Island date palm	non-native (invasive)	tree	-	Limited	-
Polygonum aviculare	Prostrate knotweed	non-native	annual, perennial herb	-	-	FAC
Polypogon monspeliensis	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
Prunus cerasifera	Cherry plum	non-native (invasive)	tree	-	Limited	-
Quercus agrifolia var. *agrifolia*	Coast live oak	native	tree	-	-	-
Quercus ilex	Holly oak	non-native	tree	-	-	-
Rhamnus alaternus	Italian buckthorn	non-native	shrub	-	Watch	FACU
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	shrub	-	High	FAC
Rumex crispus	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
Rumex pulcher	Fiddleleaf dock	non-native	perennial herb	-	-	FAC
Salix babylonica	Weeping willow	non-native	tree	-	-	FAC
Salix lasiolepis	Arroyo willow	native	tree, shrub	-	-	FACW
Sambucus nigra ssp. *caerulea*	Blue elderberry	native	shrub	-	-	FACU
Schinus molle	Peruvian pepper tree	non-native (invasive)	tree	-	Limited	FACU

Silybum marianum	Milk thistle	non-native (invasive)	annual, perennial herb	-	Limited	-
Xanthium spinosum	Spiny cocklebur	native	annual herb	-	-	FACU

- All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2020]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2020]

[1] **California Native Plant Society. 2020. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: August 2020**

FE: Federal Endangered
FT: Federal Threatened
SE: State Endangered
ST: State Threatened
SR: State Rare
Rank 1A: Plants presumed extinct in California
Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
Rank 2: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3: Plants about which we need more information – a review list
Rank 4: Plants of limited distribution – a watch list

[2] **California Invasive Plant Council. 2020. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: http://www.cal-ipc.org/paf/; most recently accessed: August 2020**

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically
Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

[3] **U.S. Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Online at: http://wetland-plants.usace.army.mil/; most recently accessed: August 2020.**

OBL: Almost always found in wetlands
FACW: Usually found in wetlands
FAC: Equally found in wetlands and uplands
FACU: Usually not found in wetlands
UPL: Almost never found in wetlands
NL: Not listed, assumed almost never found in wetlands
NI: No information; not factored during wetland delineation

Appendix B: Table 2: Wildlife Species Observed on August 28, 2020.

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS
Mammals		
Domestic horse	*Equus ferus*	
California ground squirrel	*Otospermophilus beecheyi*	
Birds		
California scrub-jay	*Aphelocoma californica*	
Red-tailed hawk	*Buteo jamaicensis*	
California quail	*Callipepla californica*	
Anna’s hummingbird	*Calypte anna*	
Turkey vulture[1]	*Cathartes aura*	
Rock pigeon	*Columba livia*	
American crow	*Corvus brachyrhynchos*	
American kestrel	*Falco sparverius*	
House finch	*Haemorhous mexicanus*	
Acorn woodpecker	*Melanerpes formicivorus*	
Northern mockingbird	*Mimus polyglottos*	
Black phoebe	*Sayornis nigricans*	
Reptiles		
Western fence lizard	*Sceloporus occidentalis*	

[1] flyover only

APPENDIX C – SPECIAL-STATUS SPECIES POTENTIAL TABLE

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SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Plants				
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 5 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.** The nearest occurrence of this species is 7.5 miles north of the Project Area.	No further actions are recommended for this species.
California androsace *Androsace elongata ssp. acuta*	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 4280 feet (150 to 1305 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.** The nearest occurrence of this species is 18 miles north of the Project Area, and it has not been reported there since 1902.	No further actions are recommended for this species.

Appendix B

LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

2 September 2020

Mr. Alex Tat
City of Hayward
777 B Street, 2nd Floor
Hayward, California 94541

Re: Supplemental Geotechnical and Geologic Investigation
La Vista Park
Hayward, California
Project No. 750656701

Dear Mr. Tat:

This letter report summarizes the results of our supplemental geologic and geotechnical investigation for the proposed slope stabilization keyway at the La Vista Park site in Hayward, California. The purpose of our supplemental investigation was to further characterize the subsurface conditions along the alignment of a proposed slope stabilization keyway and refine our understanding of the geology of this area. We previously performed a design-level geotechnical and geologic investigation for the park development and submitted the results in a report titled *Geologic and Geotechnical Investigation, La Vista Park, Hayward, California*, dated 8 May 2020.

The project site is about 50 acres and is bound by an extension of Tennyson Road on the south, East 16th Street and apartments on the west, the La Vista housing development on the east, and single family residences and undeveloped properties on the north. The western portion of the site, approximately 20 acres, is characterized by gently sloping gradients and was recently used to board and pasture horses. The eastern approximately 30 acres of the site is a former aggregate quarry that will be dedicated to the City by the La Vista housing developer; this portion of the site has been partially graded by the developer using grading plans prepared in 2008 for the housing development. Based on a July 2019 topographic survey[1], the ground surface ranges from between approximately Elevation 70 feet[2] near the southern corner of the site to about Elevation 325 feet in the northeastern portion of the site. In general, the ground surface increases in elevation across the site from west to east. The existing site conditions are shown on the attached Site Plan and Engineering Geology Map, Figure 1.

The development concept and proposed grading are shown on Figure 2. As described in our May 2020 report, we understand the City plans to develop the property into a terraced city park with amenities including bike and pedestrian trails, access roads, a soccer field and basketball court, an amphitheater, two prefabricated restrooms, gardens and picnic areas, an art walk, play lawns, disc golf, dog areas, and farmer's market areas. The proposed site grading includes construction

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[1] Ruggeri-Jensen-Azar Engineers (RJA, 2019). "Record Boundary Exhibit of La Vista Park" dated 12 August 2019, based on LIDAR surface contours dated 19 July 2019 by Radman Aerial Surveys.

[2] All elevations reference National Geodetic Vertical Datum of 1929 (NGVD29).

of several tall pyramids using new and existing engineered fill. Additional grading is planned within and behind an existing engineered fill slope near the southern portion of the site to construct the athletic fields and other park improvements.

Since the time our May 2020 report was prepared, an additional wedge of fill up to about 55 feet high, with slide-slopes at a maximum inclination of 1-foot vertical to 1-foot horizontal (45 degrees), has been incorporated into the proposed grading plans in the northern portion of the site. We understand the development plans could also incorporate a new wetland area to be constructed to replace an existing wetland area that will be impacted by the proposed park improvements. The location of the new wetland area has not yet been determined; we should be contacted to evaluate any impacts the wetland area could have on the proposed development and provide geotechnical recommendations for construction of the wetland, as applicable, after the location of the wetland has been selected.

SCOPE OF SERVICES

Our services were performed in accordance with our original contract, dated 24 April 2019, and our Budget Increase Request #2, dated 27 April 2020. Our scope of services for the supplemental investigation included:

- drilling five additional borings to further evaluate subsurface conditions along the footprint of a proposed slope stabilization keyway, particularly the extent of previously-encountered weak landslide and serpentinite gouge materials, and the depth and strength of underlying bedrock materials
- performing analytical laboratory testing on samples of serpentinite and potentially-serpentinized shale for naturally-occurring asbestos (NOA)
- updating existing geologic interpretations and engineering analyses
- preparing this supplemental letter report presenting updated findings, conclusions, and design recommendations for the proposed keyway and associated grading.

BACKGROUND

During our geotechnical and geologic investigation, we encountered landslides in areas of the site where up to 70 feet of fill is proposed to be placed to create the new park facilities, slopes, and landscape features. We also encountered serpentinite gouge underlying some areas where fill is planned; the serpentinite gouge was interpreted as possible displaced earth materials from upslope. However, the gouge was not encountered in all borings, and the source and lateral extent of this material was not well constrained.

The site is impacted by multiple active traces of the Hayward fault, as mapped by the USGS and other consultants that previously investigated the site. Engeo (2016a) encountered a number of shear zones and fault traces throughout the project site that all were observed in fault trenches within the upper five feet of the ground surface, indicating that these shear zones and fault traces are likely active. We concluded that the proposed park could be subject to strong to violent ground shaking during its lifespan and that the potential for surface fault rupture impacting the site is high. We performed slope stability analyses for the existing slopes and concluded that they are marginally stable under static conditions. However, during a major seismic event, the results of our slope stability analyses indicate that slope movement could occur. The slope movement would cause significant deformations to the existing slopes, and the proposed fill slopes would increase the magnitude of the deformations, potentially impacting the adjacent City of Hayward right-of-ways and downslope properties. These conclusions were presented in detail in our May 2020 report.

To reduce the magnitude of seismic slope deformations and reduce the potential for landslide material to impact the public right-of-way or adjacent properties, we recommended that the fill slopes be supported on a keyway constructed of lime- or cement-treated on-site soil and reinforced with geogrid. The keyway, designated in our May 2020 report as the Lower Road keyway, would extend into the sheared parent bedrock below the weak landslide deposits. Fill placed above and upslope of the keyway would be keyed and benched into the underlying soil materials using conventional grading methods.

The supplemental borings drilled during our current investigation were used to refine our geologic interpretations regarding the depths and extents of the landslides and serpentinite gouge materials. The supplemental data were also used to update our slope stability analyses, as appropriate, and provide final recommendations for design of the Lower Road keyway.

FIELD EXPLORATION AND LABORATORY TESTING

Supplemental Exploratory Borings

Between 30 June and 6 July 2020, five exploratory borings, designated B-11 through B-15, were advanced on the slopes along the proposed Lower Road keyway alignment. Approximate locations of the borings are shown on Site Plan and Engineering Geologic Map, Figure 1.

Prior to performing the field investigation, we obtained the required drilling permit from the Alameda County Public Works Agency (ACPWA) and notified Underground Service Alert (USA) at least 72 hours prior to drilling. We also retained the services of a private utility locator to verify clearance of underground utilities.

The borings were drilled by Britton Exploration of Los Gatos, California. Borings B-11, B-12, and B-14 were advanced using a track-mounted drill rig equipped with hollow stem augers and a downhole safety hammer. B-15 was drilled using a track-mounted rig equipped with a dry core stabilized continuous sample system. B-13 was drilled using both continuous core sampling and hollow stem augers. The borings were drilled to approximately 100 feet below ground surface (bgs).

Our geologist logged the soil and rock encountered in the borings and obtained samples for visual classification and laboratory testing. Soil and rock samples from the hollow stem auger borings B-11, B-12, B-13, and B-14 were obtained using two different types of split-spoon samplers:

- A Sprague and Henwood (S&H) sampler with a 3.0-inch outside and 2.5-inch inside diameter, lined with steel or brass tubes with an inside diameter of 2.43 inches
- Standard Penetration Test (SPT) sampler with a 2.0-inch outside diameter and 1.5-inch inside diameter, without liners.

The sampler types were chosen on the basis of soil type being sampled and desired sample quality for laboratory testing. In general, the S&H sampler was used to obtain samples in medium stiff to very stiff cohesive soil and the SPT sampler was used to evaluate the penetration resistance of sandy soil and bedrock.

The SPT and S&H samplers were driven with a 140-pound hammer falling 30 inches. The samplers were driven up to 18 inches and the hammer blows required to drive the samplers were recorded every six inches and are presented on the boring logs. A "blow count" is defined as the number of hammer blows per six inches of penetration or 50 blows for six inches or less of penetration. The blow counts required to drive the S&H and SPT samplers were converted to approximate SPT N-values using factors of 0.6 and 1.0, respectively, to account for sampler type and hammer energy. The blow counts used for this conversion were: 1) the last two blow counts if the sampler was driven more than 12 inches, 2) the last one blow count if the sampler was driven more than six inches but less than 12 inches, and 3) the only blow count if the sampler was driven six inches or less. The converted blow counts are presented in the boring logs.

B-15 was advanced with a hollow stem, dry core continuous sample tube system, which produces 3.25- inch diameter cores. The core runs ranged between about 3½ and 5 feet long. Core samples were logged, photographed, placed in core boxes, and transported off-site where they were reviewed by our senior geologist. B-13 was drilled using a combination of continuous core and hollow stem auger drilling methods; the upper 80 feet were continuously cored until subsurface conditions made it difficult to continue. At that depth the driller switched to hollow stem auger drilling methods and S&H and SPT sampling to the total drill depth of 100 feet bgs.

For reference, the logs of the borings drilled during our initial investigation are presented in Appendix A as Figures A-1 through A-10. Logs of the borings from our supplemental investigation are presented in Appendix A on Figures A-11 through A-15. The soil was classified in accordance with the soil classification system shown on Figure A-16, and the bedrock is described in accordance with Figure A-17. Upon completion of drilling, the borings were backfilled with cement grout in accordance with ACPWA requirements, and soil cuttings were spread onsite.

Laboratory Testing

The samples recovered from the supplemental borings were examined in the office to confirm field classifications and to select representative samples for testing. Soil samples were tested to measure moisture content, dry density, drained fully softened peak torsional shear strength, drained residual torsional shear strength, undrained shear strength, Atterberg limits, and naturally-occurring asbestos content. Results of the geotechnical laboratory tests are included on the boring logs and in Appendix B. The results of the asbestos testing are included in Appendix C.

REGIONAL AND SITE GEOLOGY

The site is located in the Coast Ranges geomorphic province, which is characterized by northwest-southeast trending valleys and ridges. These are controlled by folds and faults that resulted from the collision of the Farallon and North American plates and subsequent shearing along the San Andreas fault.

According to the *Earthquake Zones of Required Investigation – Hayward Quadrangle* map, prepared by the California Geological Survey (CGS, 2012), the majority of the project site is mapped within an Earthquake Zone of Required Investigation for fault rupture on the Hayward fault and is within a zone designated as susceptible to earthquake-induced landsliding. This map supersedes the Alquist-Priolo quadrangle map for zones previously designated as Special Studies Zones. The section of the Hayward fault through the site is characterized as a right lateral strike slip fault with an average strike of N36°W and a vertical dip. The USGS Quaternary Fault and Fold Database (2006) depicts four traces of the Hayward fault left-stepping through the project site. Additional subsidiary synthetic traces of the Hayward fault and associated shear zones have been documented across the site during previous fault investigations (Berloger, 2000, 2001, and 2005; ENGEO, 2016a and b). These traces and the USGS mapped traces are depicted on Figure 1.

According to published geologic maps, the site is underlain by sheared bedrock of the late Jurassic and early Cretaceous Knoxville formation conglomerate in faulted contact with late Jurassic and Cretaceous Franciscan Complex Mélange (Regional Geologic Map, Figure 3). Graymer (2000) identifies a wedge of Jurassic-age keratophyre and quartz keratophyre, volcanic rock associated with lava flows creating dykes and sills, paralleling the Hayward fault across the site.

SUBSURFACE CONDITIONS

The results of the supplemental borings were used to refine our understanding of the subsurface conditions along the proposed keyway alignment. Our interpretations of surface and subsurface conditions in the vicinity of the landslide are presented on Figures 4 through 8, Idealized Geologic Cross Sections A-A' through E-E'. We also used the results of the borings to update the limits of the landslides mapped on our Site Plan and Engineering Geologic Map (Figure 1).

Landslide debris was identified in borings B-12, B-14, and B-15, to depths of approximately 29½ feet (B-12), 40 feet (B-14) and 41 feet (B-15) bgs. The landslide material varies in composition and includes sandy clay, silty sand with varying amounts of clay, gravel, and cobbles, and displaced rock materials consisting of sandstone, shale, and serpentinite. Beneath the landslide deposits, in-situ bedrock consisting mainly of pervasively sheared Knoxville Formation sandstone and shale, and serpentinite was encountered. The serpentinite was interpreted to be a series of serpentinite bodies intruded into the Knoxville Formation and is most likely fault related. Serpentinite was encountered in borings B-13 and B-15. Frequent shear zones were encountered in every boring and were interpreted to be related to the numerous fault traces crossing through the site.

Groundwater was encountered in each of the borings, at depths ranging between about 16 feet bgs in boring B-11 in the north portion of the proposed keyway alignment to about 38 feet bgs in boring B-15 near the south end of the keyway. The range in groundwater levels is presented in the table below.

Table 1
Groundwater Levels Measured During Drilling

Boring	Depth to Groundwater (feet bgs)	Groundwater Elevation (feet NGVD29)
B-1	30	149
B-2	Not encountered above 50½ ft bgs*	Not encountered above Elevation 215.5 ft*
B-3	34	163
B-4	N/A**	N/A**
B-5	14	180.5
B-6	Not encountered above 71½ ft bgs*	Not encountered above Elevation 200.5 ft*
B-7	34	81
B-8	Not encountered above 130 ft bgs*	Not encountered above Elevation 105 ft*
B-9	N/A**	N/A**
B-10	17	126
B-11	16	147
B-12	22	148
B-13	34	144
B-14	24	146
B-15	38	131

Notes:
bgs - below ground surface
* Maximum depth drilled; corresponding elevation of bottom of boring.
** N/A - Not available (groundwater level obscured by rotary wash drilling method).

SUPPLEMENTAL CONCLUSIONS AND RECOMMENDATIONS

On the basis of our supplemental and previous investigations, we conclude that the site is impacted by landslides and multiple fault traces and associated shear zones contributing to highly variable and very weak soil and rock conditions at depth. We conclude that serpentinite gouge encountered during our previous and current investigations is not a laterally continuous, displaced unit, but instead is associated with a number of serpentinite bodies within the Knoxville Formation and other bedrock units throughout the site. Due to the landslide features and abundant faults extending through the site, groundwater, soil, and rock conditions are anticipated to be highly inconsistent and will likely vary throughout the proposed keyway excavation and other areas of the site that are subject to grading.

Naturally Occurring Asbestos (NOA)

As shown on the geologic cross sections (Figures 4 through 8), portions of the site are underlain by serpentinite bedrock, which can potentially contain concentrations of naturally-occurring asbestos (NOA). No asbestos was detected in the serpentinite samples that were submitted for laboratory testing (Appendix C). However, serpentinite bedrock will be encountered at varying depths during excavation for the keyway and during other grading activities for the park.

The excavation for the keyway and other areas to be disturbed during the proposed park construction will exceed one acre. The proposed project is subject to the California Air Resource Board (CARB) Asbestos Airborne Toxic Control Measure (ATCM) for construction, grading, quarrying, and surface mining operations dated July 2001 due to the presence of serpentinite. The CARB Asbestos ATCM is enforced locally by the Bay Area Air Quality Management District (BAAQMD) and requires construction projects greater than one acre in size in which NOA, serpentinite, or ultramafic rock is present to prepare a site-specific Asbestos Dust Mitigation Plan (ADMP) for agency approval prior to construction and perimeter asbestos dust monitoring during construction.

Lower Road Keyway

Our recommendations regarding site preparation, mixing and placement of lime- or cement-treated on-site soil for the Lower Road keyway, and keyway drainage and subdrainage criteria are presented in our May 2020 report. The proposed keyway alignment, based on the results of our supplemental investigation and slope stability models, is presented on Figure 9; the proposed keyway alignment extends roughly along the proposed Lower Road alignment. The southern portion of the keyway alignment shown on Figure 9 has been shifted approximately 36 feet to the west from its previously proposed location. Along Section B-B′, where the relatively large fill pyramid is planned, the results of our supplemental evaluation indicate that the proposed fill should have a secondary upper keyway into the sheared bedrock under the landslide deposits, keyed in at about Elevation 185 feet to improve the stability of the upper portion of the fill pyramid and reduce the potential for shallow slip surfaces to develop above the Lower Road keyway. The secondary upper keyway can be constructed of compacted, engineered fill, and does not require lime- or cement-treated soil or geogrid reinforcement. The approximate lateral extent of the secondary upper keyway is shown on Figure 9; final limits will need to be confirmed during construction. Cross sections through the proposed keyway along Sections B-B′ and C-C′ are presented on Figure 10 and 11, respectively. A profile of the secondary upper keyway is also shown on Figure 10.

As discussed in the May 2020 report, we recommend that new fill should not be placed west of the Lower Road keyway, as weak soil and landslide deposits likely extend offsite and could potentially be destabilized if they are surcharged with new fill.

For our supplemental evaluation, we updated the geologic cross sections using the new subsurface information and checked slope stability along the two critical geologic cross sections identified in the May 2020 report. These sections include the slopes where the thickest new fill is planned (Section B-B') and a section that includes significant existing fill (Section C-C'). Stability along Sections B-B' and C-C' were evaluated considering translational failure surfaces, where the slide debris moves along a preferential plane of weakness. We conclude that the future landslide mobilization would occur along the existing interface of the old landslide deposits and underlying sheared bedrock, as depicted on Sections B-B' and C-C' (Figures 5 and 6).

As discussed in the May 2020 report, the factor of safety against slope failure is the ratio of the resistance to sliding over the slide driving forces. The higher the factor of safety, the more resistance the slope has to failure. Typically, a slope with a static factor of safety greater than 1.5 and a seismic factor of safety of 1.1 with a seismic coefficient of 0.15g is considered stable (CDMG Special Publication 117A [SP117A]). Considering the site is underlain by active traces of the Hayward fault, we conclude ground motions exceeding the 0.15g screening criteria are likely to occur during the design life of the project, and seismically-induced slope movement and ground deformation should be anticipated to occur during a major earthquake. However, lower factors of safety may be acceptable for a park. A lower factor of safety will result in increased predicted ground deformations during a seismic event.

The engineering properties of the undocumented and engineered fill, colluvium, landslide deposits, and bedrock materials used in our slope stability models were developed based on the results of our field exploration and laboratory testing programs and are generally consistent with the properties used during our previous analyses. We reduced the effective internal friction angle of the landslide deposit to 16 degrees along Section B-B' and 19 degrees along Section C-C' based on the results of additional residual strength laboratory tests performed during our supplemental investigation and a back-analysis of strength parameters needed to replicate marginal static slope stability. For some slope stability analyses, we modeled the bedrock underlying the landslide deposit as an impenetrable layer to constrain slip circles to occur along the landslide and bedrock interface and evaluate the design of the keyway; deeper failure surfaces through the sheared bedrock were evaluated and discussed in the May 2020 report.

The results of the static slope stability analyses, for existing conditions, proposed fill condition, and with the construction of the Lower Road keyway, are presented in Table 2. We also evaluated the potential for slip surfaces to develop through the engineered fill above the keyway. The results of our supplemental slope stability analyses are presented in Appendix D.

TABLE 2
Static Slope Stability

	Static Factor of Safety			
Section	**Existing Slope**	**Proposed Grading**	**Proposed Grading with Keyway**	**Proposed Grading with Keyway (shallow failure surface upslope of keyway)**
B-B'	1.1	1.0	2.3	1.4
C-C'	1.1	1.1	3.1	1.9

We used a pseudo-static approach to evaluate the seismic slope stability along the critical sections. In this method of analysis, an earthquake is represented by an equivalent horizontal static force. The seismic force is modeled by applying a horizontal ground acceleration (a horizontal seismic coefficient) to the mass of the potential slide material. The magnitude of this equivalent horizontal seismic coefficient, which takes into account the geometry of the failure plane and average ground acceleration, was estimated to be about 0.65 times the estimated peak ground acceleration (PGA) for a given seismic event. For our analyses, we used a PGA of 0.68g to calculate an equivalent horizontal seismic coefficient of 0.44g for the DE[3] ground motion. For the MCE_R ground motion, we used a PGA_M of 1.018g to calculate an equivalent horizontal seismic coefficient of 0.66g. The equivalent horizontal seismic coefficient was incorporated in our slope stability models, and the resulting seismic factors of safety are summarized in Table 3.

The results of our analyses indicate that during a major seismic event, the factors of safety of the existing and proposed slopes will drop below 1.0, resulting in slope movement. The cement-treated keyway improves the pseudo-static stability of failure surfaces that could occur through the existing and proposed engineered fill and the underlying landslide deposits. The secondary upper keyway in the vicinity of Section B-B′ is also designed to improve the pseudo-static stability of the proposed engineered fill; however even with the secondary upper keyway, it is possible that relatively shallow failure surfaces could develop in the engineered fill above the Lower Road keyway during a major earthquake.

We computed potential slope deformations during a seismic event using the Newmark type method (1965) for the two subsurface profiles, for both the current slope configurations and the proposed grading. Calculated displacements using the Newmark type methods or similar approaches should be considered order-of-magnitude estimates of actual field behavior. SP117A (2008) has provided the following general guidelines for interpretation of estimated deformations:

1. Newmark displacements of 0 to 15 centimeters (6 inches) are unlikely to correspond to serious landslide movement and damage.

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[3] The Design Earthquake PGA is 2/3 of the peak geometric mean ground acceleration (PGA_M) of 1.018g obtained from mapped values specified in the provisions of the 2019 California Building Code)/ASCE 7-10 for the Risk-Targeted Maximum Considered Earthquake (MCE_R), assuming site class D (see Section 9.15).

2. In the 15 to 100 centimeters (6 to 40 inches) range of displacement, slope deformation may be sufficient to cause serious ground cracking or enough strength loss to result in continuing (post-seismic) failure. Determining whether displacements in this range can be accommodated safely requires good professional judgement that takes into account issues such as landslide geometry and material properties.

3. Calculated displacements greater than 100 centimeters (40 inches) are very likely to correspond to damaging landslide movements, including possible catastrophic failure, and such slopes should be considered unstable.

By iterating the horizontal seismic coefficient within each stability run in SLOPE/W, we obtained the magnitude of the horizontal seismic coefficient that results in slope failure (i.e. corresponds to a seismic factor of safety equal to 1.0). The corresponding horizontal seismic coefficient is referred to as the yield acceleration for that slope configuration. The resulting yield accelerations for the existing and proposed slopes, and for similar failure surfaces after construction of the Lower Road keyway, are summarized on Table 3. The amount of deformation for each case was estimated using procedures developed by Bray & Travasarou (2007), for both the design earthquake (DE) and risk-targeted maximum considered earthquake (MCE_R) ground motions. The Bray & Travasarou (2007) method is a Newmark type analyses. For the deformation calculation, we used a shear wave velocity in the upper 100 feet (V_{s30}) of 1,960 feet per second based on ground motion recordings from the Cal State East Bay campus, approximately 1¼ miles north of the site, during the 1989 Loma Prieta earthquake.

The results of our deformation analyses indicate that without the Lower Road keyway, the existing and proposed slopes could exhibit significant permanent slope displacements, and possible catastrophic failure, during an earthquake generating horizontal ground surface accelerations greater than or equal to the yield acceleration, as shown in Table 3. The Lower Road keyway and secondary upper keyway are designed to improve the pseudo-static factors of safety of the proposed slopes and reduce the magnitude of deformations that could occur on the slopes during a major seismic event. However, as shown on Table 3, even with the secondary upper keyway it is possible that some slope deformations could occur in the proposed engineered fill above the Lower Road keyway in the vicinity of Section B-B' during a major seismic event. The secondary upper keyway is designed to reduce slope deformations; as designed we calculate slope deformation to be on the order of 2 feet or less.

TABLE 3
Seismic Slope Stability

Section	Seismic Factor of Safety Under DE Earthquake Loading	Seismic Factor of Safety Under MCE_R Earthquake Loading	Yield Acceleration (g)	Estimated Deformations Bray & Travasarou (2007) (inches)	
				DE	MCE
B-B' Existing Slope	0.3	0.2	0.02	82	102
B-B' Proposed Grading	0.4	0.3	0.06	55	89
B-B' Proposed with Keyway	1.5	1.1	N/A**	N/A**	N/A**
B-B' Proposed with Failure Surface Upslope of Keyway*	0.8	0.6	0.25	10	22
C-C' Existing Slope	0.5	0.3	0.17	18	36
C-C' Proposed Grading	0.5	0.3	0.17	18	36
C-C' Proposed Grading with Keyway	1.5	1.1	N/A**	N/A**	N/A**
C-C' Proposed with Failure Surface Upslope of Keyway	1.6	1.3	N/A**	N/A**	N/A**

* Assumes upper portion of the engineered fill is underlain by a secondary upper keyway into sheared bedrock at Elevation 185 feet.

** N/A - not analyzed. The yield acceleration exceeds the MCE_R level of shaking and therefore evaluation of this parameter and the resulting slope deformations are not necessary; the analyses indicate the slopes are stable.

Seismic factors of safety considering a seismic coefficient of 0.15g in accordance with the SP117A screening guidelines are summarized in Table 4. The reported seismic factors of safety for the proposed grading with the Lower Road keyway are greater than 1.1 and therefore, the slopes should be considered stable during earthquakes that generate a horizontal ground acceleration on the order of 0.15g or less.

TABLE 4

Seismic Stability Screening

Section	Seismic Factor of Safety Seismic Coefficient = 0.15g
B-B' Existing Slope	0.5
B-B' Proposed Grading	0.7
B-B' Proposed Grading with Keyways	2.8
C-C' Existing Slope	1.1
C-C' Proposed Grading	1.1
C-C' Proposed Grading with Keyway	2.4

We conclude that with construction of the Lower Road keyway, the static slope stability is improved significantly. Furthermore, under DE and MCE$_R$ seismic conditions, slip surfaces occurring through the Lower Road keyway have factors of safety that exceed 1.0. For shallower failure surfaces that occur above the Lower Road keyway in the vicinity of Section B-B', the magnitudes of estimated deformations during DE and MCE$_R$ events could be considered acceptable for performance of the park, although repairs to slopes and park improvements could be required if significant ground cracking and deformations occur. Structures that are sensitive to slope movement will need to be set back from the sides and tops of the slopes at the site.

As discussed in the May 2020 report, it is possible that slope deformations could still occur offsite during a major earthquake, even with no grading in the park, because the lateral extents of the dormant landslide features in the vicinity of Sections B-B' and C-C' have been mapped as extending offsite. This condition has not been fully analyzed because exploration was not performed beyond the property limits. The proposed slope stability measures are intended to improve the performance of the slopes where new park improvements are planned above and east of the Lower Road keyway. The construction of the Lower Road keyway should prevent the new slope configurations in the park from creating new offsite instability.

Steepened Fill Slopes

Recommendations for construction of fill slopes are provided in our May 2020 geotechnical report. In the report, we recommend that fill slopes be designed to have maximum slope inclinations not exceeding 2:1 (horizontal to vertical) and be limited in extent. We understand a steepened 1:1 fill slope is now being planned in the northern portion of the site, as shown on Figure 2. We conclude a 1:1 slope in new fill will be marginally stable and will require reinforcement to ensure long-term stability.

For the proposed 1:1 fill slope along Section D-D′, we recommend the slope be constructed with layers of geogrid reinforcement consisting of biaxial geogrid Tensar BX1200 (or approved equivalent) to ensure long-term stability and strengthen the steepened slope face. The geogrid should extend from the face of the slope to the back cut of each bench, or to at least 50 feet from the face of the fill slope if the horizontal distance to the back cut is greater than 50 feet. The fill for the 1:1 slope should be keyed and benched into bedrock materials, and compacted in lifts as recommended in the May 2020 geotechnical report. The geogrid should be placed between layers of compacted fill, at a vertical spacing of no more than two feet, as the fill slope is constructed. Fill slopes should be constructed and finished according to the recommendations provided in our May 2020 report.

As recommended in the May 2020 report, the finished face of fill slopes should be covered by an erosion control blanket and planted with vegetation to reduce the potential for surface erosion.

GEOTECHNICAL SERVICES DURING CONSTRUCTION

During construction, our field geologist should provide on-site observation and testing during excavations for benches and keyways to confirm that the keyway extends a sufficient depth below the landslide materials, and during fill placement to check that the contractor's work conforms to the geotechnical aspects of the plan and specifications provided in this report.

LIMITATIONS

The conclusions and recommendations presented in this report result from limited engineering studies and are based on our interpretation of the geotechnical conditions existing at the site at the time of the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that described in this report, Langan should be notified so that supplemental recommendations can be made.

Sincerely yours,
Langan Engineering and Environmental Services, Inc.

Marina Mascorro, PG, CEG
Senior Project Geologist

M.T. MASCORRO
No. 2646
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Attachments:

References

Figure 1	Site Plan and Engineering Geologic Map
Figure 2	Proposed Improvements
Figure 3	Regional Geology Map
Figure 4	Geologic Cross Section A-A’
Figure 5	Geologic Cross Section B-B’
Figure 6	Geologic Cross Section C-C’
Figure 7	Geologic Cross Section D-D’
Figure 8	Geologic Cross Section E-E’
Figure 9	Proposed Keyway
Figure 10	Proposed Keyway, Cross Section B-B’
Figure 11	Proposed Keyway, Cross Section C-C’

Appendix A	Boring Logs
Appendix B	Laboratory Test Results
Appendix C	NOA Testing Report
Appendix D	Results of Slope Stability Analyses

REFERENCES

Berloger Geotechnical Consultants (2000). "Fault Investigation Report, La Vista Quarry, Hayward, California." 29 February.

Berloger Geotechnical Consultants (2001). "Supplemental Fault Investigation Report, La Vista Quarry, Hayward, California." 3 December.

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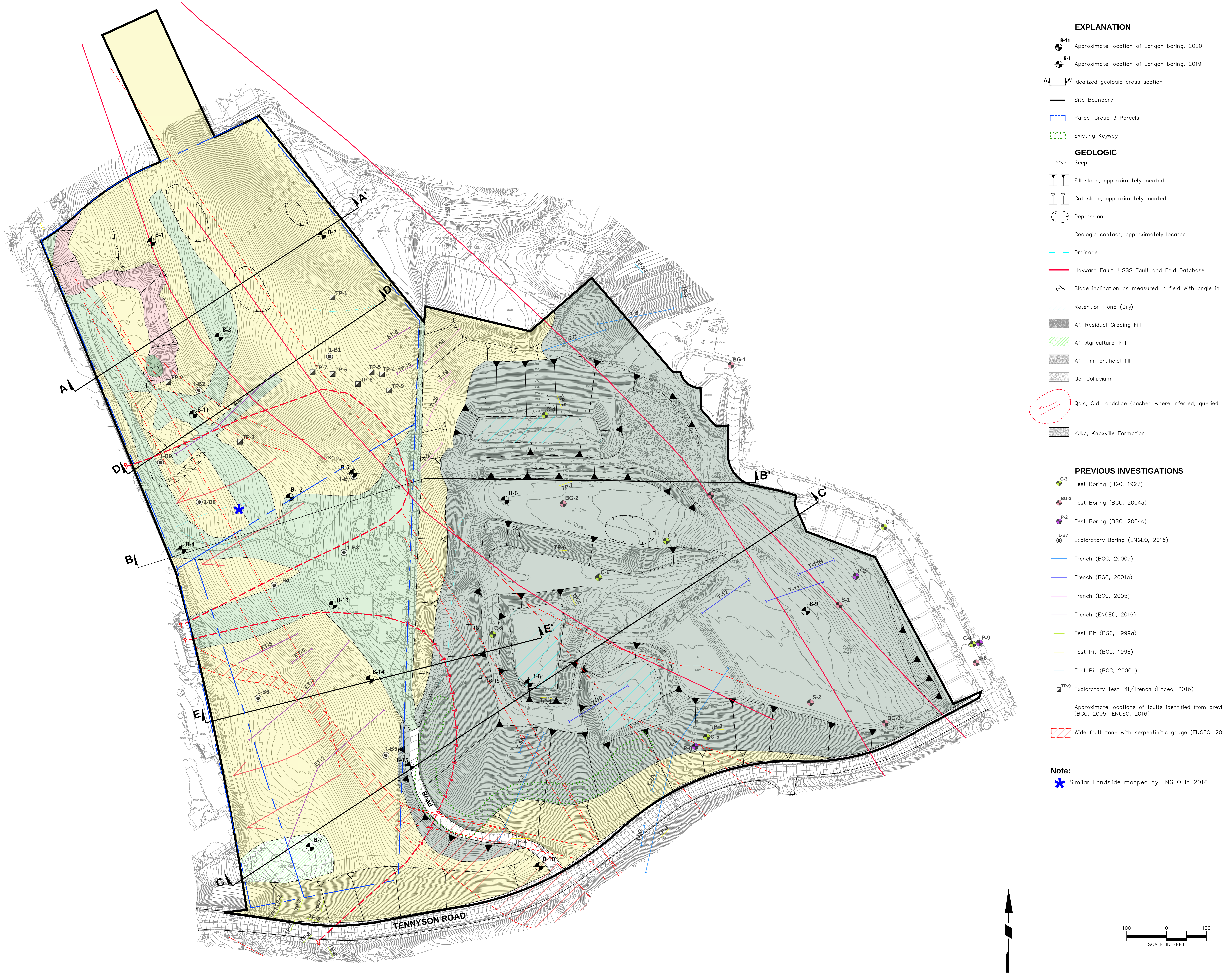
Langan Engineering and Environmental Services, Inc. (2020). *Geologic and Geotechnical Investigation, La Vista Park, Hayward, California*, 8 May.

FIGURES



EXPLANATION

B-11 Approximate location of Langan boring, 2020

B-1 Approximate location of Langan boring, 2019

A A' Idealized geologic cross section

Site Boundary

Parcel Group 3 Parcels

Existing Keyway

GEOLOGIC

Seep

Fill slope, approximately located

Cut slope, approximately located

Depression

Geologic contact, approximately located

Drainage

Hayward Fault, USGS Fault and Fold Database

6° Slope inclination as measured in field with angle in degrees

Retention Pond (Dry)

Af, Residual Grading Fill

Af, Agricultural Fill

Af, Thin artificial fill

Qc, Colluvium

Qols, Old Landslide (dashed where inferred, queried where uncertain)

KJkc, Knoxville Formation

PREVIOUS INVESTIGATIONS

C-3 Test Boring (BGC, 1997)

BG-3 Test Boring (BGC, 2004a)

P-2 Test Boring (BGC, 2004c)

1-B7 Exploratory Boring (ENGEO, 2016)

Trench (BGC, 2000b)

Trench (BGC, 2001a)

Trench (BGC, 2005)

Trench (ENGEO, 2016)

Test Pit (BGC, 1999a)

Test Pit (BGC, 1996)

Test Pit (BGC, 2000a)

TP-9 Exploratory Test Pit/Trench (Engeo, 2016)

Approximate locations of faults identified from previous explorations (BGC, 2005; ENGEO, 2016)

Wide fault zone with serpentinitic gouge (ENGEO, 2016)

Note:

* Similar Landslide mapped by ENGEO in 2016

Reference: Base map from a drawing titled "Record Boundary Exhibit of La Vista Park" by Ruggeri-Jensen-Azar (RJA), dated 08/12/2019; Lidar surface contours provided by Radman Aerial Surveys, dated 07/19/2019, NGVD 29

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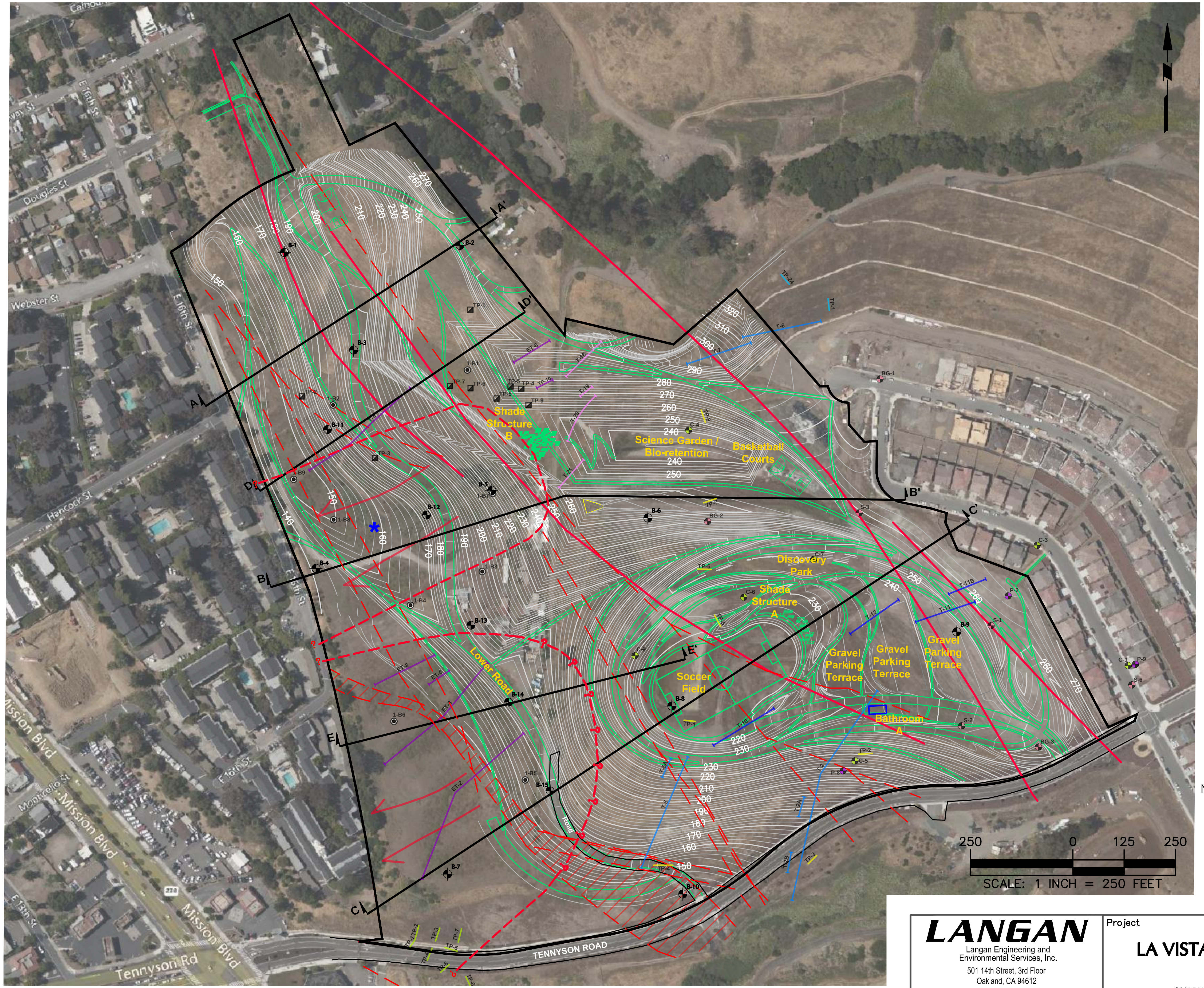
Project
LA VISTA PARK
HAYWARD
ALAMEDA COUNTY CALIFORNIA

Drawing Title
ENGINEERING GEOLOGIC MAP

Project No. 750656701
Date 8/31/2020
Drawn By KNB
Checked By

Figure 1

Filename: \\langan.com\data\OAK\data7\750656701\Project Data\CAD\01\2D-DesignFiles\Geotechnical\Final\750656701-B-IM0101.dwg Date: 8/31/2020 Time: 14:56 User: agekas Style Table: Langan.stb Layout: ENG GEO MAP



EXPLANATION

A ⌐¬ A'	Idealized geologic cross section
▬	Site Boundary
🟩	Proposed road, path, or surface feature
🟥	Hayward Fault, USGS Fault and Fold Database
	Qols, Old Landslide Deposit (dashed where inferred, queried where uncertain)
— —	Approximate locations of faults from previous explorations (BGC, 2005; ENGEO, 2016)
▨	Wide fault zone with serpentinitic gouge (ENGEO, 2016)
⊕ LB-1	Approximate location of Langan boring, 2019
◐ LB-15	Approximate Location of Langan Boring, 2020
C-3 ●	Test Boring (BGC, 1997)
BG-3 ●	Test Boring (BGC, 2004a)
P-2 ●	Test Boring (BGC, 2004c)
1-B7 ◉	Exploratory Boring (ENGEO, 2016)
⊢⊣	Trench (BGC, 2000b)
⊢⊣	Trench (BGC, 2001a)
⊢⊣	Trench (BGC, 2005)
⊢⊣	Trench (ENGEO, 2016)
—	Test Pit (BGC, 1999a)
—	Test Pit (BGC, 1996)
—	Test Pit (BGC, 2000a)
TP-9 ◪	Exploratory Test Pit/Trench (Engeo, 2016)

Notes:

1. Aerial Imagery acquired on 10/21/2019 via Autodesk Live Map Data and Microsoft Bing Maps Platform API's.
2. All Features shown are approximate.
3. Proposed Grading topography provided by Ruggeri–Jensen–Azar (RJA).
4. Planned development (soccer field, basketball court, shade areas, bathrooms, parks, and parking) from Surfacedesign Inc., of San Francisco.

* Similar landslide mapped by ENGEO in 2016

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Drawing Title
PROPOSED IMPROVEMENTS

Project No.
731596306
Date
8/31/2020
Drawn By
KNB
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Drawing No.
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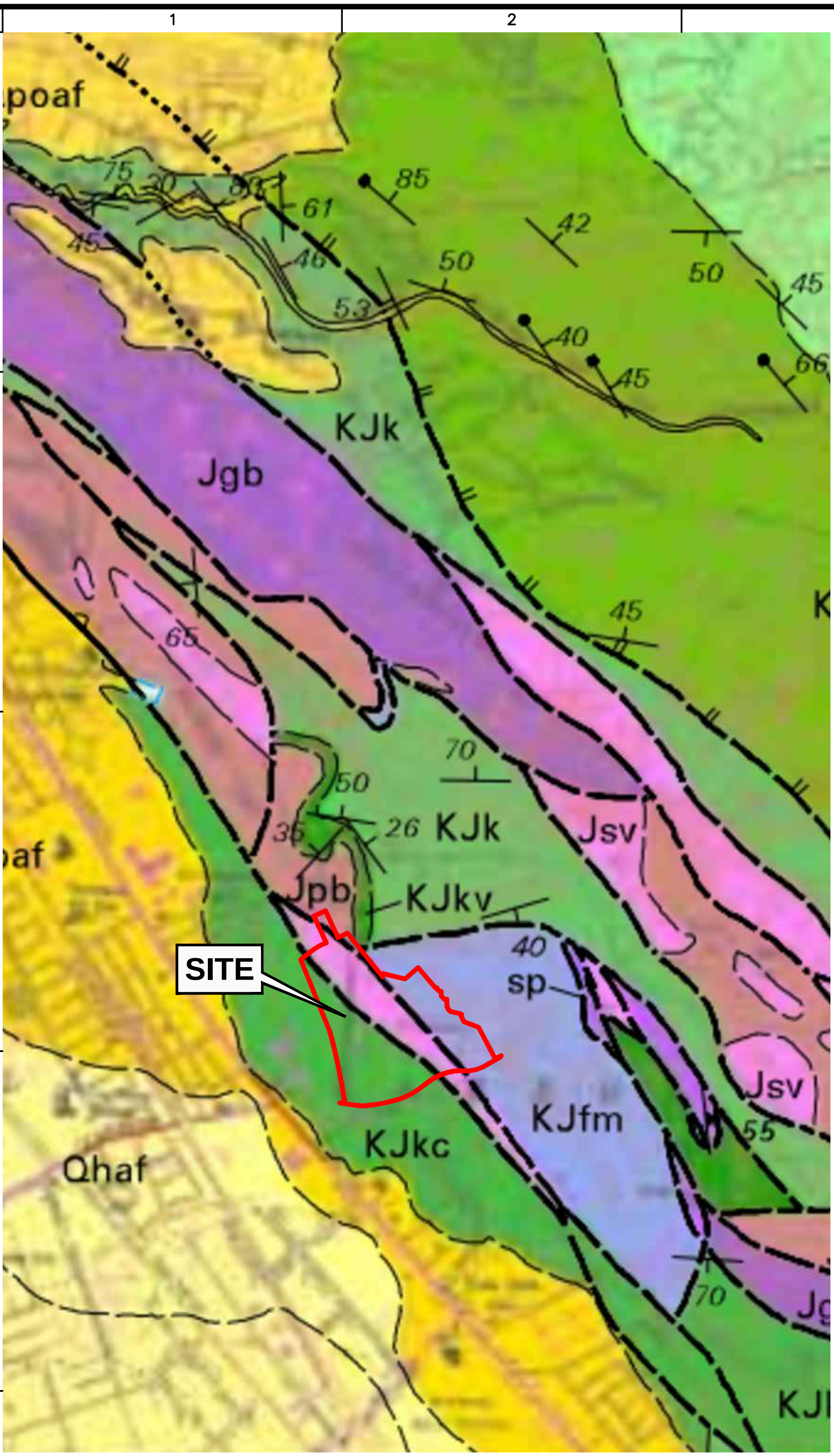

LIST OF MAP UNITS

Surficial Deposits

Qhaf	Alluvial fan and fluvial deposits (Holocene)
Qpaf	Alluvial fan and fluvial deposits (Pleistocene)
Qpoaf	Older alluvial fan deposits (Pleistocene)

Assemblage VII

Great Valley Complex

Ko	Oakland Conglomerate (Late Cretaceous, Turonian and/or Cenomanian)
Kjm	Joaquin Miller Formation (Late Cretaceous, Cenomanian)
KJk	Knoxville Formation (Early Cretaceous and Late Jurassic)
KJkc	Conglomerate
KJkv	Volcanoclastic breccia
Jsv	Keratophyre and quartz keratophyre (Late Jurassic)

Coast Range ophiolite (Jurassic)

Jpb	Pillow basalt, basalt breccia, and minor diabase
Jgb	Gabbro

Franciscan Complex

KJfm	Franciscan complex, mélange (Cretaceous Late Jurassic)

Contact-- Depositional or intrusive contact, dashed where approximately located, dotted where concealed

Fault-- Dashed where approximately located, small dashes where inferred, dotted where concealed, queried where location is uncertain.

Reverse or thrust fault-- Dashed where approximately located, dotted where concealed

Normal fault-- Dashed where approximately located, dotted where concealed

35 Strike and dip of bedding

48 Strike and dip of bedding, top indicator observed

35 Strike and dip of foliation

Approximate Site Boundary

0 2000 Feet

Approximate scale

Notes:

1. "Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California" provided by USGS, created by R.W. Graymer (2000)
2. All features shown are approximate.

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Project

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HAYWARD
ALAMEDA COUNTY CALIFORNIA

Drawing Title

REGIONAL
GEOLOGIC MAP

Project No. 750656701

Date 8/31/2020

Drawn By KNB

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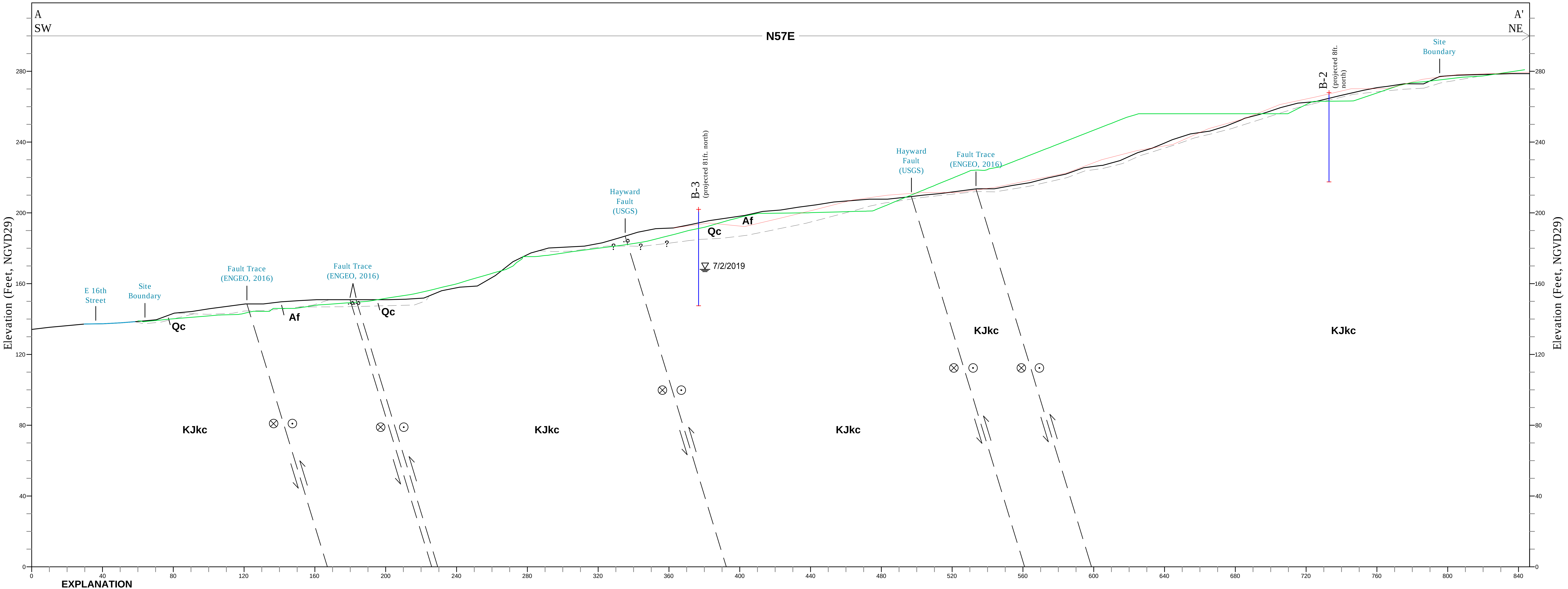
Drawing No. 3



EXPLANATION

\+ Boring Location

Proposed Grading Surface, provided by RJA, June 2020

Existing Ground Surface, based on July 2019 survey provided by RJA

Approximate Ground Surface Pre-Development, based on December 2003 survey provided by RJA

Geologic contact, dashed where inferred, queried where uncertain

? Fault, dashed where inferred, queried where uncertain

⊗⊙ Fault motion, away/toward

Fault motion, up/down

▽ 7/2/2019 Groundwater during drilling, date encountered

Af Artificial/man-made fill

Qc Colluvium

KJkc Knoxville Formation, sheared

1. All boring locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
3. Fault data provided by the USGS Fault and Fold Database and previous explorations (BGC, 2005; ENGEO, 2016).

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Project
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Drawing Title
IDEALIZED GEOLOGIC CROSS SECTION A-A'

Project No. 750656701
Date 8/31/2020
Drawn By KNB
Checked By X

Drawing No.
4

Filename: \\langan.com\data\OAK\data7\750656701\Project Data\CAD\01\2D-DesignFiles\Geotechnical\Final\750656701-B-XS0102.dwg Date: 8/29/2020 Time: 18:01 User: kbroudy Style Table: Langan.stb Layout: A-A' Cross Section

EXPLANATION

- \+ Boring Location
- Proposed Grading Surface, provided by RJA, June 2020
- Existing Ground Surface, based on July 2019 survey provided by RJA
- Approximate Ground Surface Pre-Development, based on December 2003 survey provided by RJA
- Geologic contact, dashed where inferred, queried where uncertain
- ? Fault, dashed where inferred, queried where uncertain
- ⊗⊙ Fault motion, away/toward
- Fault motion, up/down
- ▽ 7/2/2019 Groundwater during drilling, date encountered
- Landslide Direction

Af	Artificial/man-made fill
Qc	Colluvium
Qols	Old Landslide Deposit
KJkc	Knoxville Formation, sheared
KJfm	Franciscan Complex Melange

1. All boring locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
3. Fault data provided by the USGS Fault and Fold Database and previous explorations (BGC, 2005; ENGEO, 2016).

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Drawing Title
IDEALIZED GEOLOGIC CROSS SECTION B-B′

Project No. 750656701
Date 8/31/2020
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Checked By
Drawing No. 5

EXPLANATION

+	Boring Location
🟩	Proposed Grading Surface, provided by RJA, June 2020
—	Existing Ground Surface, based on July 2019 survey provided by RJA
🟥	Approximate Ground Surface Pre-Development, based on December 2003 survey provided by RJA
— — ?– –?-	Geologic contact, dashed where inferred, queried where uncertain
? —— ——	Fault, dashed where inferred, queried where uncertain
⊗│⊙	Fault motion, away/toward
⇅	Fault motion, up/down
◁—	Landslide Direction
Af	Artificial/man-made fill
Qc	Colluvium
Qols	Old Landslide Deposit
KJkc	Knoxville Formation, sheared
KJfm	Franciscan Complex Melange
▽ 7/2/2019	Groundwater during drilling, date encountered

1. All boring locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
3. Fault data provided by the USGS Fault and Fold Database and previous explorations (BGC, 2005; ENGEO, 2016).

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Drawing Title
IDEALIZED
GEOLOGIC CROSS
SECTION C-C'

Project No.
750656701
Date
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KNB
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Drawing No.
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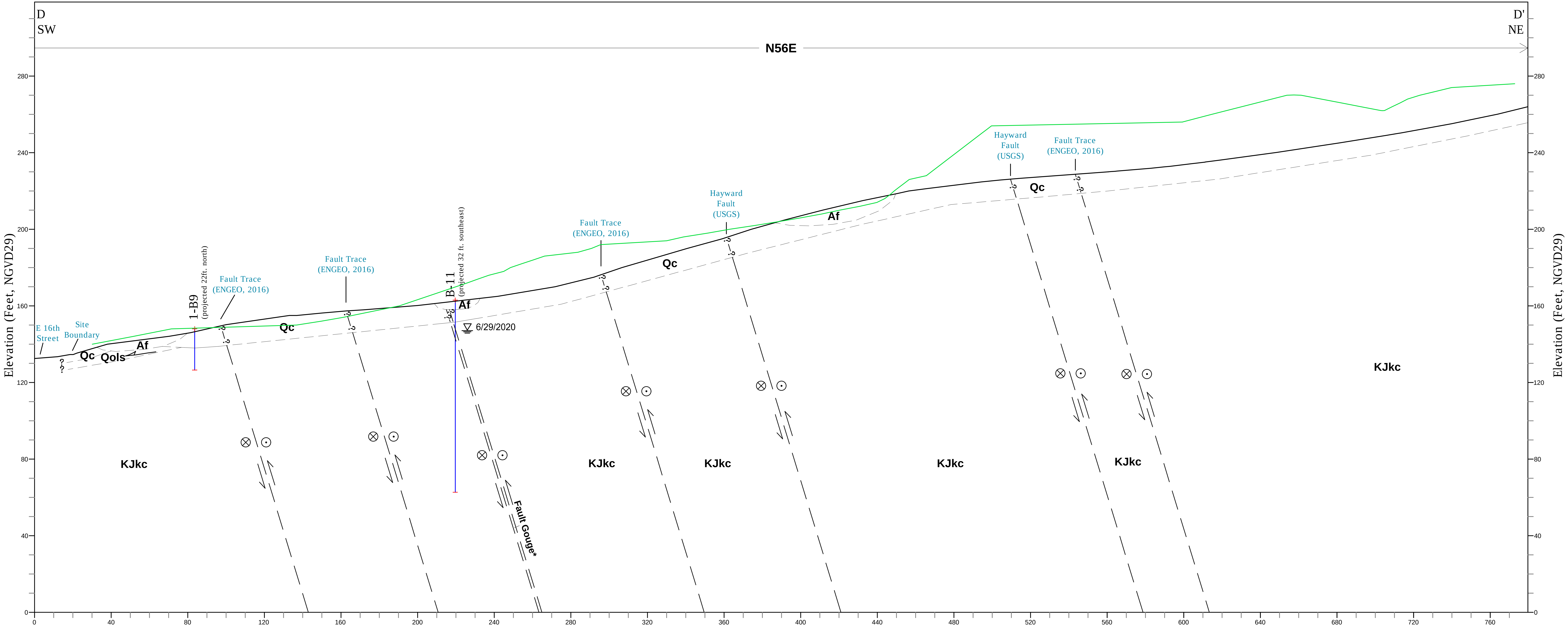

EXPLANATION

+	Boring Location	**Af**	Artificial/man-made fill		Landslide Direction
	Proposed Grading Surface, provided by RJA, June 2020	**Qc**	Colluvium	7/2/2019	Groundwater during drilling, date encountered
	Existing Ground Surface, based on July 2019 survey provided by RJA	**Qols**	Old Landslide Deposit	⊗ ⊙	Fault motion, away/toward
?	Geologic contact, dashed where inferred, queried where uncertain	**KJkc**	Knoxville Formation, sheared		Fault motion, up/down
?	Fault, dashed where inferred, queried where uncertain				

1. All sample locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
3. Fault data provided by the USGS Fault and Fold Database and previous explorations (BGC, 2005; ENGEO, 2016).

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Drawing Title
IDEALIZED GEOLOGIC CROSS SECTION D-D'

Project No. 750656701
Date 9/01/2020
Drawn By AG/KNB
Checked By

Drawing No. 7

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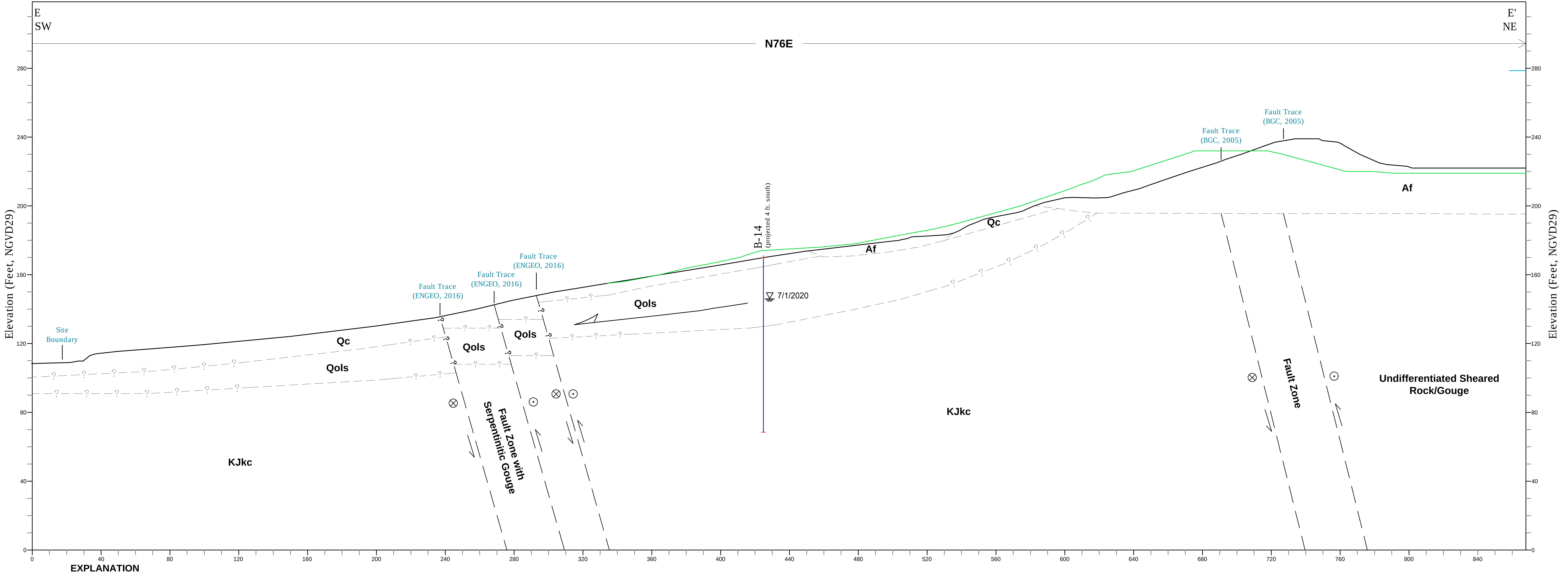

EXPLANATION

+ Boring Location

Proposed Grading Surface, provided by RJA, June 2020

Existing Ground Surface, based on July 2019 survey provided by RJA

Geologic contact, dashed where inferred, queried where uncertain

Fault, dashed where inferred, queried where uncertain

Landslide Direction

7/2/2019 Groundwater during drilling, date encountered

Af	Artificial/man-made fill
Qc	Colluvium
Qols	Old Landslide Deposit
KJkc	Knoxville Formation, sheared

⊗ ⊙ Fault motion, away/toward

Fault motion, up/down

1. All sample locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
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Drawing Title
IDEALIZED GEOLOGIC CROSS SECTION E-E'

Project No. 750656701
Date 8/31/2020
Drawn By AG/KNB
Checked By
Drawing No. 8

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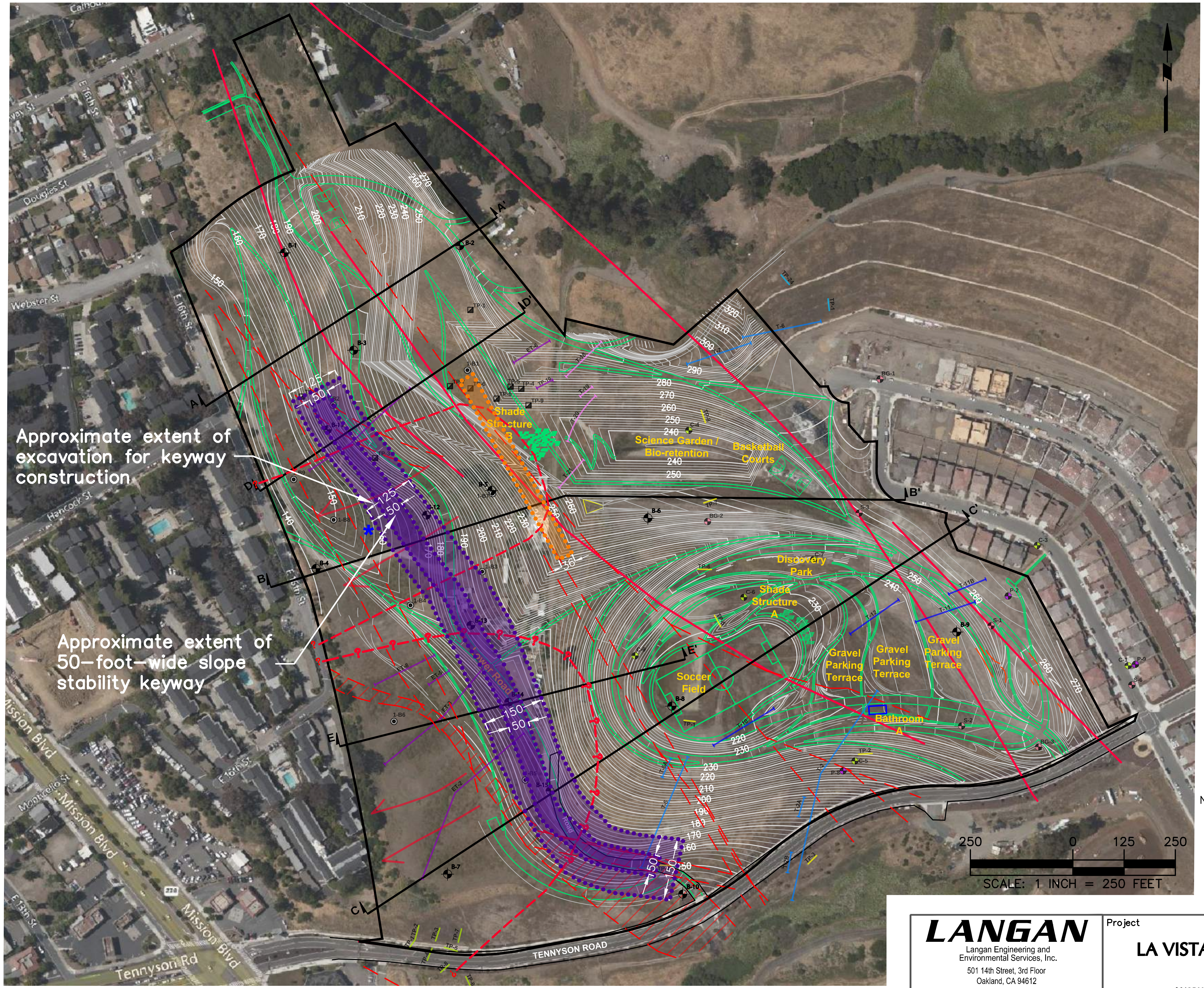

EXPLANATION

A A' Idealized geologic cross section

Site Boundary

Reinforced lime– or cement–treated on–site soil keyway

Proposed engineered fill secondary upper keyway below landslide deposits at Elevation 185 feet

Proposed road, path, or surface feature

Hayward Fault, USGS Fault and Fold Database

Linear Cracks

Qols, Old Landslide Deposit (dashed where inferred, queried where uncertain)

Approximate locations of faults from previous explorations (BGC, 2005; ENGEO, 2016)

Wide fault zone with serpentinitic gouge (ENGEO, 2016)

LB-1 Approximate location of Langan boring, 2019

LB-15 Approximate Location of Langan Boring, 2020

C-3 Test Boring (BGC, 1997)

BG-3 Test Boring (BGC, 2004a)

P-2 Test Boring (BGC, 2004c)

1-B7 Exploratory Boring (ENGEO, 2016)

Trench (BGC, 2000b)

Trench (BGC, 2001a)

Trench (BGC, 2005)

Trench (ENGEO, 2016)

Test Pit (BGC, 1999a)

Test Pit (BGC, 1996)

Test Pit (BGC, 2000a)

TP-9 Exploratory Test Pit/Trench (Engeo, 2016)

Notes:

1. Aerial Imagery acquired on 10/21/2019 via Autodesk Live Map Data and Microsoft Bing Maps Platform API's.
2. All Features shown are approximate.
3. Proposed Grading topography provided by Ruggeri–Jensen–Azar (RJA).
4. Planned development (soccer field, basketball court, shade areas, bathrooms, parks, and parking) from Surfacedesign Inc., of San Francisco.
5. Dimensions of keyway in feet.

* Similar landslide mapped by ENGEO in 2016

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Drawing Title
PROPOSED KEYWAY

Project No. 731596306
Date 8/31/2020
Drawn By KNB
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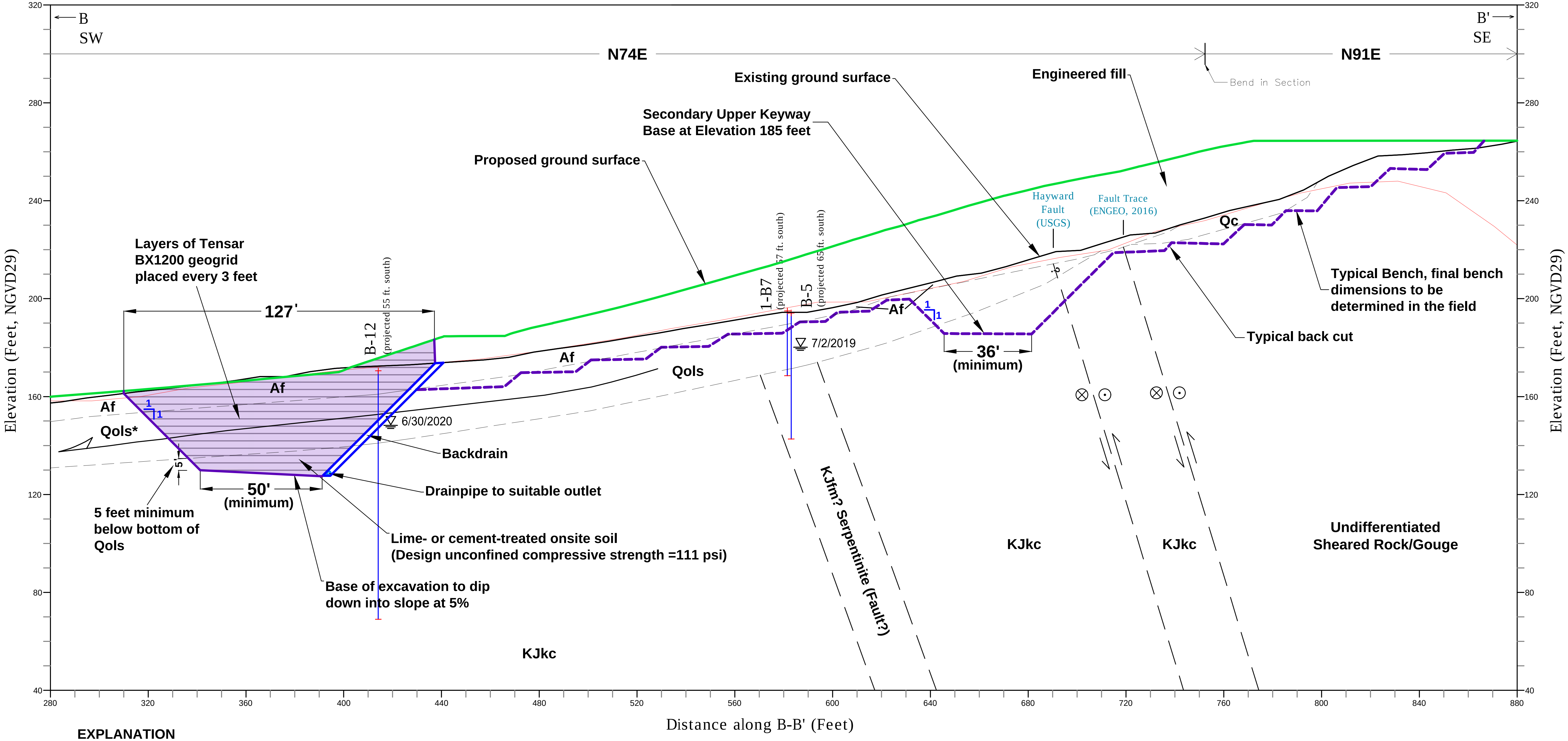
Drawing No.
9



EXPLANATION

+ Boring Location

— Proposed Grading Surface, provided by RJA, June 2020

— Existing Ground Surface, based on July 2019 survey provided by RJA

— Approximate Ground Surface Pre-Development, based on December 2003 survey provided by RJA

▨ Proposed lime-treated fill

— — —?— Geologic contact, dashed where inferred, queried where uncertain

? — — Fault, dashed where inferred, queried where uncertain

⊗⊙ Fault motion, away/toward

▽7/2/2019 Groundwater during drilling, date encountered

Landslide direction

Af	Artificial/man-made fill
Qc	Colluvium
Qols	Old Landslide Deposit
KJkc	Knoxville Formation, sheared

1. All boring locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
3. Fault data provided by the USGS Fault and Fold Database and previous explorations (BGC, 2005; ENGEO, 2016).

This is not a grading plan. Excavation and keyway bench locations to be prepared on grading plan.

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Project
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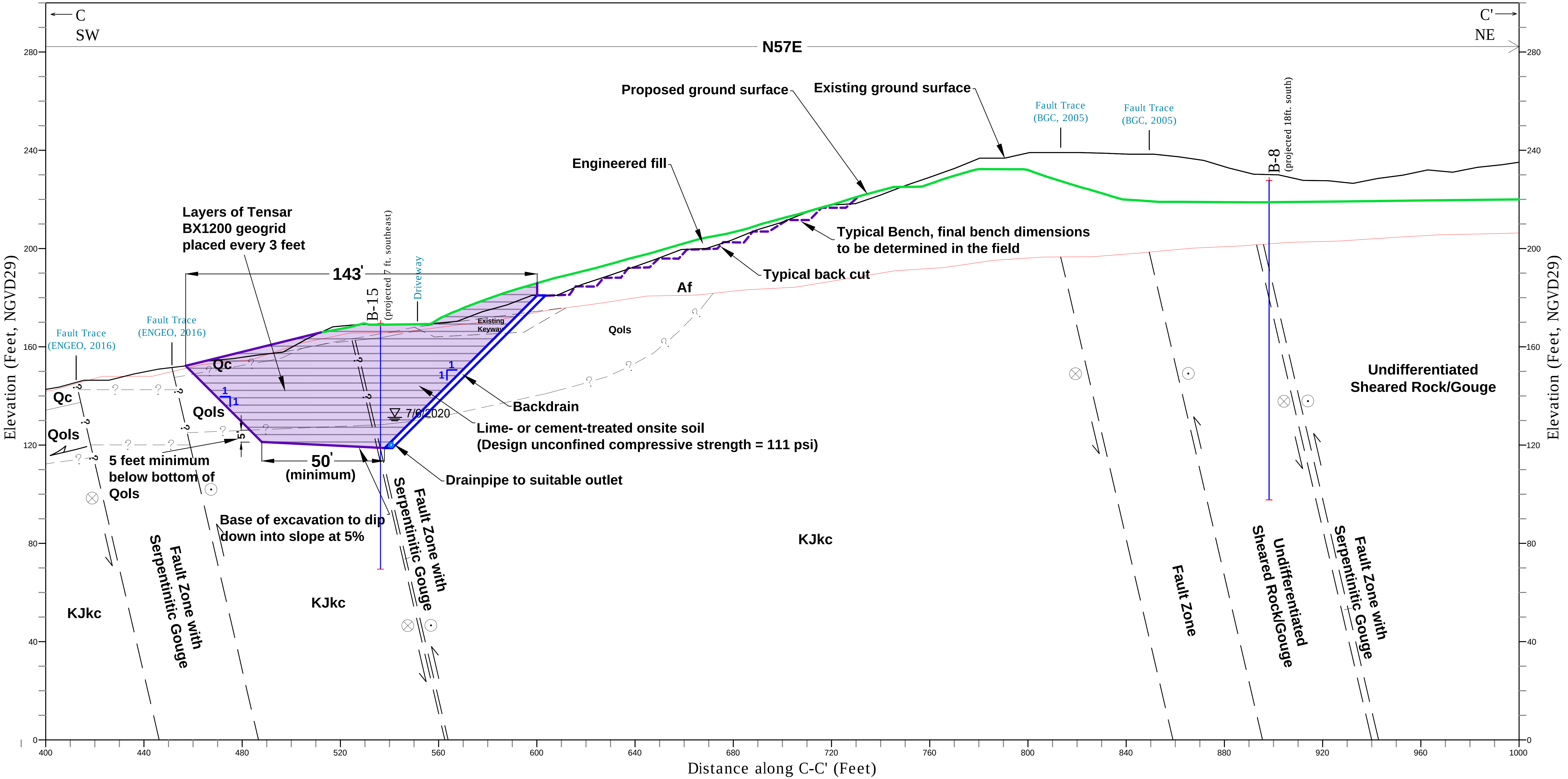
Drawing Title
PROPOSED KEYWAY CROSS SECTION B-B'

Project No. 750656701
Date 9/01/2020
Drawn By KNB
Checked By X

Drawing No. 10

Filename: \\langan.com\data\OAK\data7\750656701\Project Data\CAD\01\2D-DesignFiles\Geotechnical\Final\750656701-B-XS0103.dwg Date: 9/1/2020 Time: 17:40 User: agekas Style Table: Langan.stb Layout: B-B' Cross Section (2)



EXPLANATION

\+ Boring Location

Proposed Grading Surface, provided by RJA, June 2020

Existing Ground Surface, based on July 2019 survey provided by RJA

Approximate Ground Surface Pre-Development, based on December 2003 survey provided by RJA

▨ Proposed lime-treated fill

Geologic contact, dashed where inferred, queried where uncertain

Fault, dashed where inferred, queried where uncertain

⊗⊙ Fault motion, away/toward

Landslide direction

Af	Artificial/man-made fill
Qc	Colluvium
Qols	Old Landslide Deposit
KJkc	Knoxville Formation, sheared

This is not a grading plan. Excavation and keyway bench locations to be prepared on grading plan.

1. All boring locations are approximate.
2. This profile represents a generalized soil cross section interpreted from widely spaced borings. Soil and groundwater may vary in type, location, elevation, and environmental and engineering properties between points of exploration. Variations in subsurface conditions should be expected between borings.
3. Fault data provided by the USGS Fault and Fold Database and previous explorations (BGC, 2005; ENGEO, 2016).

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Project
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HAYWARD
ALAMEDA COUNTY CALIFORNIA

Drawing Title
PROPOSED KEYWAY CROSS SECTION C-C'

Project No.
750656701
Date
8/31/2020
Drawn By
KNB
Checked By

Drawing No.
11

APPENDIX A

BORING LOGS

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-1

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2
Date started: 7/1/19
Date finished: 7/1/19
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic Trip
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Oyan
Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 179 feet[2]	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					CH	SANDY CLAY (CH) dark gray-brown, dry, rootlets [COLLUVIAL TOPSOIL]						
1						SANDSTONE and SHALE light brown, low hardness, friable with moderately strong and moderately hard shale fragments, highly weathered, oxidized, sheared, mottled with tan calcareous fragments, effervesces with HCl clayey zones [KNOXVILLE FORMATION BEDROCK]						
2												
3	S&H		14 23 19	29								
4												
5	S&H		33 50/ 3"	35/ 3"							8.5	
6												
7												
8	SPT		38 20 15	42								
9						moist, coarse- to fine-grained, fine subangular gravel						
10												
11	SPT		17 25 25	60								
12												
13												
14						crushed sandy clay with gravel, moist, dense, crushed and weathered zone to ~24 feet						
15												
16	SPT		7 11 17	34								
17												
18												
19												
20						color change to yellow-brown with red mottling, increased oxidation						
21	SPT		3 7 11	22								
22												
23												
24												
25	S&H		50/ 6"	35/ 6"		reddish-brown, hard, strong, moderately weathered, highly oxidized on fracture surfaces					10.6	113
26												
27												
28												
29												
30						▽ (7/1/19, 8:45 a.m.)						

LANGAN

Project No.: 750656701
Figure: A-1a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-1

PAGE 2 OF 2

	SAMPLES						LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT	◪	15 18 20	46		SANDSTONE and SHALE (continued) light brown, dense, wet, crushed to sandy clay with gravel, hard and strong sandstone and shale, gravels up to 0.5 inch long [KNOXVILLE FORMATION BEDROCK]						
32												
33												
34												
35	S&H	▭	50/ 3"	35/ 3"		SANDSTONE hard, strong, moderately weathered, dry, cemented with $CaCO_3$						
36												
37												
38												
39												
40	SPT	◪	25 50/ 3.5"	60/ 3.5"		SHALE dark reddish-brown, low hardness, weak, , highly weathered crushed zones, highly oxidized						
41												
42												
43												
44												
45	SPT	◪	39 50/ 5"	60/ 5"		crushed to clayey gravel, shale gravels, wet, highly oxidized						
46												
47												
48												
49												
50	SPT	◪	34 50/ 6"	60/ 6"		SANDSTONE and SHALE black, crushed to clay with gravel, low hardness with moderately hard fragments [KNOXVILLE FORMATION BEDROCK (UNOXIDIZED)]						
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

Boring terminated at a depth of 50 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 30 feet at time of drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

LANGAN

Project No.: 750656701

Figure: A-1b

TEST GEOTECH LOG 750656701 LAVISTA PARK_ALL SOIL COMBINED_ALTERED PG NOS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-2

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2
Date started: 7/1/19
Date finished: 7/1/19
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic Trip
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Oyan
Drilled By: Britton Exploration

LABORATORY TEST DATA

Ground Surface Elevation: 266 feet^2

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					CH	SANDY CLAY (CH) brown, moist, fine- to coarse-grained sand, trace silt and organics [COLLUVIAL TOPSOIL]						
1												
2						SANDSTONE gray-brown with yellow and white mottling [KNOXVILLE FORMATION BEDROCK] LL = 65, PI = 40, see Figure B-1						
3	S&H	▨	13 15 17	22							16.8	103
4												
5						brown with red and white mottling, low hardness, weak, moderately to deeply weathered, oxidized, tan calcareous inclusions, crushed to talc with finger pressure, effervesce with HCl						
6	S&H	▨	17 14 15	20								
7												
8	S&H	▨	10 19 27	32								
9												
10	S&H	▨	23 50/ 6"	35/ 6"		red-brown, increase in oxidation						
11												
12												
13												
14												
15						shale interbed, yellow to light reddish-brown, low hardness, weak						
16	SPT	◩	50/ 6"	60/ 6"								
17												
18												
19												
20						yellow to light reddish-brown, frequent white calcareous inclusions, low hardness, weak, deeply weathered, highly oxidized						
21	SPT	◩	8 19 20	47								
22												
23												
24												
25						yellow-brown, medium dense, moist, oxidized crushed rock pieces						
26	SPT	◩	7 10 13	28								
27												
28												
29												
30												

LANGAN

Project No.: 750656701
Figure: A-2a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-2

PAGE 2 OF 2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
31	SPT		10 12 20	38		SANDSTONE (continued) grading coarser, highly oxidized [KNOXVILLE FORMATION BEDROCK]						
32												
33												
34												
35						highly oxidized, weak shale interbeds, dark red-brown oxidation staining on fracture surfaces, $CaCO_3$ veins tan with yellow-brown mottling, frequent calcareous inclusions, trace charcoal						
36	SPT		13 16 26	50								
37												
38												
39												
40						crushed, chaotic structure						
41	SPT		12 20 25	54								
42												
43												
44												
45	SPT		50/ 6"	60/ 6"		crushed to sandy clay with gravel, completely weathered, highly oxidized						
46												
47												
48												
49												
50	SPT		50/ 6"	60/ 6"		olive-gray						
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

Boring terminated at a depth of 50.5 feet below ground surface.
Boring backfilled with tremie pipe cement grout.
Groundwater not encountered at time of drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-2b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-3

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2
Date started: 7/2/19
Date finished: 7/2/19
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic Trip
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Oyan
Drilled By: Britton Exploration

LABORATORY TEST DATA

Ground Surface Elevation: 197 feet[2]

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					CL	CLAY with SAND (CL) brown to light brown, very stiff, moist, fine- to coarse-grained sand [FILL] Resistance Value Test, see Figure B-5						
1												
2	BULK	☒										
3	S&H	■	11 13 18	22		Corrosion Test, see Appendix C						
4												
5												
6	S&H	■	8 12 18	21		LL = 47, PI = 25, see Figure B-1					19.3	106
7					CL	CLAY (CL) brown, very stiff, moist, trace fine-grained sand, trace charcoal, root pores, frequent coarse-grained white angular sand [COLLUVIUM]						
8	S&H	■	8 13 18	22								
9												
10												
11	SPT	◩	5 8 11	23								
12												
13												
14												
15					CL/ CH	CLAY (CL/CH) brown, very stiff, moist, with subangular fine gravel [RESIDUAL SOIL] LL = 50, PI = 28, see Figure B-1						
16	S&H	■	6 10 17	19							23.0	106
17												
18					GC	CLAYEY GRAVEL with SAND (GC) light brown and black, medium dense, moist, fine-grained, subangular shale and sandstone fragments are moderately weathered, fine- to coarse-grained sand [KNOXVILLE FORMATION BEDROCK]						
19												
20												
21	S&H	■	10 11 17	20								
22												
23												
24												
25						light brown to yellow-brown, medium dense to dense						
26	SPT	◩	6 10 15	30								
27												
28												
29												
30					GP- GC	GRAVEL with CLAY and SAND (GP-GC)						

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Project No.: 750656701
Figure: A-3a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-3

PAGE 2 OF 2

	SAMPLES						LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT	◩	18 32 33	78	GP-GC	GRAVEL with CLAY and SAND (GP-GC) (continued) light brown and black, very dense, moist, fine-grained, subangular, fine- to coarse-grained sand [KNOXVILLE FORMATION BEDROCK]						
34						▽ (7/2/19, 8:40 a.m.)						
35	SPT	◩	18 50/ 5"	60/ 5"		wet, crushed shale						
40	SPT	◩	17 50/ 5"	60/ 5"								
45	SPT	◩	16 14 15	35		dense, highly weathered rock, oxidized						
50	SPT	◩	11 11 12	28		medium dense, crushed to clay with shale gravels						
60												

Boring terminated at a depth of 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 34 feet at time of drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-3b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-4

PAGE 1 OF 3

Boring location: See Site Plan, Figure 2
Date started: 7/8/19
Date finished: 7/8/19
Drilling method: Hollow Stem Auger/Mud Rotary, Rock Core
Hammer weight/drop: 140 Lbs./30 inches
Hammer type: Automatic Trip
Samplers: HQ-3 Wireline, Sprague & Henwood (S&H), Standard Penetration Test (SPT)
Logged by: J. Osborne
Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 137.5 feet[2]	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						GRAVELLY CLAY (CL) dark brown (10YR, 3/3), very stiff, moist, fine to coarse subangular gravel [FILL]						
1												
2					CL							
3	S&H	■	8 10 13	16								
4						CLAYEY SAND (SC) light brown (7.5YR, 6/4), medium dense, moist, fine sand [FILL]						
5												
6	SPT	◩	4 7 10	20								
7												
8	S&H	■	9 13 18	22	SC	LL = 35, PI = 18, see Figure B-1					15.0	99
9												
10												
11	SPT	◩	6 7 10	20		Switched to Rock Core at 11.5 feet						
12						Boring Continued as Rock Log						
13												
14												
15												
16												
17												
18												
19												
20												

Boring switched to Rock Core at a depth of 11.5 feet below ground surface.
Groundwater obscured by drilling method.

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Project No.: 750656701
Figure: A-4a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-4

PAGE 2 of 3

Boring location: See Site Plan, Figure 2
Date started: 7/8/19
Date finished: 7/8/19
Drilling method: Rock Core
Hammer weight/drop: NA
Hammer type: NA
Samplers: HQ-3 Wireline
Logged by: J. Osborne
Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES: Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11	1			0	N/A	0.7						
12								SHEARED SANDSTONE medium bluish-gray (5B 5/1), soft, moist, fine to coarse subangular gravel, high plasticity [OLD LANDSLIDE DEPOSIT] color changes to light brown, highly mottled (7.5YR 6/4), crushed to intensely fractured, low hardness, weak, deeply weathered, oxidized, chaotic structure, fine shale fragments, sheared serpentinite from 12 to 12.8 feet				
13												
14	2			56	N/A	2.2						
15												
16												
17								completely weathered soil, decomposed quartzite vein, oxidized, scattered competent sandstone fragments				
18	3			30	0	3.2						
19												
20												

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Project No.: 750656701
Figure: A-4b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-4

PAGE 3 of 3

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value¹	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								SHEARED SANDSTONE [OLD LANDSLIDE DEPOSIT]				
21	3			30	0	3.2		SANDSTONE closely to intensely fractured, weak, moderately weathered, vertical subparallel calcite veins, oxidized, fracture surfaces [FAULT ZONE/UNDIFFERENTIATED BEDROCK]				
22								SERPENTINITE GOUGE very pale green (10G 8/2), moist, crushed to sandy clay, talc residue, highly plastic [FAULT ZONE/UNDIFFERENTIATED BEDROCK]				
23												
24	4			20	0	3.8						
25												
26												
27												
28												
29	5			26	0	1.8						
30												
31												
32								SERPENTINITE dark gray (GLEY1 N3), intensely fractured to crushed, low hardness, weak, moderately weathered, plastic, talc residue, highly sheared [FAULT ZONE/UNDIFFERENTIATED BEDROCK]				
33	6			83	77	3.7						
34												
35												
36												
37												
38												
39												
40												

Boring terminated at a depth of 35 feet below ground surface.
Boring backfilled with cement grout using a tremie pipe.
Groundwater obscured by drilling method.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-4c

GEOTECH ROCK GRAPHIC 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-5

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2

Date started: 7/2/19

Date finished: 7/2/19

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches

Hammer type: Automatic Trip

Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Oyan

Drilled By: Britton Exploration

Ground Surface Elevation: 194.5 feet^{2}

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						CLAY (CH) dark brown, medium stiff, moist [OLD LANDSLIDE DEPOSIT]						
2												
3	S&H	▨	2 3 4	5			PP		1,000			
4												
5												
6	S&H	▨	2 3 3	4		soft to medium stiff LL = 69, PI = 44, see Figure B-1					38.0	82
7												
8	S&H	▨	3 3 5	6		light brown to yellow-brown, medium stiff, trace black fine- to coarse-grained sand						
9					CH							
10												
11	S&H	▨	4 6 8	10		red-brown mottling, stiff						
12												
13												
14						▽ (7/2/19, 10:42 a.m.)						
15												
16	S&H	▨	3 6 8	10		stiff, wet Torsional Ring Shear Test, see Figure B-3	PP		2,250			
17												
18												
19						CLAY with GRAVEL (CH) tan, stiff, wet, fine- to coarse-grained sand and gravel, abraded gravels, differing rock types (quartzite, sandstone, chert, serpentinite), [OLD LANDSLIDE DEPOSIT]						
20												
21	S&H	▨	5 7 10	12	CH							
22												
23												
24						SERPENTINITE green-gray, crushed, low hardness, deeply weathered, weak, moist, oxidized zones [FAULT ZONE/UNDIFFERENTIATED BEDROCK]						
25												
26	SPT	▨	8 8 10	22								
27												
28												
29												
30												

LANGAN

Project No.: 750656701

Figure: A-5a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-5

PAGE 2 OF 2

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT	◩	9 7 11	22		SERPENTINITE [FAULT ZONE/UNDIFFERENTIATED BEDROCK] (continued)						
32												
33												
34												
35												
36	SPT	◩	13 11 15	31								
37												
38												
39												
40						intensely fractured to crushed						
41	SPT	◩	8 12 22	41								
42												
43												
44												
45												
46	SPT	◩	15 22 20	50								
47												
48												
49												
50												
51	SPT	◩	7 8 19	32		intensely fractured to crushed, low hardness to moderately hard, friable to weak, deeply to moderately weathered						
52												
53												
54												
55												
56												
57												
58												
59												
60												

Boring terminated at a depth of 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 14 feet at time of drilling.
PP = Pocket Penetrometer

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-5b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-6

PAGE 1 OF 3

Boring location: See Site Plan, Figure 2
Date started: 7/3/19
Date finished: 7/3/19
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic Trip
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Oyan
Drilled By: Britton Exploration

	SAMPLES					MATERIAL DESCRIPTION	LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	Ground Surface Elevation: 272 feet[2]	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						SANDY CLAY (CH) light brown to gray, stiff, moist, fine- to coarse-grained sand [FILL]						
2	BULK	☒				LL = 51, PI = 31, see Figure B-1 Resistance Value Test, see Figure B-6						
3												
4												
5												
6	S&H	■	5 7 9	11		Corrosion Test, see Appendix C						
7												
8												
9												
10					CH							
11	S&H	■	11 26 19	32		olive-brown to light brown, hard, trace coarse subrounded gravel						
12												
13												
14												
15												
16	S&H	■	10 13 18	22		very stiff, with fine-gained subangular gravel						
17												
18												
19												
20												
21	SPT	◩	10 13 11	29		CLAYEY SAND with GRAVEL (SC) olive-brown, medium dense, moist, fine- to coarse-grained, fine subangular gravel [FILL]						
22					SC							
23												
24												
25						CLAYEY SAND (SC) gray-brown, medium dense, moist, fine- to coarse-grained [FILL]						
26	SPT	◩	3 4 7	13								
27					SC							
28												
29												
30												

TEST GEOTECH LOG 750656701 LAVISTA PARK_ALL SOIL COMBINED_ALTERED PG NOS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

LANGAN

Project No.: 750656701
Figure: A-6a

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT	◩	7 10 13	28		CLAYEY SAND (SC) (continued) olive-brown to dark brown, fine- to coarse-grained [FILL]						
32												
33												
34												
35												
36	S&H	■	15 22 50/ 5"	50/ 11"		dark gray to olive-brown, very dense, highly weathered gravel fragments						
37					SC							
38												
39												
40						gray to gray-brown						
41	SPT	◩	9 13 40	64								
42												
43												
44												
45						GRAVEL with CLAY and SAND (GP-GC) brown, dense, moist, fine subangular gravel [FILL]						
46	SPT	◩	10 17 21	46								
47					GP-GC							
48												
49												
50						CLAY with GRAVEL (CL) olive, hard, moist, sandstone cobbles at 49 feet [FILL]						
51	SPT	◩	22 30 29	71								
52												
53												
54												
55					CL							
56	SPT	◩	19 24 31	66								
57												
58												
59												
60												

LANGAN

Project No.: 750656701

Figure: A-6b

TEST GEOTECH LOG 750656701 LAVISTA PARK_ALL SOIL COMBINED_ALTERED PG NOS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-6

PAGE 3 OF 3

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						CLAY with GRAVEL (CL) [FILL] (continued)						
61												
62												
63												
64												
65												
66					CL							
67												
68												
69												
70												
71	SPT	◩	14 18 19	44		dark gray-brown with orange and brown						
72												
73												
74												
75												
76												
77												
78												
79												
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												

Boring terminated at a depth of 71.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-6c

TEST GEOTECH LOG 750656701 LAVISTA PARK_ALL SOIL COMBINED_ALTERED PG NOS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-7

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2
Date started: 7/2/19
Date finished: 7/2/19
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic Trip
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Oyan
Drilled By: Britton Exploration

LABORATORY TEST DATA

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 115 feet[2]	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1		☒				CLAY (CH) dark brown to black, stiff, moist [FILL]						
2	BULK	☒										
3	S&H	▨	4 9 10	13		LL = 72, PI = 46, see Figure B-1						
4												
5		▨				very stiff, trace coarse-grained sand						
6	S&H	▨	8 16 20	25								
7					CH							
8	S&H	▨	12 18 25	30		very stiff to hard						
9												
10		▨										
11	S&H	▨	10 17 25	29		dark gray-brown, very stiff, trace fine- to coarse-grained sand, scattered fine gravel						
12												
13												
14												
15		▨				CLAY (CH) light brown with white and black mottling, moist, hard, uniform, scattered coarse gravel, faint vertical fabric, frequent coarse black sand grains [COLLUVIUM]						
16	S&H	▨	11 20 24	31	CH							
17												
18												
19						SANDY CLAY with GRAVEL (CH) brown to light brown, very stiff, fine- to coarse-grained sand, fine subangular gravel, white sandstone inclusions, abundant medium-grained angular black gravels, scattered subrounded to subangular coarse gravel, chaotic structure [OLD LANDSLIDE DEBRIS]						
20		▨										
21	S&H	▨	8 15 20	25	CH							
22												
23												
24												
25		◩				SANDSTONE BRECCIA intensely fractured to crushed, low hardness to moderately hard, friable to weak, deeply weathered, highly deformed, abundant white calcareous inclusions [KNOXVILLE FORMATION BEDROCK]						
26	SPT	◩	11 50/ 5"	60/ 5"								
27												
28												
29												
30												

TEST GEOTECH LOG 750656701 LAVISTA PARK_ALL SOIL COMBINED_ALTERED PG NOS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

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Project No.: 750656701
Figure: A-7a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-7

PAGE 2 OF 2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT		8 10 11	25		SANDSTONE BRECCIA (continued) [KNOXVILLE FORMATION BEDROCK] sandstone crushed to clay with gravel, fine shale fragments, chaotic structure, talc seams						
32												
33												
34						▽ (7/3/19, 7:30 a.m.)						
35												
36	SPT		12 17 29	55		slightly oxidized, crushed, low hardness, friable, deeply weathered						
37												
38												
39												
40												
41	SPT		15 15 19	41		crushed to sandy clay with gravel, wet, abraded coarse shale fragments, highly sheared, oxidized						
42												
43												
44												
45	SPT		50/ 6"	60/ 6"								
46												
47												
48												
49												
50	SPT		50/ 5"	60/ 5"		shale, black, moderately hard, moderately strong, unoxidized						
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

Boring terminated at a depth of 50.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 34 feet at time of drilling.

---

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-7b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-8

PAGE 1 OF 7

Boring location: See Site Plan, Figure 2

Date started: 7/10/19 Date finished: 7/12/19

Drilling method: Continuous Dry Core Sample System

Hammer weight/drop: 140 Lbs./30 inches Hammer type: Automatic Trip

Samplers: 3 inch split spoon, Standard Penetration Test (SPT)

Logged by: J. Osborne
Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 235 feet[2]	TEST DATA Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
								SANDY CLAY with GRAVEL (CL) red-gray (5YR 5/2), dry to moist, fine sand, fine subangular gravel [FILL]				
1												
2								yellow-brown (10YR 5/6)				
	1			38	N/A	0.6						
3												
4								CLAYEY SAND (SC) [FILL]				
5								LL= 48, PI = 27, see Figure B-2				
				100	N/A	N/A						
6								red-brown (5YR 4/4), medium dense, moist SPT N-Value = 11				
7								gray-brown (10YR 5/2), fine to coarse sand				
8												
	2			39	N/A	0.6						
9								SAND with GRAVEL (SW) gray (N5), medium dense, moist, fine to coarse sand, fine to coarse angular to subangular gravel [FILL] SPT N-Value = 22				
10												
				100	N/A	N/A						
11												
12												
13												
	3			42	N/A	2.9						
14												
								CLAYEY SAND with GRAVEL (SC) gray (N5), medium dense, moist, fine to coarse sand and gravel, subangular to angular [FILL] SPT N-Value = 18				
15												
				33	N/A	N/A						
16												
17												
18												
	4			51	N/A	2.6						
19												
20												

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Project No.: 750656701

Figure: A-8a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-8

DEPTH (feet)	SAMPLES: Run Number	Sample Type	SPT N-Value^1	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
21				100	N/A	N/A		SANDY CLAY (CL) gray (N5), very stiff, moist, fine to coarse sand, some fine gravel, trace subangular to angular gravel [FILL] SPT N-Value = 19 olive-gray (5Y 5/2)				
22												
23	5			91	N/A	1.9		red (2.5YR 4/6) very dark gray to black				
24												
25								SILTY SANDSTONE yellowish-gray (5Y 8/1), slightly fractured, extremely weak, low hardness, few fine gravel clasts, highly deformed to coarse shale and greenstone, calcareous (effervesces with HCl) [UNDIFFERENTIATED SHEARED ROCK/GOUGE] SPT N-Value = 42				
26				93	N/A							
27												
28	6			97	N/A	1.1						
29												
30												
31				87	N/A	N/A		rootlets on fracture surfaces SPT N-Value = 47				
32									F80^1			
33	7			100	0	2.0			F60^1			
34												
35												
36								SERPENTINIZED FAULT GOUGE dark bluish-gray, with brilliant green (5G 6/6) (shale), pale greenish-yellow (10YR 8/2) (siltstone), very intensely fractured to crushed to soil-like consistency, extremely weak to strong, slightly weathered, highly sheared roots to 40 feet [UNDIFFERENTIATED SHEARED ROCK/GOUGE] 38 feet: Becomes highly weathered, clay matrix color change to dark yellowish-brown (10YR 4/2), decomposed, deeply weathered				
37												
38	8			44	0	1.2						
39												
40												

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Project No.: 750656701
Figure: A-8b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-8

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								SERPENTINIZED FAULT GOUGE (Continued) [UNDIFFERENTIATED SHEARED ROCK/GOUGE]	F2[2]			
41												
42								few abraded serpentinized clasts up to 1 inch diameter highly altered	F30[3]			
	9			100	0	2.2						
43												
44												
45								Matrix-rich				
46								color change to blue and greenish-gray, highly mottled, less weathered, frequent talc zones				
47								fault plane dipping 85°, serpentinite faulted against crushed sandstone				
	10			96	0	1.4						
48								SANDSTONE dark gray, crushed to moderately fractured, low hardness to hard, weak to strong, moderately to deeply weathered matrix [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
49												
50												
51								CLAYSTONE moderate olive-brown (5Y, 4/4), low hardness, weak, subvertical shears, highly polished surfaces, likely fault planes, calcite (effervescent) veins [UNDIFFERENTIATED SHEARED ROCK/GOUGE] 51.9 feet: crushed to clay gouge, dry, faulted and sheared throughout				
52												
	11			88	0	3.4						
53												
54												
55												
56								56.2 to 56.7 feet: Shear plane of slickenslided clay oriented at approximately 35°				
57								BRECCIATED SANDSTONE grayish-brown (5Y 3/2) (silt) to dusky blue-green (5BG 3/2) (siltstone), very intensely fractured, silt extremely weak, sandstone is strong, sandstone is slightly to moderately weathered [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
	12			100	0	3.0						
58												
59								SHEAR ZONE grayish-brown (5Y, 3/2) (silt) to dusky blue-green (5BG, 3/2)				
60												

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Project No.: 750656701

Figure: A-8c

DEPTH (feet)	SAMPLES Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
60								[UNDIFFERENTIATED SHEARED ROCK/GOUGE] FAULT BRECCIA and GOUGE light green (5G, 7/4), very intensely fractured, extremely weak, highly weathered to talc [UNDIFFERENTIATED SHEARED ROCK/GOUGE] grayish-green (10GY, 5/2) to gray-brown (10YR 3/2), crushed to sandy clay with gravel, weak, moderately weathered, fine gravel-sized clasts, angular clasts	C5			
61									C50			
62	13			100	0	2.2						
63												
64												
65								subparallel fracture set	F20 F5			
66												
67	14			90	0	3.0						
68									F30 F45			
69									F45			
70												
71												
72	15			82	0	3.6						
73												
74								no change				
75												
76												
77	16			100	0	1.2		becomes slightly oxidized				
78												
79								stepped fractures, rough, no infilling				
80												

GEOTECH ROCK GRAPHIC 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-8

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								FAULT BRECCIA and GOUGE (continued) crushed to sandy clay with gravel, grayish-brown, oxidized, clastic [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
81												
82												
	17			92	0	0.8						
83												
84												
85												
86								quartz clasts common				
87												
	18			100	0	1.6						
88												
89												
90												
91												
92												
	19			82	0	1.6						
93												
94								clay matrix drops out color change to light olive-gray (5Y, 6/1) color change to very light gray (GLEY, 1 N8), unfractured, weak, completely weathered, well consolidated, dark gray to black, clastic, angular to subangular, abraded clasts				
95												
96												
97												
	20			82	0	1.0						
98												
99												
100												

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Project No.: 750656701

Figure: A-8e

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-8

DEPTH (feet)	SAMPLES: Run Number	Sample Type	SPT N-Value[1]	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
								FAULT BRECCIA and GOUGE (continued) [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
101												
102	21			56	0	6.8		moderate yellowish-brown (10YR, 5/4) (matrix) to dark greenish-gray (5GY, 11/1) (sandstone), crushed, very weak to extremely weak, clastic, decomposed with occasional quartz clasts				
103								103 to 103.3 feet: Clasts of serpentinite grayish-green (10GY, 5/2), friable, extremely weak, highly weathered gradational contact				
104								color change to greenish-black, clasts of serpentinite	F5			
105								color change to dark gray (GLEY1, N3), weak, clasts of serpentinite				
106												
107	22			100	0	6.6		4. Planar, slicks	F80[4]			
108												
109												
110								GRAYWACKE SANDSTONE medium gray (GLEY1 N4), moderately fractured with zones of very intensely fractured, medium strong to extremely weak, moderately to deeply weathered, occasional quartz veins [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
111												
112	23			62	0	4.2		undulating fractures, slightly rough, no infilling 112.8 feet: 1/4 inch thick quartz vein dipping at 35°	F5[5]			
113												
114								114.4 to 115 feet: intensely fractured to crushed to clay through going subvertical shear plane, moist, oxidized				
115												
116								116.9 to 117.3 feet: very intensely fractured	F30[6]			
117	24			72	0	9.2		5. Irregular, rough, no infilling 117.3 to 120 feet: larger sandstone blocks, less brecciated 117.6 feet: pocket of quartz clasts	F20[6] F90, J45, J45, J45[7]			
118								118 to 118.5 feet: set of parallel joints 6. Planar, smooth, surface staining 7. Stepped, slightly rough, no infilling	F50[8] F30[8]			
119									F60[8]			
120												

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Project No.: 750656701
Figure: A-8f

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-8

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								GRAYWACKE SANDSTONE (Continued) [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
121												
122												
	25			38	0	4.0						
123												
124												
125								125 to 128 feet: matrix has washed out of core				
126												
127												
	26			40	0	2.0						
128								very intensely fractured, clay matrix present				
129												
130												
131												
132												
133												
134												
135												
136												
137												
138												
139												
140												

Boring terminated at a depth of 130 feet below ground surface.
Boring backfilled with cement grout using a tremie pipe.
Groundwater obscured by drilling method.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-8g

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-9

PAGE 1 OF 4

Boring location: See Site Plan, Figure 2
Date started: 7/8/19
Date finished: 7/10/19
Drilling method: Hollow Stem/Mud Rotary, Rock Core
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic Trip
Samplers: Standard Penetration Test (SPT), HQ-3 Wireline

Logged by: J. Osborne
Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]		Ground Surface Elevation: 228 feet[2]	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						CLAY with GRAVEL (CH) yellow-brown (10YR, 5/6), very stiff, dry to moist, fine sand, fine subrounded gravel [FILL]						
2												
3	SPT	◩	4 7 8	18	CH							
4						LL = 73, PI = 48, see Figure B-2						
5						gray (N5), hard, fine to coarse subangular gravel						
6	SPT	◩	15 13 13	31								
7												
8	SPT	◩	4 8 10	22		SANDY CLAY with GRAVEL (CL) dark gray, very stiff, moist, angular to subangular gravel, trace fragments of weathered serpentinite [FILL]						
9						LL = 35, PI = 19, see Figure B-2						
10						yellow-brown (10YR, 5/6) to gray (N5), hard						
11	SPT	◩	9 13 18	37	CL							
12												
13												
14												
15						FAULT BRECCIA and GOUGE gray (N5), very stiff, fine to coarse sand and gravel, angular to subangular gravel [KNOXVILLE FORMATION BEDROCK]						
16	SPT	◩	10 11 13	29								
17												
18												
19												
20						black shale fragments with red-orange mottling, angular, crushed						
21	SPT	◩	11 11 16	32								
22												
23												
24												
25						inclusion of weathered serpentinite clasts						
26	SPT	◩	9 11 17	34								
27												
28												
29												
30												

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Project No.: 750656701
Figure: A-9a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-9

PAGE 2 OF 4

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT	◪	13 13 11	29		FAULT BRECCIA and GOUGE (Continued) [KNOXVILLE FORMATION BEDROCK] [SANDY CLAY with GRAVEL (CL)] gray (GLEY, N5), medium dense, wet, fine to coarse sand, fine angular gravel loss of drilling fluid						
32												
33												
34												
35												
36	SPT	◪	9 8 25	40		brown (7.5YR, 4/6), dense, wet, fine to coarse sand, fine angular gravel, quartz inclusions in some gravel clasts						
37												
38												
39												
40						light brown (7.5YR, 6/6), very stiff, moist, fine to coarse sand, fine to coarse gravel						
41	SPT	◪	10 13 17	36								
42						cobble-size clasts of sandstone						
43												
44												
45						color change to dark greenish-gray (5GY, 4/1), crushed, strong, well consolidated, moist, slightly weathered, poorly sorted range of clast sizes						
46	SPT	◪	25 36 50	103								
47												
48												
49												
50						breaks down to sandy clay with gravel to bottom of boring						
51	SPT	◪	12 20 27	56								
52												
53												
54												
55						calcite veins						
56	SPT	◪										
57												
58												
59						Switched to HQ-3 Coring System at 61 feet, see next page						
60												

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-9

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
	2			53	N/A	N/A		FAULT BRECCIA and GOUGE (Continued) [KNOXVILLE FORMATION BEDROCK] clastic clay SPT N-Value = 60/6" 1 inch thick calcite layer 61 feet - switched to HQ-3 coring system				
61												
62												
	3			16	0	4.0						
63												
64												
65												
66												
	4			0	0	1.2						
67												
68												
69												
70												
71												
	5			0	0	2.0						
72												
73												
74								SPT 15 N-Value = 60/2"				
	6			100	N/A	1.4		crushed sandstone, highly oxidized, extremely weak				
75	7			100	N/A	2.0		SPT N-Value = 60/5" SPT N-Value = 78 clayey				
76	8			93	N/A	1.33		SPT N-Value = 102/9"				
77												
	9			62	N/A	1.5		SPT N-Value = 60/5"				
78	10			0	N/A							
79	10			0	0	3.6						
80												

GEOTECH ROCK GRAPHIC 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

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Project No.: 750656701

Figure: A-9c

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-9

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DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
							△	BRECCIA FAULT and GOUGE (Continued) [KNOXVILLE FORMATION BEDROCK]				
81	10	●		0	0	3.6	△					
82							△					
83							△					
84							△					
	11	●		0	0	4.4	△					
85							△					
86							△					
87												
88												
89												
90												
91												
92												
93												
94												
95												
96												
97												
98												
99												
100												

Boring terminated at a depth of 87 feet below ground surface.
Boring backfilled with cement grout using a tremie pipe.
Groundwater obscured by drilling method.

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[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively, to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-9d

GEOTECH ROCK GRAPHIC 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-10

PAGE 1 of 2

Boring location: See Site Plan, Figure 2

Logged by: J. Osborne
Drilled By: Britton Exploration

Date started: 7/12/19

Date finished: 7/12/19

Drilling method: Continuous Dry Core Sample System

Hammer weight/drop: 140 Lbs./30 inches

Hammer type: Automatic Trip

Samplers: 3 inch split spoon, Standard Penetration Test (SPT)

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 143 feet[2]	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
		▯						CLAY (CH) black, moist [COLLUVIAL TOPSOIL]				
1							△	SERPENTINITE mottled gray-green with yellow and white, intensely fractured, low hardness to hard, weak with strong inclusions, deeply weathered, rootlets [KNOXVILLE FORMATION BEDROCK]				
2							△		F0[2]			
	1	▯		50	0	0.4	△	FAULT BRECCIA grayish-green (10G 4/2), intensely fractured, very weak, dry, angular clasts, clasts from fine to coarse gravel, very weak brecciated shale and sandstone [KNOXVILLE FORMATION BEDROCK]				
3							△					
4							△	SPT N-Value = 32				
5							△					
	1	◢		66	N/A	N/A	△					
6							△					
7		▯					△					
8	2	▯		74	0	0.6	△					
9							△	oxidation staining				
10							△	SPT N-Value = 26				
	2	◢		80	N/A	N/A	△					
11							△					
12		▯					△					
13	3	▯		71	0	0.85	△					
14							△	becomes moist and more consolidated				
15							△					
	3	◢		87	N/A	N/A	△					
16							△	SPT N-Value = 35				
17		▯					△	▽ wet				
18	4	▯		71	0	1.1	△	dominantly brecciated sandstone				
19							△					
20							△					

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Figure: A-10a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-10

PAGE 2 of 2

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value[1]	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
21	4			87	N/A	N/A	△ △	FAULT BRECCIA (Continued) [KNOXVILLE FORMATION BEDROCK] SPT N-Value = 23 wet				
22							△ △					
23	5			63	0	1.1	△ △	clasts become angular, fine gravel				
24							△ △					
25							△ △	becomes matrix dominant, more well consolidated, matrix becomes clay SPT N-Value = 37				
26	5			80	N/A	N/A	△ △					
27							△ △					
28	6			100	0	0.4	△ △					
29							△ △					
30							△ △	occasional quartz clasts, oxidized				
31							△ △					
32	7			92	0	1.0	△ △					
33							△ △					
34							△ △					
35							△ △	dark gray				
36												
37												
38												
39												
40												

Boring terminated at a depth of 35 feet below ground surface.
Boring backfilled with cement grout using a tremie pipe.
Groundwater encountered at 17 feet below ground surface during drilling.

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[1] SPT blow counts for the last two increments were converted to SPT N-Values using factor of 1.2 to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-10b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-11

PAGE 1 OF 6

Boring location: See Site Plan, Figure 2
Date started: 6/29/20
Date finished: 6/29/20
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 Lbs./30 inches
Hammer type: Automatic Trip
Samplers: Standard Penetration Test (SPT), Sprague & Henwood (S&H)

Logged by: J. Elliott
Drilled By: Britton Exploration

Ground Surface Elevation: 163 feet[2]

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–5					CH	CLAY with SAND (CH) brown to dark brown, moist, occasional gravel, rootlets [FILL]						
5–6.5	S&H	▨	11 14 13	19	CH	CLAY (CH) dark brown, moist, very stiff, with coarse sand, rare oxidized coarse sand grains, rootlets [COLLUVIUM] LL = 73, PI = 47, see Figure B-7					20.3	107
9.5–11.5	S&H	▨	6 10 13	16	CL	CLAY with GRAVEL (CL) yellow brown, moist, very stiff, fine angular and subrounded gravel, orange-red oxidized pockets, some gravel deeply weathered/altered to white [RESIDUAL SOIL]						
11.3–20						KNOXVILLE FORMATION BEDROCK						
15–16.5	S&H	▨	2 4 4	6	∇	(8:25 a.m., 6/29/20) brown, moist to wet, medium stiff, fine to coarse sand (predominantly coarse-grained, angular and subangular), fine subangular gravel, crushed shale and sandstone, highly oxidized [KNOXVILLE FORMATION BEDROCK]					19.9	107

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Project No.: 750656701
Figure: A-11a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-11

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
21	S&H		7 25 43	48		SHALE dark gray, wet, low hardness, friable to weak, little weathered, intensely fractured to crushed, resistant gravel clasts surrounded by pulverized matrix, slightly polished surfaces on clasts, occasional oxidized pockets (1/16-inch diameter), sheared serpentinite inclusions, ~1/8-inch diameter, dark green, unoxidized [KNOXVILLE FORMATION BEDROCK]						
22												
23												
24												
25	S&H		50/ 5"	35/ 5"		with localized zones sheared to clay, decreased oxidized zones						
26												
27												
28												
29												
30						crushed, highly sheared chaotic structure, increased oxidized, orange oxidized bands ~1/4-inch thick, clayey shear fabric Bulk Asbestos Material Analysis, see Appendix C						
31	S&H		10 14 20	24								
32												
33												
34												
35						dark gray-brown, crushed to soil-like consistency, decreased clay, sheared						
36	S&H		13 20 30	35								
37												
38												
39												
40												

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-11

PAGE 3 OF 6

	SAMPLES						LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	S&H		9 23 48	50		SHALE (continued) dark gray, low hardness, friable to weak, little weathered, sheared, occasional weakly oxidized zones, sheared with localized clayey matrix zones [KNOXVILLE FORMATION BEDROCK] Triaxial Test, see Figure B-8	TxUU	4,000	1,630		8.6	130
41												
42						METASANDSTONE INTERBED gray, hard, moderately strong, massive, little weathered, very fine-grained, sulfur staining on fracture surfaces, fine pyrite crystals [KNOXVILLE FORMATION BEDROCK]						
43												
44												
						SHALE dark gray, low hardness, friable, little weathered, sheared, clayey, sandstone clasts						
45												
46	S&H		14 28 50	55								
47												
48												
49												
50							PP		2,000			
51	S&H		7 10 17	19		crushed to clay, soft, plastic, highly sheared [FAULT GOUGE] Triaxial Test, see Figure B-9	TxUU	5,100	1,670		13.1	125
52												
53												
54												
55												
56	S&H		11 19 35	38		decreased clay, crushed faint rock structure, serpentinite inclusion within shale dark green with faint oxidation staining						
57												
58												
59												
60												

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Figure: A-11c

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-11

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
61	SPT	▨	19 17 20	44		SHALE (continued) dark gray, intensely fractured with crushed zones, low hardness, friable to weak, little weathered, sheared, crushed zones are fine subangular gravel, some clay matrix [KNOXVILLE FORMATION BEDROCK]						
62												
63												
64												
65												
66												
67												
68												
69												
70						gray with yellow-brown oxidation staining, clay with fine subangular to subrounded gravel gravel and coarse sand-sized clasts, sheared						
71	SPT	▨	10 14 19	40								
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project No.: 750656701
Figure: A-11d

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-11

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
	S&H		10 21 36	40		SHALE (continued) dark gray, crushed, low hardness, friable, little weathered, clay matrix supporting coarse sand-sized grains, sheared [KNOXVILLE FORMATION BEDROCK]						
81												
82												
83												
84												
85												
86												
87												
88												
89												
90	SPT		50/ 5"	60/ 5"		SANDSTONE and SHALE light gray, sandstone is moderately hard, moderately strong, little weathered, fine-grained, supported in crushed and clayey shale matrix, sheared [KNOXVILLE FORMATION BEDROCK]						
91												
92												
93												
94												
95												
96												
97												
98												
99												
100												

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-11

PAGE 6 OF 6

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	SPT	▨	50/ 4"	60/ 4"		SHALE dark gray, crushed, low hardness, friable, little weathered, crushed to angular coarse sand-sized, some clay matrix [KNOXVILLE FORMATION BEDROCK]						
101												
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												

Boring terminated at a depth of 100.3 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 16 feet below ground surface during drilling.
PP = pocket penetrometer

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively, to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-11f

TEST GEOTECH LOG 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-12

Boring location: See Site Plan, Figure 2
Date started: 6/30/20 Date finished: 6/30/20
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 Lbs./30 inches Hammer type: Automatic Trip
Samplers: Standard Penetration Test (SPT), Sprague & Henwood (S&H)

Logged by: J. Elliott
Drilled By: Britton Exploration

Ground Surface Elevation: 170 feet^2

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value^1	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						CLAY with SAND and GRAVEL (CH) (10YR3/2), (10YR3/3), very dark grayish-brown to dark brown, fine to coarse subangular gravel, fine to coarse sand, organics, rootlets [FILL]						
2					CH							
3												
4						CLAY (CH) (10YR3/2), very dark grayish-brown, moist, medium stiff, trace fine and coarse sand, trace rootlets and organics [FILL]						
5							PP		1,000			
6	S&H	■	3 3 5	6		LL = 85, PI = 57, see Figure B-7					35.1	88
7					CH							
8						color change at 8.5 feet to lighter brown						
9												
10						CLAY (CH) (10YR4/6), dark yellowish-brown, moist, stiff, trace subangular coarse sand grains, black organic stringers, oxidized [OLD LANDSLIDE DEPOSIT]						
11	S&H	■	4 7 11	13		Triaxial Test, see Figure B-10	TxUU	1,100	2,870		23.7	103
12												
13												
14												
15					CH	with increased sand content, black mottling, trace fine subangular and subrounded gravel	PP		2,500			
16	S&H	■	5 9 11	14		Triaxial Test, see Figure B-11	TxUU	1,600	2,810		24.1	104
17												
18												
19												
20												

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Project No.: 750656701
Figure: A-12a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-12

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DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	S&H		2 4 9	9	CL	SANDY CLAY (CL) (2.5Y4/4), olive-brown, moist, stiff, predominantly fine sand with medium to coarse grains, white mottling, wet pockets, oxidized [OLD LANDSLIDE DEPOSIT] Torsional Ring Shear Test, see Figures B-14 and B-15						
21												
22						∇ (8:20 a.m., 6/30/20) GRAVEL with CLAY (GC) (10YR4/4), dark yellowish-brown, moist to wet, angular coarse gravel, loose, with fine to coarse sand, oxidized surfaces and dark manganese stained surfaces on gravel [OLD LANDSLIDE DEPOSIT]						
23												
24												
25					GC							
26	S&H		4 6 8	10								
27												
28												
29												
30					GC	29.5 feet: Landslide plane CLAYEY GRAVEL (GC), grades to GRAVEL with CLAY (GC), wet, angular fine to coarse gravel, oxidized [LANDSLIDE PLANE]						
31	SPT		4 11 15	31		SHALE (10YR3/4), dark yellowish-brown, sample is crushed to angular gravel, low hardness, friable, clay matrix supporting clasts, manganese stained surfaces, moderately weathered, orange oxidation staining on laminar surfaces, sheared, thinly laminated [KNOXVILLE FORMATION BEDROCK]						
32												
33	S&H		5 21 33	38								
34												
35						crushed with clay matrix supporting resistant pieces, sheared						
36	S&H		28 22 22	46								
37												
38												
39												
40												

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Project No.: 750656701

Figure: A-12b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-12

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
41	S&H		9 10 13	16		SHALE (2.5Y4/3), olive-brown, moist to wet, crushed, low hardness, friable, deeply weathered, clay matrix supporting crushed pieces, red-orange oxidation staining on surfaces, dark purple/black manganese stained surfaces, sheared [KNOXVILLE FORMATION BEDROCK]						
42												
43												
44												
45						slight decrease in oxidation, increased manganese stained surfaces, occasional slightly polished resistant gravel-sized clasts ~1/2-inch diameter, light brown/white thin clay seam/shear <1/16-inch thick						
46	SPT		9 13 19	38								
47												
48												
49												
50	SPT		50/ 6"	60/ 6"		decreased clay matrix content						
51												
52												
53												
54												
55						crushed to coarse sand-sized clasts supported in clay matrix, slight increase in oxidation, moderately hard, sandstone pieces angular ~1/4- to 1-inch along longest axis within matrix						
56	SPT		12 14 21	42								
57												
58												
59												
60												

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Project No.: 750656701
Figure: A-12c

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-12

DEPTH (feet)	SAMPLES Sampler Type	 Sample	 Blows/ 6"	 SPT N-Value¹	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	 Confining Pressure Lbs/Sq Ft	 Shear Strength Lbs/Sq Ft	 Fines %	 Natural Moisture Content, %	 Dry Density Lbs/Cu Ft
	SPT	◪	5 8 12	24		SHALE (continued) (10YR4/2), dark grayish-brown, crushed to clay with gravel, low hardness, friable, wet, moderately weathered, sheared, polished surface on fine gravel, subangular to angular sized resistant clasts, highly oxidized [KNOXVILLE FORMATION BEDROCK]						
61												
62												
63												
64												
65	SPT	◪	5 9 14	28		crushed to gouge, oxidized, crushed to sand-sized grains, clayey, vertical shears, slickensides						
66												
67												
68												
69												
70												
71												
72												
73												
74												
75	SPT	◪	10 21 26	56		(10YR3/1), very dark gray, crushed, low hardness, friable, fresh with some moderately weathered zones, faint oxidation staining on surfaces, decreased clay						
76												
77												
78												
79												
80												

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Project No.: 750656701

Figure: A-12d

PROJECT:

LA VISTA PARK
Hayward, California

Log of Boring B-12

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						SHALE (continued) [KNOXVILLE FORMATION BEDROCK]						
81												
82												
83												
84												
85		◩				SANDSTONE/SHALE INTERBEDDED (10YR3/1), very dark gray, crushed, low hardness, friable, fresh to little weathered, some clay, moderately weathered clay zone (10YR4/4), dark yellowish-brown [KNOXVILLE FORMATION BEDROCK]						
86	SPT		12 23 21	53								
87												
88												
89												
90												
91												
92												
93												
94												
95		◩				chaotic structure with varying degrees of weathering, some orange oxidation staining, fine-grained fresh sandstone in shoe (GLEY1 7/1), light greenish-gray, low hardness, weak						
96	SPT		11 24 32	67								
97												
98												
99												
100												

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Project No.: 750656701

Figure: A-12e

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-12

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DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
101	SPT	◩	8 15 18	40		SANDSTONE crushed, low hardness, friable to weak, little weathered, decreased clay matrix						
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												

Boring terminated at a depth of 101.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 22 feet below ground surface during drilling.
PP = pocket penetrometer

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively, to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701

Figure: A-12f

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-13

PAGE 1 of 6

Boring location: See Site Plan, Figure 2

Date started: 7/2/20 Date finished: 7/2/20

Drilling method: Hollow stem auger, continuous core

Hammer weight/drop: 140 lbs./ 30 inches Hammer type: Automatic

Samplers: Standard Penetration Test (SPT)

Logged by: J. Elliot
Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES					Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA			
	Run Number	Sample Type	SPT N-Value^1	Recovery, %	RQD, %			Ground Surface Elevation: ~178 feet^2	Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1								SANDY CLAY with GRAVEL (10YR 3/2), very dark grayish-brown, moist, rootlets and trace sand [FILL]				
2								CLAY with GRAVEL (2.5Y5/4), light olive-brown, dry, weakly oxidized throughout with stronger orange oxidized surfaces on gravel, sandstone/shale fine to coarse subangular and angular gravel, white seams, manganese stained surfaces on gravel [COLLUVIUM]				
3	1			73		0.4						
4												
5												
6								increased oxidation (2.5Y4/4), olive-brown, increased structure				
7	2			66		0.6						
8								SERPENTINITE/GOUGE				
9												
10								olive mottled with black, green and white, highly sheared/deeply weathered to SILT/CLAY consistency, dry, friable, oxidized, dark manganese stained surfaces on resistant crushed pieces [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
11												
12								11.8 feet: white talc (5Y5/6), olive with black, improved structure/strength, soft and plastic zones, low hardness, friable, deeply weathered, chaotic structure, increased talc (light green/white)				
13	3			77	0	0.6			F50			
14												
15								polished surfaces				
16								Bulk Asbestos Material Analysis, see Appendix C 16.7 to 18.2 feet: Crushed, light green/white zone, easily breaks down to powder				
17	4			100	0	1.4						
18								increased clay	F70			
19												
20												

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Project No.: 750656701 Figure: A-13a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-13

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value¹	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								SERPENTINITE/GOUGE (continued) (5Y 6/4) to (5Y 3/3), pale olive to dark olive-gray, highly sheared/deeply weathered to clay consistency, chaotic talc seams through, soft/plastic, occasional resistant clasts, polished surfaces [UNDIFFERENTIATED SHEARED ROCK/GOUGE] Bulk Asbestos Material Analysis, see Appendix C				
21												
22												
	5			100	0	0.6		22.5 feet: Crushed				
23												
24								increased oxidation, polished surfaces 24 to 25 feet: Crushed, moderately hard, angular pieces, crushed to fine gravel, manganese stained, oxidized angular shale pieces, oxidized surfaces				
25								slickenside				
26								SHEARED ROCK/GOUGE (10YR 3/4), dark yellowish-brown, intensely fractured to crushed, chaotic structure, sheared/weathered to clay consistency, resistant pieces, often oxidized along resistant shale pieces, varying clay matrix content [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
27												
	6			70	0	0.8		26.7 feet: Shale inclusion 27.6 to 27.9 feet: Crushed to angular fine gravel				
28												
29												
30								(10YR 4/3), brown, deeply weathered/sheared to clayey gravel consistency, angular shale pieces supported in clay matrix, oxidized, heavily abraded				
31								crushed to gravel, decreased clay matrix, oxidized				
32												
	7			78	0	0.8						
33								33ft: faint shear fabric, dipping approximately 50°				
34							▽	(8:25 a.m., 7/2/2020)				
35								crushed to fine subangular gravel, weakly supported in clay matrix 35.5 feet: Increased clay matrix, weathered/sheared to clay consistency				
36								36.4 feet: Shear 50° through clay, polished with slicks on surface 36.8 feet: Horizontal shear crushed material [FAULT PLANE?]	S50			
37												
	8			78	0	0.8		37.5 feet: Decreased clay matrix, crushed angular sandstone/shale pieces, highly abraded				
38												
39												
40												

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Project No.: 750656701
Figure: A-13b

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-13

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DEPTH (feet)	SAMPLES Run Number	 Sample Type	 SPT N-Value¹	 Recovery, %	 RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA Dip, Degrees	 Fines %	 Natural Moisture Content, %	 Dry Density Lbs/Cu Ft
								SHEARED ROCK/GOUGE (continued) (10YR4/2), dark greenish-brown, crushed, sheared/weathered to GRAVEL with CLAY, crushed to fine to coarse subangular to angular gravel, averaging 1/4- to 1/2-inch in diameter				
41												
42								coarse gravel up to 2 inches along longest axis [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
	9			70	0	2.6						
43												
44												
45								shale and sandstone crushed to coarse sand and fine gravel, slightly oxidized, some clay binder/matrix				
46								increased clay matrix				
47								faint oxidation staining				
	10			67	0	1.6						
48												
49												
50								SHEARED ROCK/GOUGE (continued) (10YR4/2), dark grayish-brown, moist, sheared/weathered to CLAY with GRAVEL consistency, varying clay matrix, content highly abraded, deeply weathered, oxidized, shale/sandstone gravel 50.8 feet: [FAULT PLANE?] 51.1 to 51.3 feet: Crushed zone, no clay matrix landslide: 23 to 25° highly polished, paper thin clay coating, striae under plane, moist, no striations on plane slight decrease in oxidation				
51												
52												
	11			73	0	0.8						
53												
54												
55												
56								coarse gravel pieces				
57								increased clay matrix				
	12			50	0	0.6						
58												
59												
60												

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Project No.: 750656701

Figure: A-13c

PROJECT: **LA VISTA PARK**
Hayward, California

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DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value¹	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								SHEARED ROCK/GOUGE (continued) (10YR4/2), dark grayish-brown, highly sheared, deeply weathered to GRAVELLY CLAY/CLAYEY GRAVEL consistency, abraded, weakly oxidized, clay matrix supporting angular sandstone and shale clasts. varying clay matrix content [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
61												
62								61.3 to 61.7 feet: Increased clay matrix slight increase in oxidation				
	13			68	0	1.0						
63								increased clay matrix, decrease in gravel 68ft: highly oxidized zone				
64												
65												
66								66 to 67.1 feet: Lacking clay matrix, mostly crushed				
67								brecciated texture				
	14			73	0	1.4						
68								highly oxidized zone at 68 feet				
69												
70								(10YR4/2) to (10YR3/2), dark to very dark grayish-brown, often oxidized on gravel surfaces				
71												
72								oxidized band at 71.8 feet				
	15			57	0	1.0		SERPENTINITE blue-green, crushed, low hardness, friable, fibrous, abrupt transition from sheared rock to serpentinite [UNDIFFERENTIATED SHEARED ROCK/GOUGE]				
73												
74												
75												
76												
77								Stopped Rock Coring. Borehole continued as Soil Log.				
78												
79												
80												

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Project No.: 750656701
Figure: A-13d

PROJECT:

LA VISTA PARK
Hayward, California

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DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
	SPT		1 7 11	22		SHEARED SHALE sheared to clay consistency, (GLEY1 3/5GY) very dark greenish-gray to black, trace serpentinite fragments, polished surfaces, highly sheared, through-going slickensides, unoxidized [UNDIFFERENTIATED SHEARED ROCK/GOUGE]						
81												
82												
83												
84												
85						dark gray/black, sheared to clay consistency, little weathered						
86	SPT		5 19 23	50								
87												
88												
89												
90						calcite vein, fresh						
91	SPT		21 50/ 5"	60/ 5"								
92												
93												
94												
95												
96	SPT		6 23 50/ 6"	88								
97												
98												
99												
100												

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Figure: A-13e

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-13

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DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
101	SPT	◪	15 24 40	77		SHEARED SHALE (continued) black, highly sheared to CLAY consistency, polished surfaces [UNDIFFERENTIATED SHEARED ROCK/GOUGE]						
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												

Boring terminated at a depth of 101.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater stabilized at a depth of 34 feet at 8:25 AM on 7/2/20.

[1] SPT blow counts for the last two increments were converted to SPT N-Values using factors 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Figure: A-13f

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-14

PAGE 1 OF 6

Boring location: See Site Plan, Figure 2

Date started: 7/1/20 Date finished: 7/1/20

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./ 30 inches Hammer type: Automatic

Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: J. Elliott

Drilled By: Britton Exploration

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 170 feet[2]	LABORATORY TEST DATA Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						CLAY with SAND and GRAVEL (CL) brown to dark brown mottling, fine- to coarse-grained, with organics [COLLUVIUM]						
1												
2												
3					CL							
4												
5												
6	S&H	▨	9 16 19	26		SANDSTONE (displaced) yellow-brown, low hardness, friable, moderately weathered, oxidized, white caliche seams, manganese stained joint surfaces [OLD LANDSLIDE DEPOSIT]						
7												
8												
9												
10						SHALE (10YR4/6), dark yellowish brown with some fresh pieces (10YR 3/1 to 10YR 2.5/1), very dark gray to black, low hardness, friable, deeply weathered, highly oxidized, talc seam 1/4 inch thick, sheared chaotic structure [OLD LANDSLIDE DEPOSIT]						
11	S&H	▨	10 19 21	28								
12												
13												
14												
15						blocky/tabular structure at 15 feet crushed/sheared at 16 feet, chaotic, clay matrix supporting resistant clasts						
16	S&H	▨	16 43 32	53								
17												
18						crushed, sheared, deeply oxidized throughout, dark manganese staining throughout, occasional zones with clay matrix, white talc seams						
19	SPT	◩	8 9 18	32								
20												

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Figure: A-14a

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value¹	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
21	S&H		12 13 15	20		SHALE - (continued) low hardness, friable to weak, moderately to deeply weathered, chaotic, highly variable structure, increased clay matrix at bottom of sample, highly oxidized [OLD LANDSLIDE DEPOSIT] Bulk Asbestos Material Analysis, see Appendix C						
22												
23												
24						▽ (8:04 a.m., 7/1/20)						
25	S&H SPT		50/ 4" 50/ 2"	35/ 4" 60/ 2"		crushed, wet						
26												
27												
28												
29												
30												
31	S&H		9 14 22	25		CLAY (CL) (10YR 3/3), dark brown, wet, very stiff, with roots, subangular sand, occasional oxidized pockets [LANDSLIDE PLANE] LL = 58, PI = 36, see Figure B-7 Torsional Ring Shear Test, see Figures B-16 and B-17	PP		4,500		25.4	101
32												
33					CL							
34												
35												
36	S&H		11 14 24	27		CLAY with GRAVEL (CL) (10YR 4/3) olive-brown, wet, very stiff, fine to coarse subangular and subrounded gravel, gleyed pockets, oxidized, calcite vein within sandstone gravel at 36 feet, increased gravel at 36 feet [LANDSLIDE PLANE] Triaxial Test, see Figure B-12	TxUU	3,600	2,350		18.5	114
37					CL							
38												
39												
40												

TEST GEOTECH LOG 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	S&H		12 22 41	44		SHEARED SANDSTONE/GOUGE weathered/sheared to clay with gravel consistency, (10YR 5/4) yellow-brown, very stiff, moist, fine subangular gravel oxidized [KNOXVILLE FORMATION BEDROCK] Triaxial Test, see Figure B-13	TxUU	4,100	2,740		15.7	119
41												
42												
43												
44												
45						SHEARED SANDSTONE/GOUGE - weathered/sheared to SANDY CLAY with GRAVEL consistency (10YR5/6), yellowish-brown, very stiff, moist, fine to coarse sand, fine to coarse angular to subangular gravel, oxidized throughout, wet in gravel-rich zones, increased structure, highly sheared, shale fragments [KNOXVILLE FORMATION BEDROCK]						
46	S&H		15 17 22	27								
47												
48												
49												
50						increased/improved structure, with angular shale fragments, chaotic structure						
51	S&H		15 16 18	24								
52												
53												
54												
55						SHEARED SANDSTONE/SHALE GOUGE - weathered/sheared to SANDY CLAY consistency (GLEY1 4/1), dark greenish-gray, very stiff, gleyed streaks, faintly polished surfaces, sheared, highly weathered/altered [KNOXVILLE FORMATION BEDROCK]						
56	S&H		7 15 23	27								
57												
58												
59												
60												

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PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-14

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	SAMPLES						LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
61	S&H	■	13 22 31	37		SHEARED SANDSTONE/SHALE weathered/sheared to SANDY CLAY consistency, (GLEY1 4/1) dark greenish-gray, very stiff, moist, thinly laminated structure (relic shale fragment), gleyed, calcite veins, sheared, highly weathered/altered [KNOXVILLE FORMATION BEDROCK]						
62												
63												
64												
65						COLOR CHANGE TO (2.5Y 4/2), dark grayish-brown with yellowish-brown oxidation staining						
66	S&H	■	14 22 33	38								
67												
68												
69												
70						SHALE (2.5Y3/1), very dark gray with yellowish brown oxidized zones, low hardness, friable, deeply weathered/sheared clayey zones [KNOXVILLE FORMATION BEDROCK]						
71	SPT	◩	9 17 18	42								
72												
73												
74												
75												
76												
77												
78												
79												
80												

TEST GEOTECH LOG 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

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Figure: A-14d

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	SAMPLES						LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
81	SPT	◩	16 33 50/ 5"	100/ 11"		SHALE (continued) (2.5Y 3/1) very dark gray to (2.5Y 2.5/1), black, low hardness, friable, little weathered, sheared, crushed, clay matrix supporting, resistant pieces, wet [KNOXVILLE FORMATION BEDROCK]						
82												
83												
84												
85												
86												
87												
88												
89												
90						SHEARED SANDSTONE/SHALE GOUGE varies from (GLEY1 4/1) dark greenish-gray at 91 feet; (5YR 3/3) dark reddish-brown from ~90.5 to 91 feet; (5Y 4/2) olive-gray from ~90 to 90.5 feet, chaotic structure, highly sheared, deeply weathered to SANDY CLAY consistency, very stiff, faint polished surfaces, with white talc inclusions [KNOXVILLE FORMATION BEDROCK]						
91	SPT	◩	6 8 11	23								
92												
93												
94												
95												
96												
97												
98												
99												
100												

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Figure: A-14e

PROJECT: **LA VISTA PARK**
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DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
101	SPT	◩	16 24 34	70		SHALE (2.5Y 3/2) very dark grayish-brown, low hardness, friable, moderately weathered, faint oxidation on joint surfaces, faint polished surfaces, sheared, clay matrix supporting resistant clasts [KNOXVILLE FORMATION BEDROCK]						
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												

Boring terminated at a depth of 101.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 24 feet during drilling.
PP = Pocket penetrometer.
TV = Torvane.
HA = Hand Auger.

---

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

[2] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Figure: A-14f

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-15

Boring location: See Site Plan, Figure 2
Date started: 7/6/20 Date finished: 7/6/20
Drilling method: Hollow Stem Auger, dry continuous core
Hammer weight/drop: NA Hammer type: NA
Samplers: NA

Logged by: J. Elliot
Drilled By: Britton Exploration

Ground Surface Elevation: 169 feet[1]

DEPTH (feet)	SAMPLES Run Number	Sample Type	SPT N-Value	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
								SANDY CLAY with GRAVEL light gray and brown, moist, fine to coarse sand, fine angular to subangular gravel, few rootlets [FILL]				
1								SANDY CLAY with GRAVEL (10YR 3/2, very dark grayish brown, fine to coarse angular and subangular gravel [FILL]				
2												
	1			50	0	0.4						
3												
4												
5								with serpentinite gravel pieces				
6								SANDSTONE/SHALE (10YR 4/4 to 10YR 3/1), dark yellowish brown to very dark gray, very intensely fractured--recovered sample in angular fragments from sand to fine gravel-sized, up to ~3/4 inch, oxidized, appears reworked dry to moist, some clay-rich zones, highly weathered [BEDROCK-DERIVED LANDSLIDE]				
7												
	2			30	0	0.6						
8												
9												
10								(10YR 4/6) dark yellowish brown, oxidized shale and sandstone pieces				
11								crushed to SAND with GRAVEL (10YR5/2), grayish brown, moist, crushed shale, slight increase in sand-size fraction				
12												
	3			70	0	0.4		increased structure, increased oxidation crushed to SILTY SAND, (10YR4/4), dark yellowish brown, fine-grained, with sandstone/shale gravel, oxidized, pulverized				
13												
14												
15								fine- to coarse-grained, increased gravel content (crushed shale)				
16								16.6 to 17ft: oxidized zone gray caliche streaks				
17												
	4			55	0	0.6		SANDY CLAY (10YR4/4), dark yellowish brown, moist, very stiff (field estimate), oxidized, with fine subangular gravel [OLD LANDSLIDE DEPOSIT]				
18												
19												
20												

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Figure: A-15a

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-15

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DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
21								CLAY with GRAVEL (10YR 4/4), variegated dark yellowish brown, dark brown, gray, and olive, moist, fine subangular gravel, oxidized, faint polished surfaces, mixed internal structure [OLD LANDSLIDE DEPOSIT]				
22												
23	5			100	0	0.8		crushed at 23 feet				
24												
25								gradational color change, decreased gravel content				
26												
27	6			82	0	0.4		SANDY CLAY (2.5Y 5/8), mottled light olive-brown with orange oxidation staining, moist, stiff (field estimate), faint polished surfaces, friable, scattered caliche grains [OLD LANDSLIDE DEPOSIT] 27.5 to 28.6 feet: CLAYEY SAND zone				
28								increased oxidation				
29												
30												
31								SHEARED SERPENTINITE/GOUGE (2.5Y 5/3), light olive-brown, moist, chaotic, highly sheared, deeply weathered/highly sheared to SANDY CLAY consistency [OLD LANDSLIDE DEPOSIT] 31.4 feet: shear trending in 60°	S-60°			
32								highly oxidized zone				
33	7			60	0	1.0						
34												
35								increased coarse sand content, wet				
36								CLAY with SAND and GRAVEL (10YR 5/4), yellowish brown, faint slicks at 36ft, sheared, gleyed bands, chaotic structure, serpentinite coarse sand/fine gravel pieces [OLD LANDSLIDE DEPOSIT]				
37								slight increase in sand, decreased clay content, color change to (10YR4/3), brown				
38	8			55	0	0.8		▽ (9:00 a.m., 7/6/20)				
39												
40												

GEOTECH ROCK GRAPHIC 750656701_LA VISTA_SPLIT LOGS.GPJ TEMPLATE_CA-MODIFIED.GDT 8/20/20

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Figure: A-15b

PROJECT: **LA VISTA PARK**
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Log of Boring B-15

DEPTH (feet)	SAMPLES Run Number	Sample Type	SPT N-Value	Recovery, %	RQD, %	Drilling Rate (min/ft)	Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
40–45	9			100	0	0.4				
45–50	10			93	0	0.8				
50–55	11			100	0	0.4	F50 F 50 to 55			
55–60	12			67	0	0.4				

MATERIAL DESCRIPTION

CLAY with SAND and GRAVEL (continued)
(5YR4/3), reddish brown with white mottling, moist, stiff (field estimate), highly oxidized, deeply weathered, chaotic [OLD LANDSLIDE DEPOSIT]

SHEARED ROCK/GOUGE weathered to CLAY with GRAVEL consistency
(10YR 4/3), reddish brown, moist, highly mixed and heterogeneous structure, oxidized, faint polished structures, gravel-rich zone, locally slickensided on subhorizontal plane(s) [KNOXVILLE FORMATION BEDROCK]

increased gravel

color changes to (10YR4/3), brown, along shale inclusion

SHEARED SERPENTINITE/GOUGE
(2.5Y2.5/1), dark gray to black with green-gray mottling, deeply weathered to CLAY with GRAVEL consistency, chaotic and highly mixed structure, oxidized [KNOXVILLE FORMATION BEDROCK]
increased oxidation surrounding fractures, decreased plasticity
slight decrease in oxidation
pulverized, friable zone

slicks on fracture surface, clay infilled along fracture

SHEARED ROCK/GOUGE zone
(5YR 3/2), dark reddish brown, highly sheared/weathered to GRAVELLY CLAY consistency, highly oxidized, abraded, pulverized [KNOXVILLE FORMATION BEDROCK]

SHEARED SHALE
(10YR2/1), black, crushed, low hardness, friable, moderately weathered, zones weathered to CLAY, weakly oxidized [KNOXVILLE FORMATION BEDROCK]

below 59.5 feet: becomes more lithified, very intensely fractured with sample in mostly 0.25 from 1.25 clasts

PROJECT: **LA VISTA PARK**
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Log of Boring B-15

DEPTH (feet)	SAMPLES: Run Number	SAMPLES: Sample Type	SAMPLES: SPT N-Value	SAMPLES: Recovery, %	SAMPLES: RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	TEST DATA: Fines %	TEST DATA: Natural Moisture Content, %	TEST DATA: Dry Density Lbs/Cu Ft
								SHEARED SHALE (continued) dark gray, crushed, highly abraded, crushed to subangular/angular fine gravel, little weathered, sandstone/shale gravel clay matrix supporting resistant pieces [KNOXVILLE FORMATION BEDROCK] sheared to SANDY CLAY consistency, (2.5Y 3/3) - dark olive brown, with sandstone and shale gravel [KNOXVILLE FORMATION BEDROCK]				
61												
62												
	13			60	0	0.6						
63												
64												
65								varying clay matrix content, pulverized to sand (fine- to coarse-grained)				
66								weakly oxidized zone				
								brecciated texture, crushed pieces supported in clay matrix	F40°			
67												
	14			80	0	0.6		increased rock structure, decreased CLAY content				
68												
69												
70												
71												
72												
	15			70	0	0.4						
73												
74												
75								highly sheared to CLAY with GRAVEL				
76												
77								77.1 feet: decreased clay content, GRAVEL with CLAY, weakly oxidized, crushed fine subangular to angular gravel with medium to coarse sand, weakly oxidized, wet in gravel-rich zones				
	16			87	0	0.4						
78												
79												
80												

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Figure: A-15d

PROJECT: **LA VISTA PARK**
Hayward, California

Log of Boring B-15

Page 5 of 5

DEPTH (feet)	SAMPLES: Run Number	Sample Type	SPT N-Value	Recovery, %	RQD, %	Drilling Rate (min/ft)	LITHOLOGY	MATERIAL DESCRIPTION	TEST DATA: Dip, Degrees	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
80								SHEARED SHALE (continued) (2.5Y3/3), dark olive-brown, often highly sheared to CLAY with GRAVEL consistency, clay matrix supporting resistant clasts, fine subangular to angular gravel (crushed shale pieces) [KNOXVILLE FORMATION BEDROCK]				
81								81 feet: crushed zone, no clay matrix coarse gravel, wet				
82	17			87	0	0.8		oxidized zone				
83								shale crushed to coarse sand-sized, increased oxidation, weak brecciated texture				
84												
85												
86												
87	18			88	0	0.4		87.3 to 87.5 feet: coarse gravel zone, no clay matrix, abraded				
88												
89								oxidized on shale pieces, manganese-stained surfaces, decreased clay matrix, increased weathering				
90								weakly oxidized, little weathered				
91								highly abraded				
92	19			88	0	0.6		92.4 to 92.5 feet: gravel-rich zone, coarse averaging 1-inch diameter, increased clay matrix, oxidized, moderately weathered				
93												
94								deeply weathered/highly sheared, friable				
95								oxidized zones, shale beds sheared to clay throughout, chaotic structure sandstone gravel pieces, fine to coarse supported in sheared clayey matrix, weakly oxidized sandstone pieces				
96												
97	20			83	0	1.0		crushed sandstone pieces along fracture roughly trending 50°, gradual transition to SHEARED SHALE	C50°			
98								SHEARED SHALE dark gray, low hardness, friable, highly sheared, little weathered [KNOXVILLE FORMATION BEDROCK]				
99												
100												

Boring terminated at a depth of 100 feet below ground surface.
Boring backfilled with cement grout using a tremie pipe.
Groundwater stabilized at 38 feet below ground surface.

[1] Elevations based on topographic base map prepared by Ruggeri-Jensen-Azari, NGVD29.

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Project No.: 750656701
Figure: A-15e

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size	**Gravels** (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	**Silts and Clays** LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel coarse fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
Sand coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.075 4.76 to 2.00 2.00 to 0.420 0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

∇ Unstabilized groundwater level

▼ Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

⬒ Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

◪ Classification sample taken with Standard Penetration Test sampler

◨ Undisturbed sample taken with thin-walled tube

☒ Disturbed sample

⊡ Sampling attempted with no recovery

◫ Core sample

▣ Analytical laboratory sample, grab groundwater

▥ Sample taken with Direct Push sampler

▥ Sonic

SAMPLER TYPE

C	Core barrel
CA	California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
D&M	Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
O	Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
PT	Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
S&H	Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
SPT	Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
ST	Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

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CLASSIFICATION CHART

Date 08/20/20 | Project No. 750656701 | Figure A-16

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.
F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

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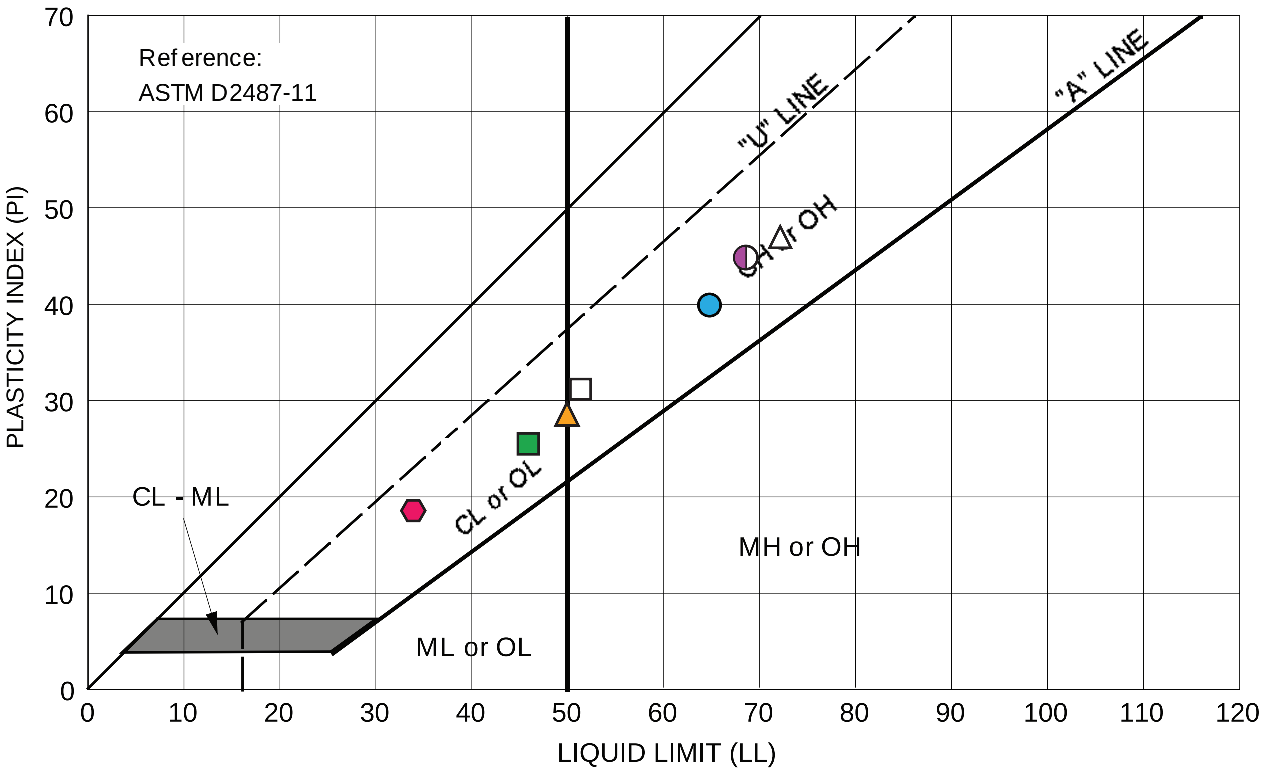
PHYSICAL PROPERTIES CRITERIA FOR ROCK DESCRIPTIONS

Date 08/20/20 | Project No. 750656701 | Figure A-17

APPENDIX B

LABORATORY TEST RESULTS



Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-2 at 3 feet	SANDSTONE, gray-brown mottled with yellow and white	16.8	65	40	--
■	B-3 at 6 feet	CLAY with SAND (CL), brown to light brown	19.3	47	25	--
▲	B-3 at 16 feet	CLAY (CL/CH), brown	23.0	50	28	--
⬢	B-4 at 8 feet	CLAYEY SAND (SC), light brown	15.0	35	18	--
◐	B-5 at 6 feet	CLAY (CH), dark brown	38.0	69	44	--
☐	B-6 at 1 feet	SANDY CLAY (CH), light brown to gray	--	51	31	--
△	B-7 at 3.5 feet	CLAY (CH), dark brown to gray-brown	--	72	46	--

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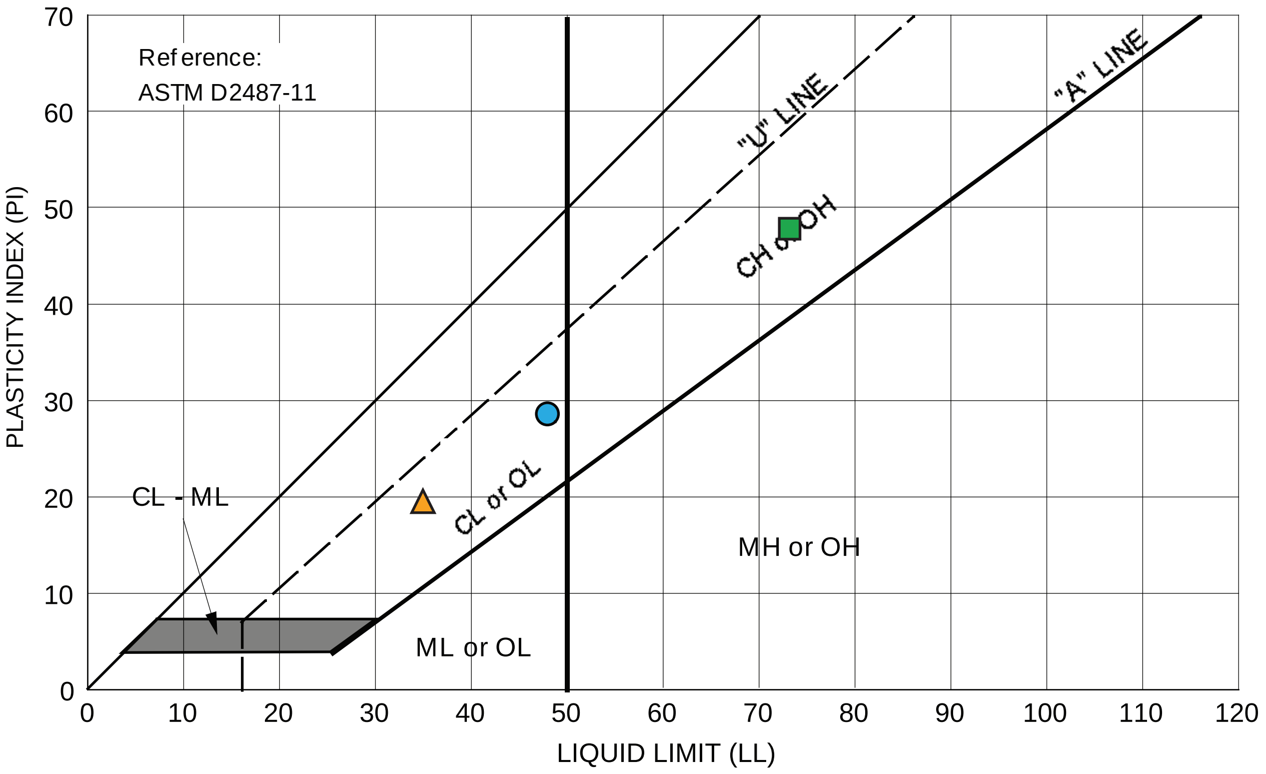
PLASTICITY CHART

Date 09/25/19 | Project No. 750656701 | Figure B-1



Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-8 at 5 feet	CLAYEY SAND (SC), yellow-brown, with pockets of CLAY (CL), gray	--	48	27	--
🟩	B-9 at 2.5 feet	CLAY with GRAVEL (CH), yellow-brown	--	73	48	--
▲	B-9 at 7.5 feet	SANDY CLAY with GRAVEL (CL), dark gray	--	35	19	--

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PLASTICITY CHART

Date 09/25/19 | Project No. 750656701 | Figure B-2

COOPER TESTING LABORATORY

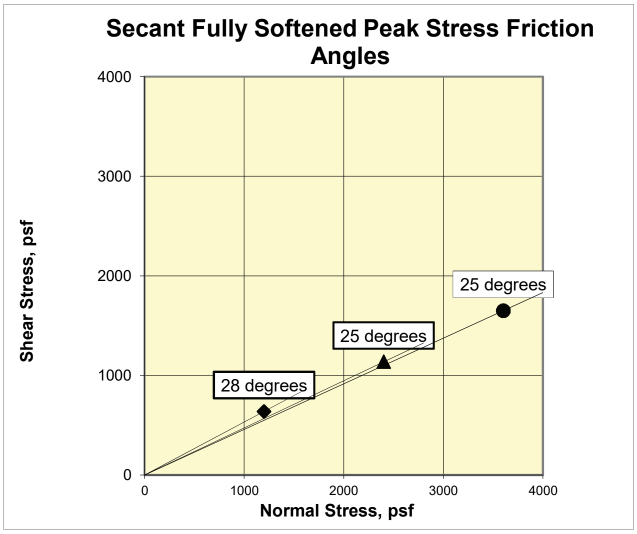
Drained Fully Softened Peak Torsional Shear Strength (ASTM D7608)

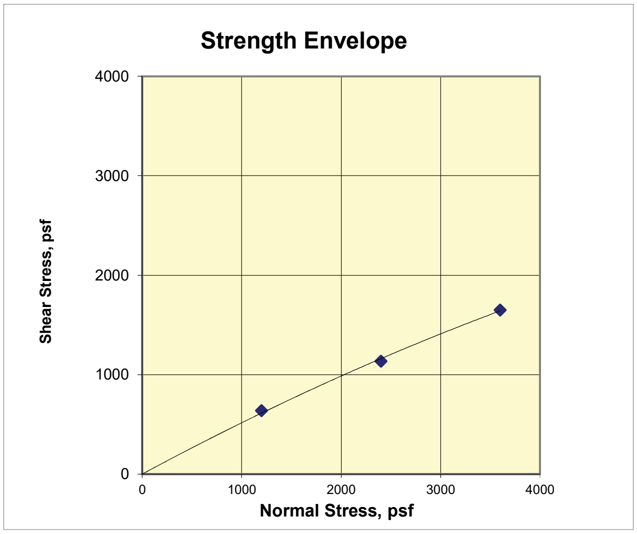
CTL Job No.:	010-1138	**Boring:**	B-5	**Date:**	9/20/2019	**Clay, %:**	
Client:	Langan	**Sample:**	5	**By:**	PJ	**LL:**	
Project Name:	La Vista Park, Hayward	**Depth (ft):**	16	**Checked:**	DC	**PL:**	
Project Number:	750656701 - 700 - 002.2	**Test Type:**	Fully Softened Peak				

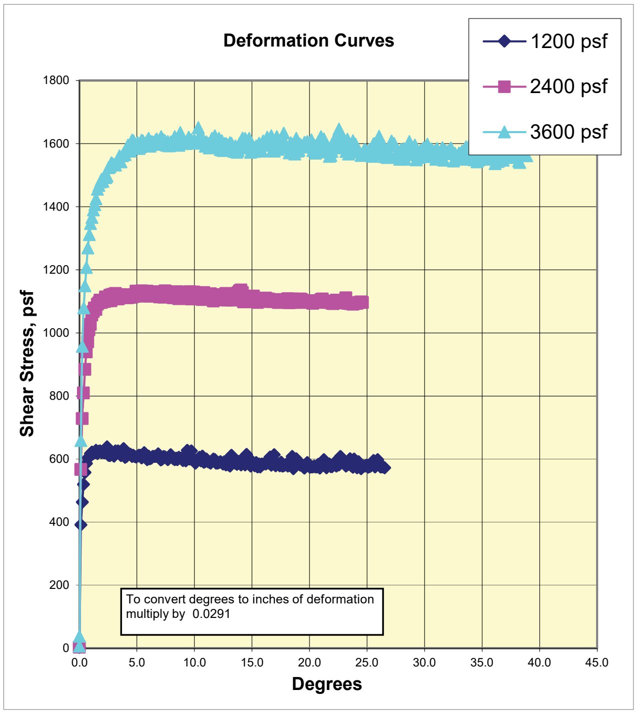
Soil Type: Reddish Brown Clayey SAND

Remarks:

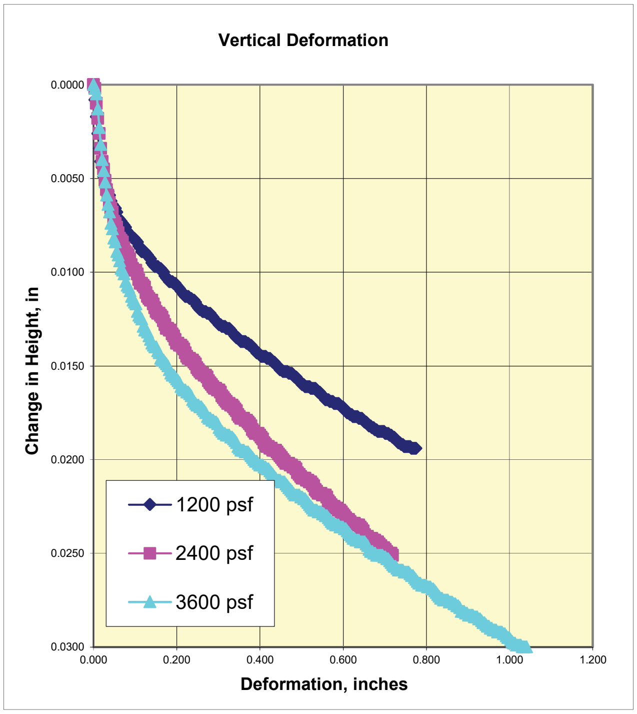
Normal Stress, psf:	1200	2400	3600
Secant Phi, deg.:	28	25	25







To convert degrees to inches of deformation multiply by 0.0291



LA VISTA PARK
Hayward, California

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DRAINED FULLY SOFTENED PEAK TORSIONAL SHEAR STRENGTH (ASTM D7608)

Date 10/07/19	Project No. 750656701	Figure B-3

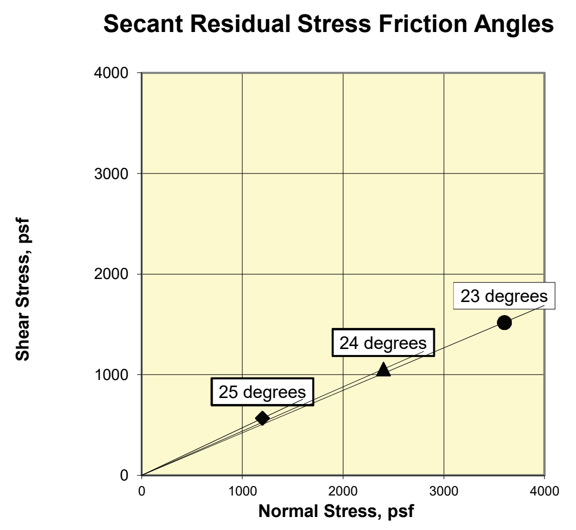
COOPER
TESTING LABORATORY

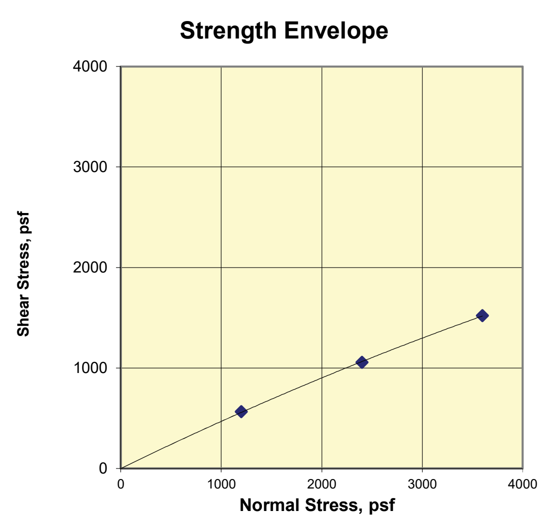
Drained Residual Torsional Shear Strength
(ASTM D6467)

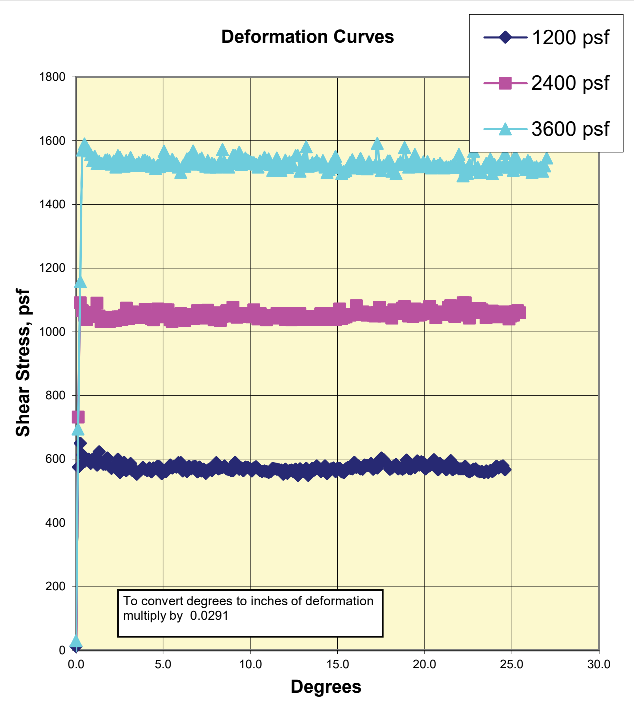
CTL Job No.: 010-1138
Boring: B-5
Date: 9/20/2019
Clay, %:
Client: Langan
Sample: 5
By: PJ
LL:
Project Name: La Vista Park, Hayward
Depth (ft): 16
Checked: DC
PL:
Project Number: 750656701 - 700 - 002.2
Test Type: Fully Softened Residual
Soil Type: Reddish Brown Clayey SAND

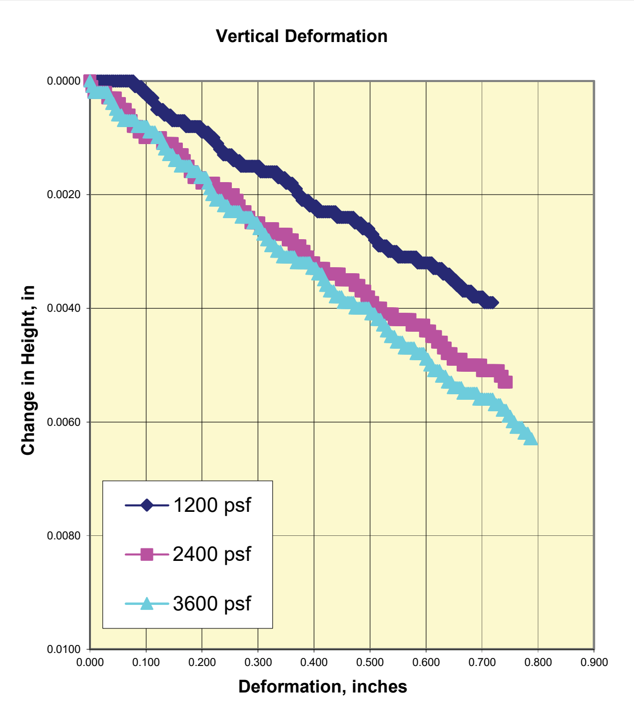
Normal Stress, psf:	1200	2400	3600
Secant Phi, deg.:	25	24	23

Remarks: A small friction correction was applied to each point.


Secant Residual Stress Friction Angles


Strength Envelope


Deformation Curves


Vertical Deformation

LA VISTA PARK
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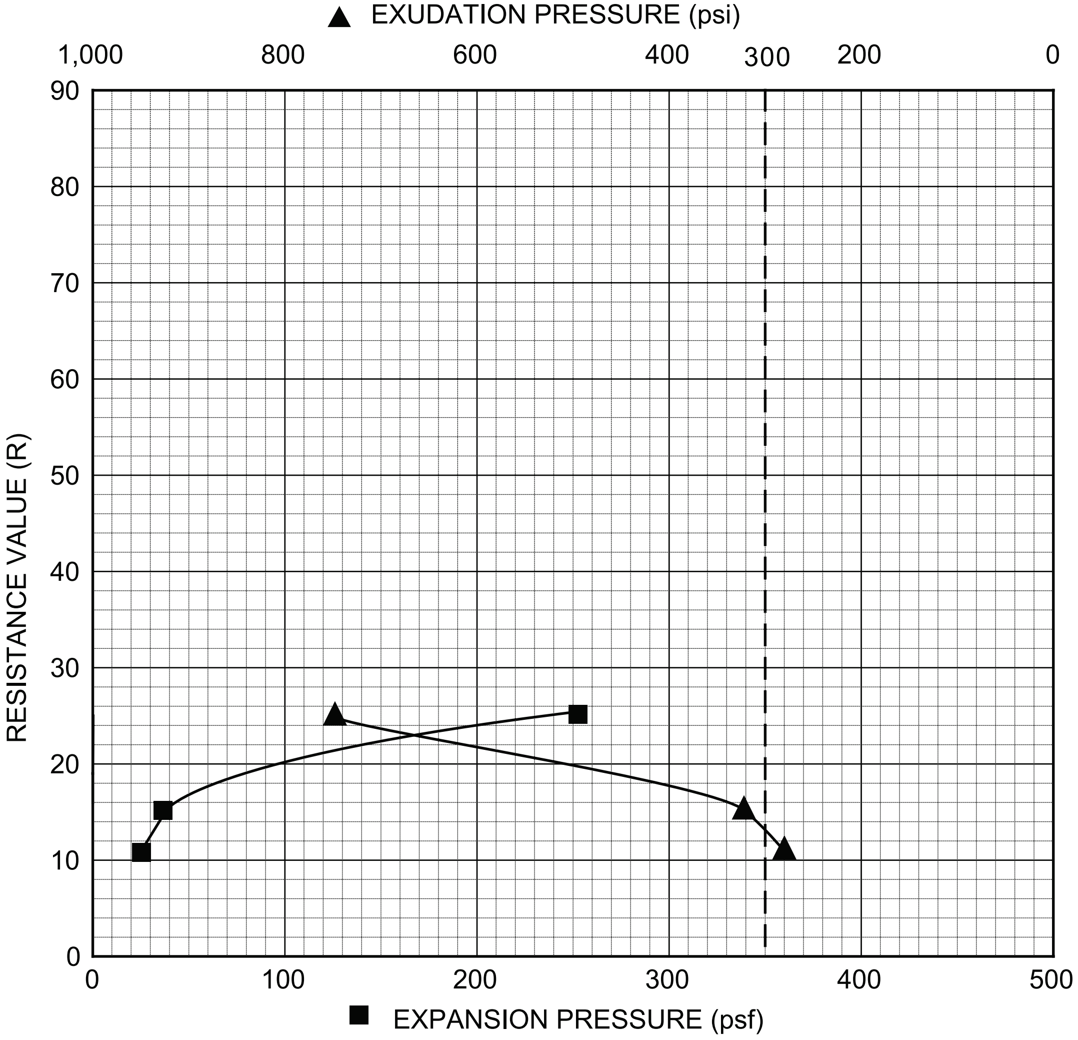
DRAINED RESIDUAL TORSIONAL SHEAR STRENGTH (ASTM D6467)

Date 10/07/19 | Project No. 750656701 | Figure B-4



Specimen ID:	A	B	C	D
Water Content (%)	25.3	23.5	20	--
Dry Density (pcf)	96.6	100	107.1	--
Exudation Pressure (psi)	282	322	747	--
Expansion Pressure (psf)	17.3	34.6	253	--
Resistance Value (R)	11	15	25	--

Sample Source	Sample Description	Sand Equivalent	Expansion Pressure	R value
B-3 at 1 foot	CLAY with SAND (CL), brown to light brown	--	--	14

LA VISTA PARK
Hayward, California

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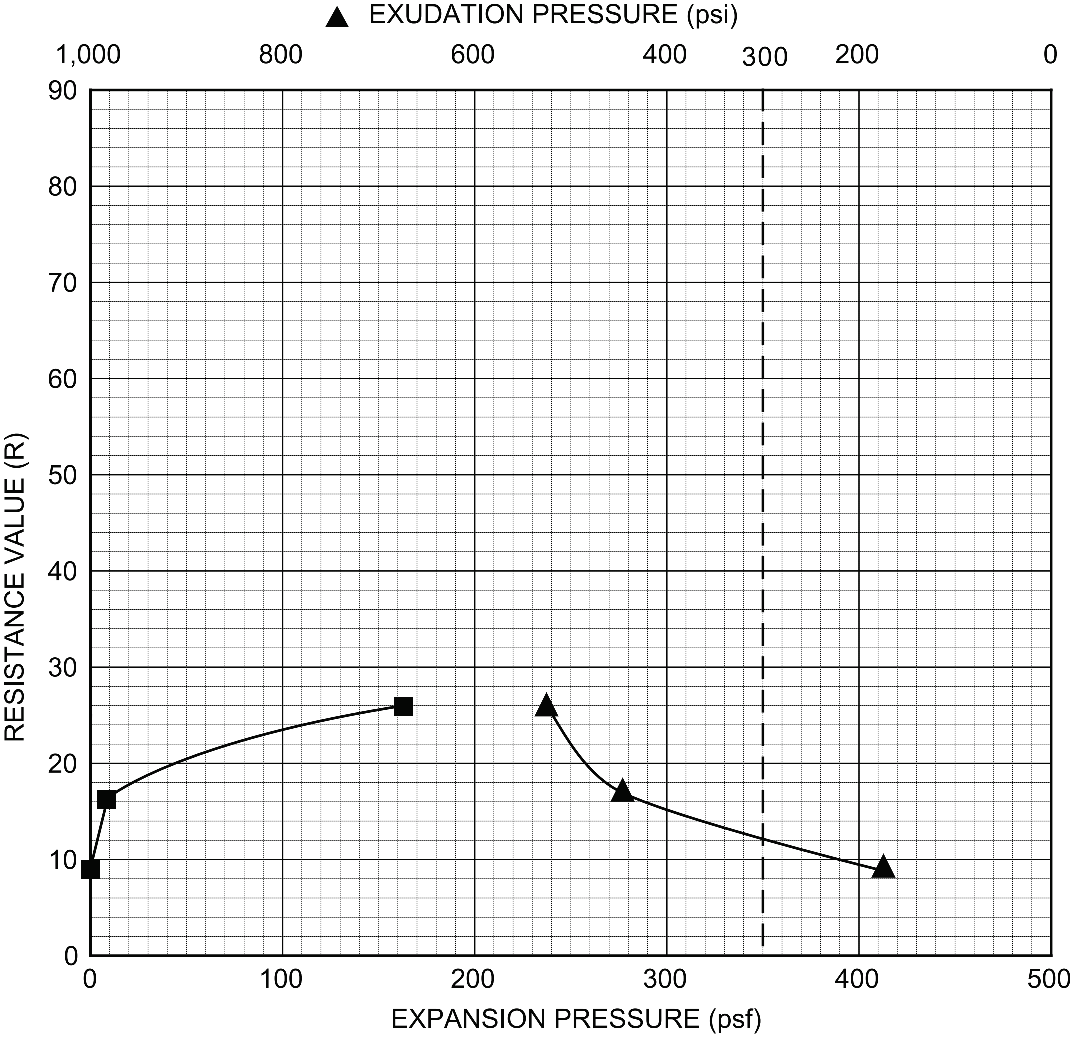
RESISTANCE VALUE TEST DATA

Date 10/09/19 | Project No. 750656701 | Figure B-5



Specimen ID:	A	B	C	D
Water Content (%)	23.4	18.2	15.6	--
Dry Density (pcf)	101.5	111.3	117.7	--
Exudation Pressure (psi)	177	445	529	--
Expansion Pressure (psf)	0	8.6	166	--
Resistance Value (R)	9	16	26	--

Sample Source	Sample Description	Sand Equivalent	Expansion Pressure	R value
B-6 at 1 foot	SANDY CLAY (CH), light gray to brown	--	--	12

LA VISTA PARK
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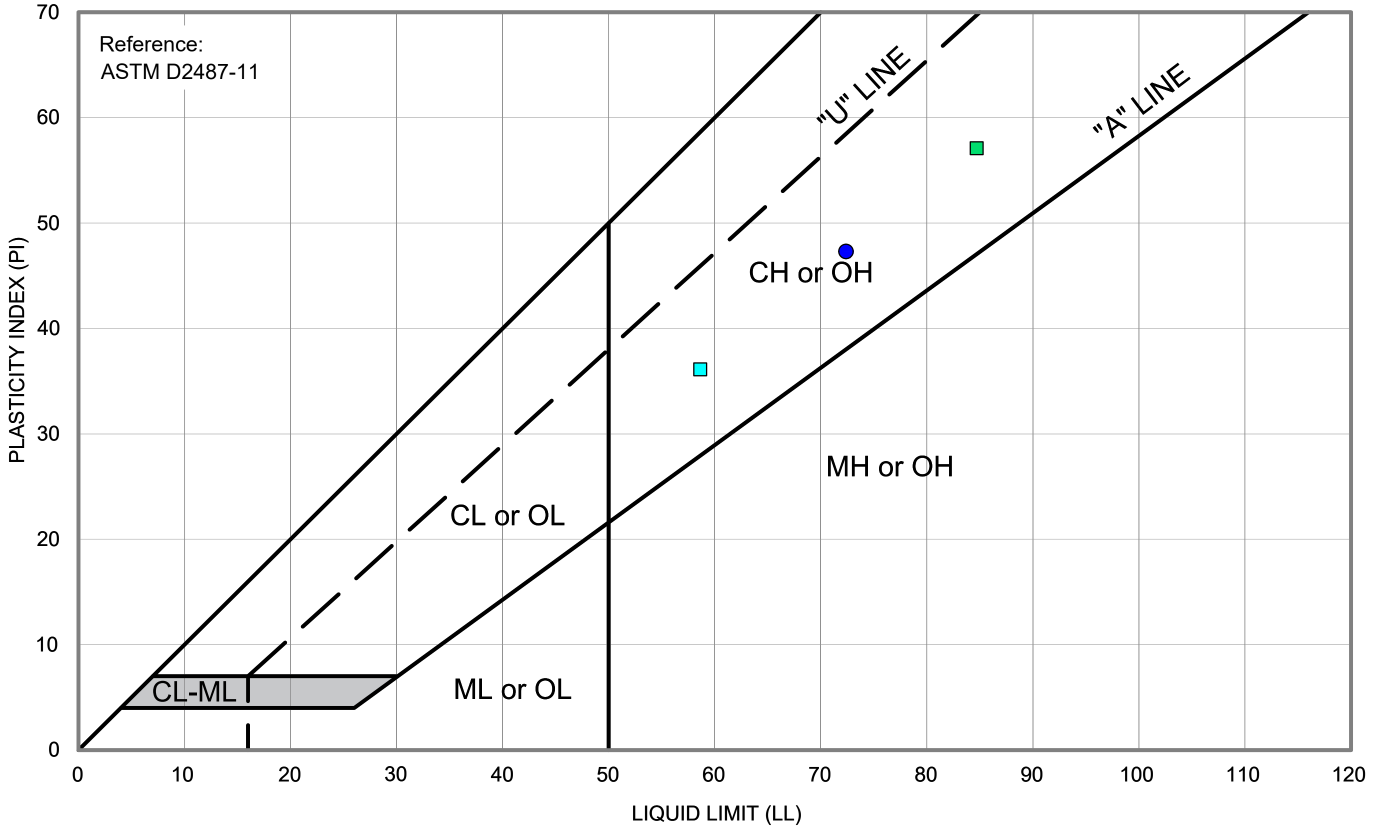
RESISTANCE VALUE TEST DATA

Date 10/19/19 | Project No. 750656701 | Figure B-6

PLASTICITY CHART



Symbol	Source	Description and Classification	Natrual M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-11 at 6 feet	CLAY (CH), dark brown	20.3	73	47	––
🟩	B-12 at 6 feet	CLAY (CH), very dark grayish-brown	35.1	85	57	––
🟦	B-14 at 30.5 feet	CLAY (CL), dark brown	25.4	58	36	––

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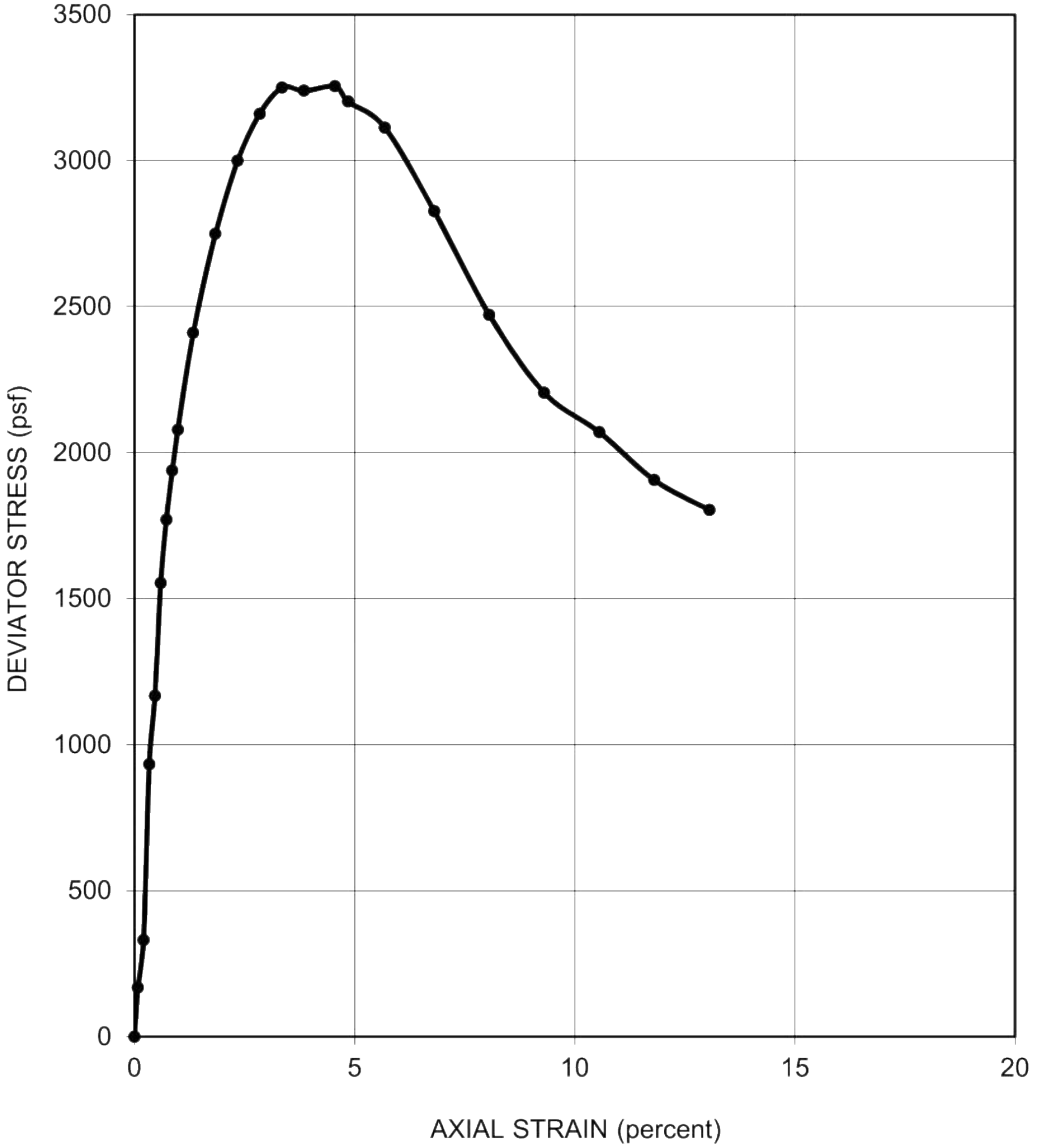
Drawing Title
PLASTICITY CHART

Project No. 750656701
Date 7/31/2020
Drawn By AG
Checked By EA

Figure
B-7



SAMPLER TYPE	Sprague & Henwood				SHEAR STRENGTH	1,630	psf
DIAMETER (in.)	2.39	HEIGHT (in.)	5.54		STRAIN AT FAILURE	4.6	%
MOISTURE CONTENT			8.6	%	CONFINING PRESSURE	4,000	psf
DRY DENSITY			130	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	SHALE, dark gray				SOURCE	B-11 at 40 feet	

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UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

Project No.
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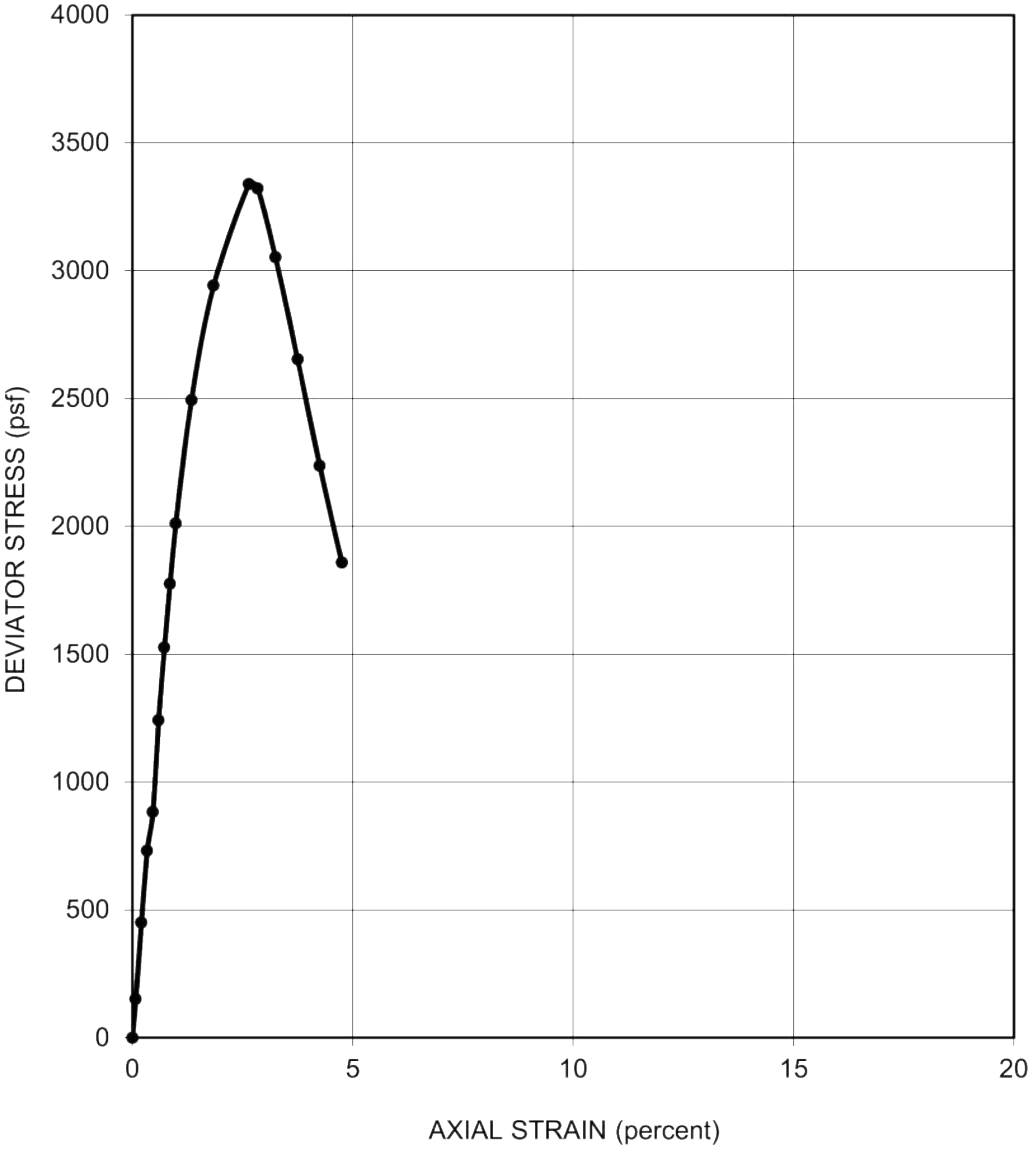
Figure
B-8



SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	1,670	psf
DIAMETER (in.)	2.38	HEIGHT (in.) 5.61		STRAIN AT FAILURE	2.6	%
MOISTURE CONTENT		13.1	%	CONFINING PRESSURE	5,100	psf
DRY DENSITY		125	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	SHALE, dark gray			SOURCE	B-11 at 51 feet	

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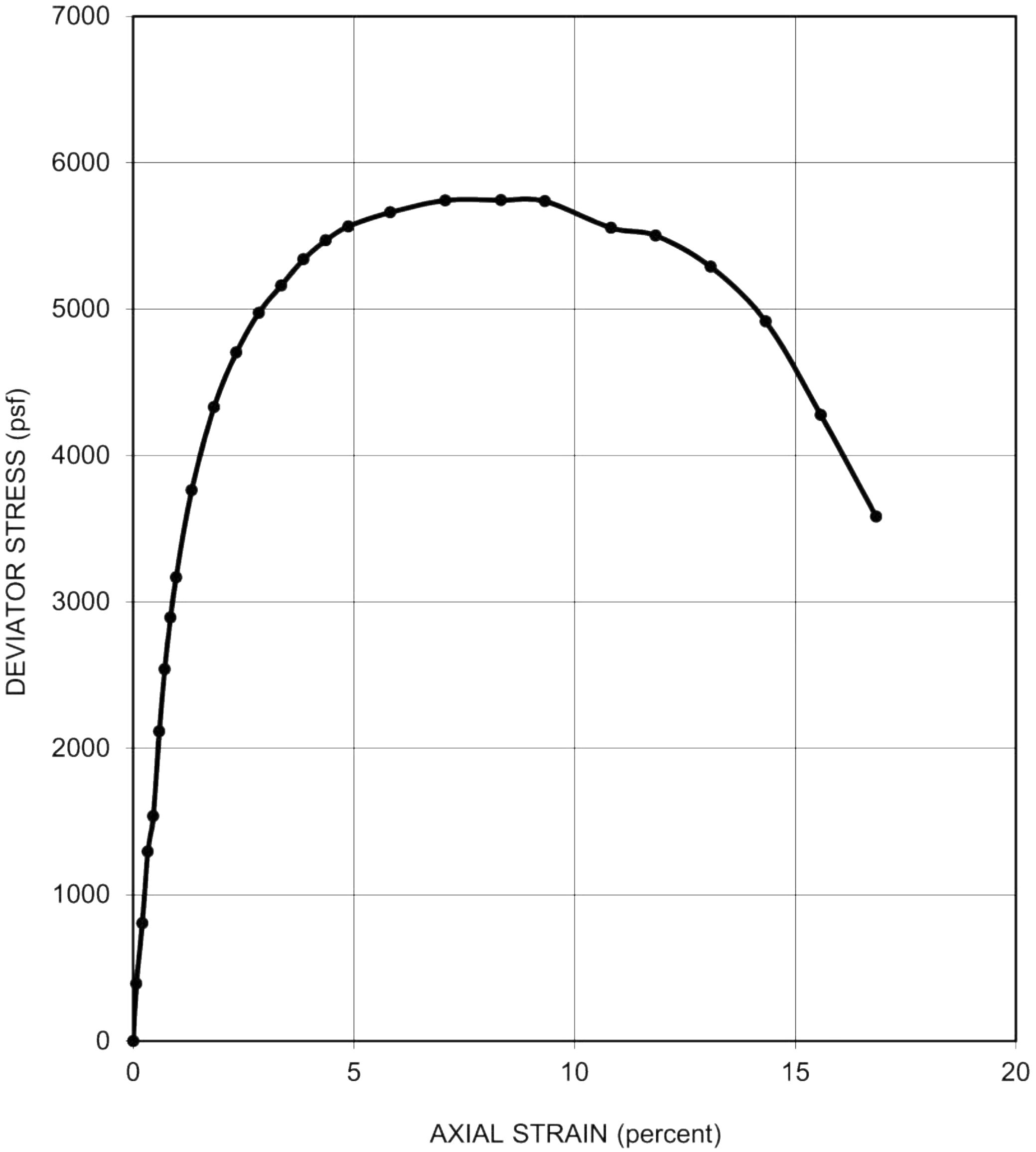
Figure
B-9



SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	2,870	psf
DIAMETER (in.)	2.39	HEIGHT (in.)	5.52	STRAIN AT FAILURE	8.3	%
MOISTURE CONTENT		23.7	%	CONFINING PRESSURE	1,100	psf
DRY DENSITY		103	pcf	STRAIN RATE	0.75	% / min
DESCRIPTION	CLAY (CL), dark yellowish-brown			SOURCE	B-12 at 11 feet	

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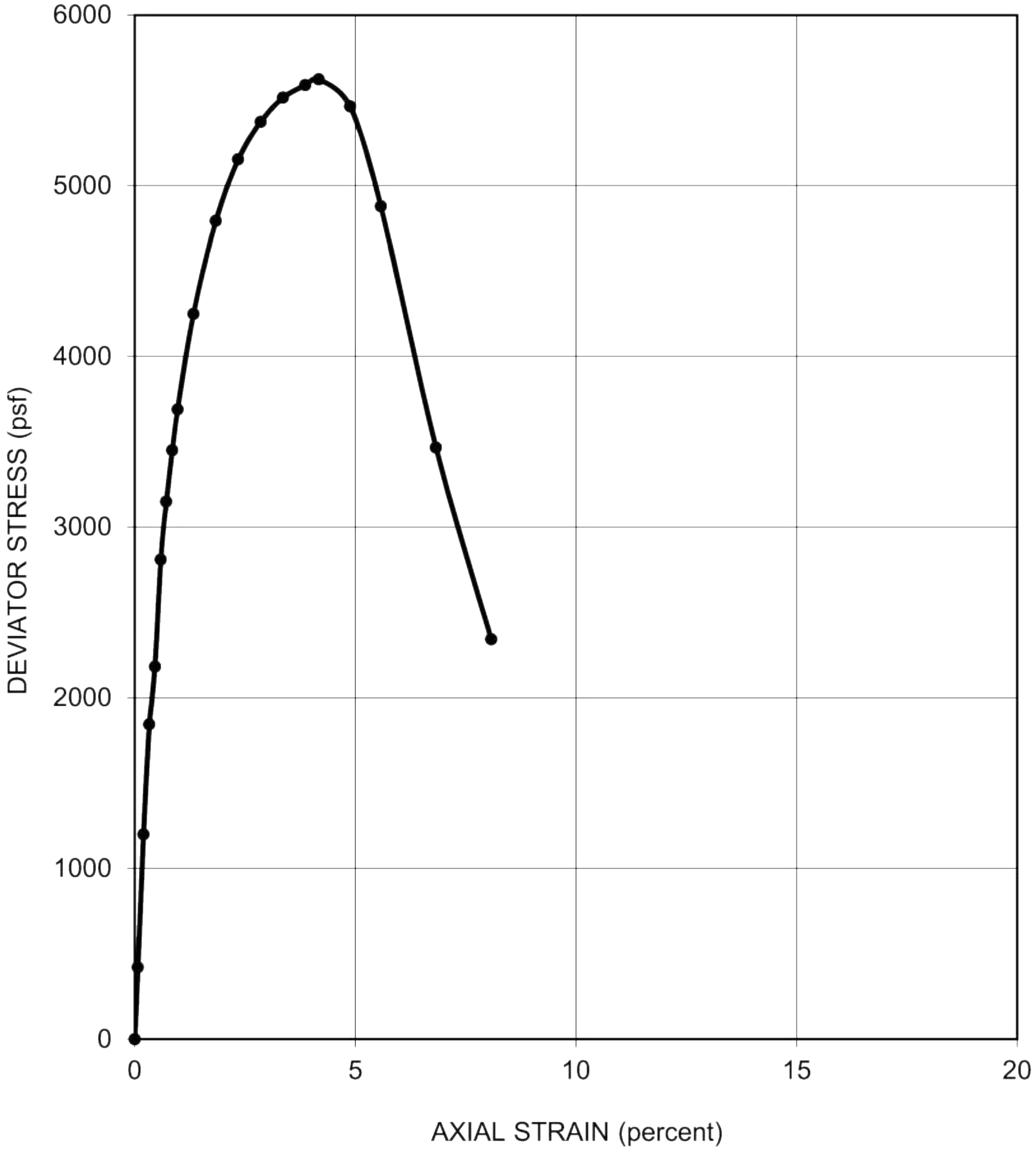
Figure
B-10



SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	2,810	psf
DIAMETER (in.)	2.38	HEIGHT (in.)	5.64	STRAIN AT FAILURE	4.2	%
MOISTURE CONTENT		24.1	%	CONFINING PRESSURE	1,600	psf
DRY DENSITY		104	pcf	STRAIN RATE	0.75	% / min
DESCRIPTION	CLAY (CL), dark yellowish-brown				SOURCE	B-12 at 16 feet

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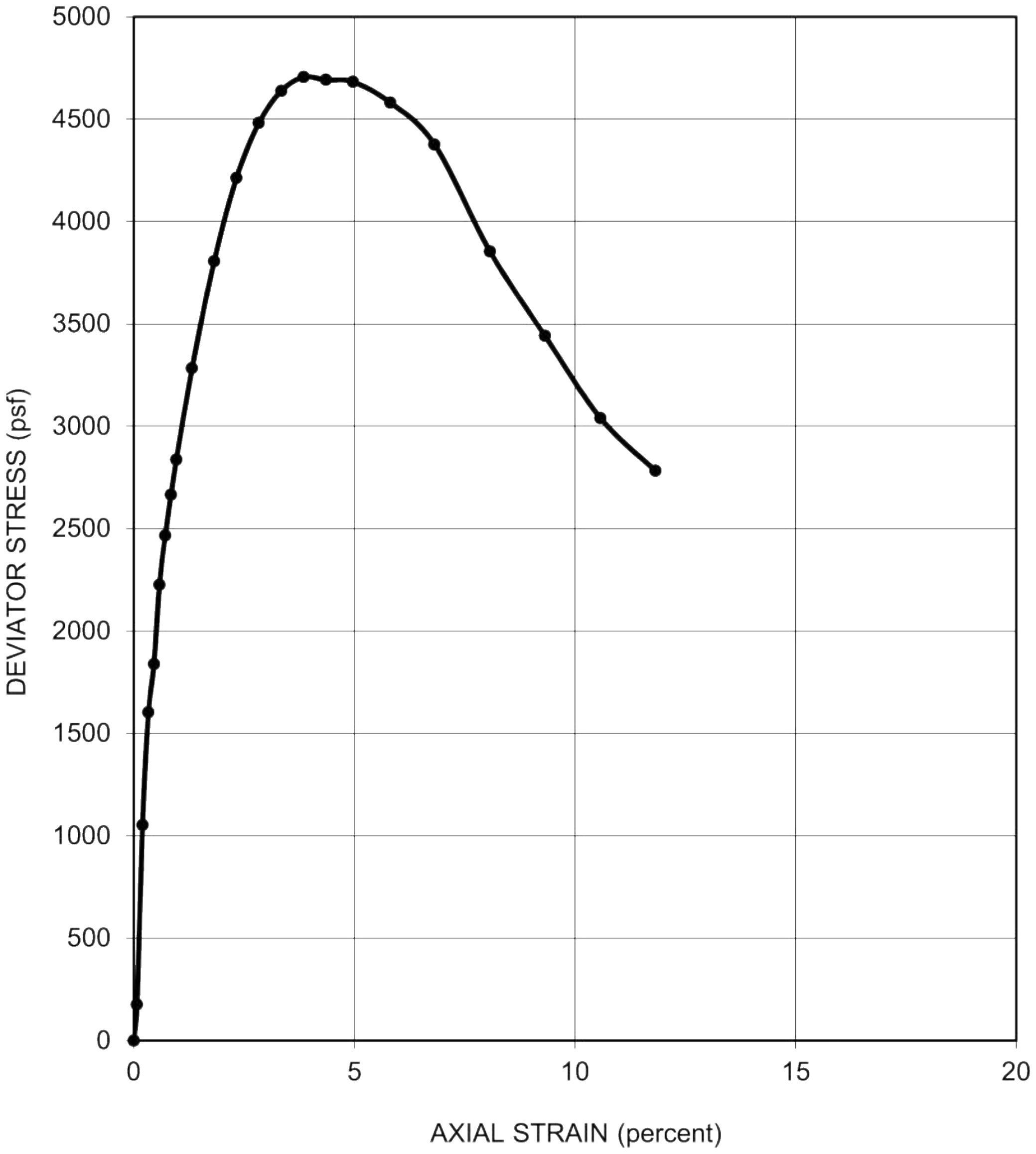
Figure
B-11



SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	2,350	psf
DIAMETER (in.)	2.38	HEIGHT (in.) 5.14		STRAIN AT FAILURE	3.8	%
MOISTURE CONTENT		18.5	%	CONFINING PRESSURE	3,600	psf
DRY DENSITY		114	pcf	STRAIN RATE	0.75	% / min
DESCRIPTION	CLAY with GRAVEL (CL), olive-brown			SOURCE	B-14 at 35.5 feet	

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UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

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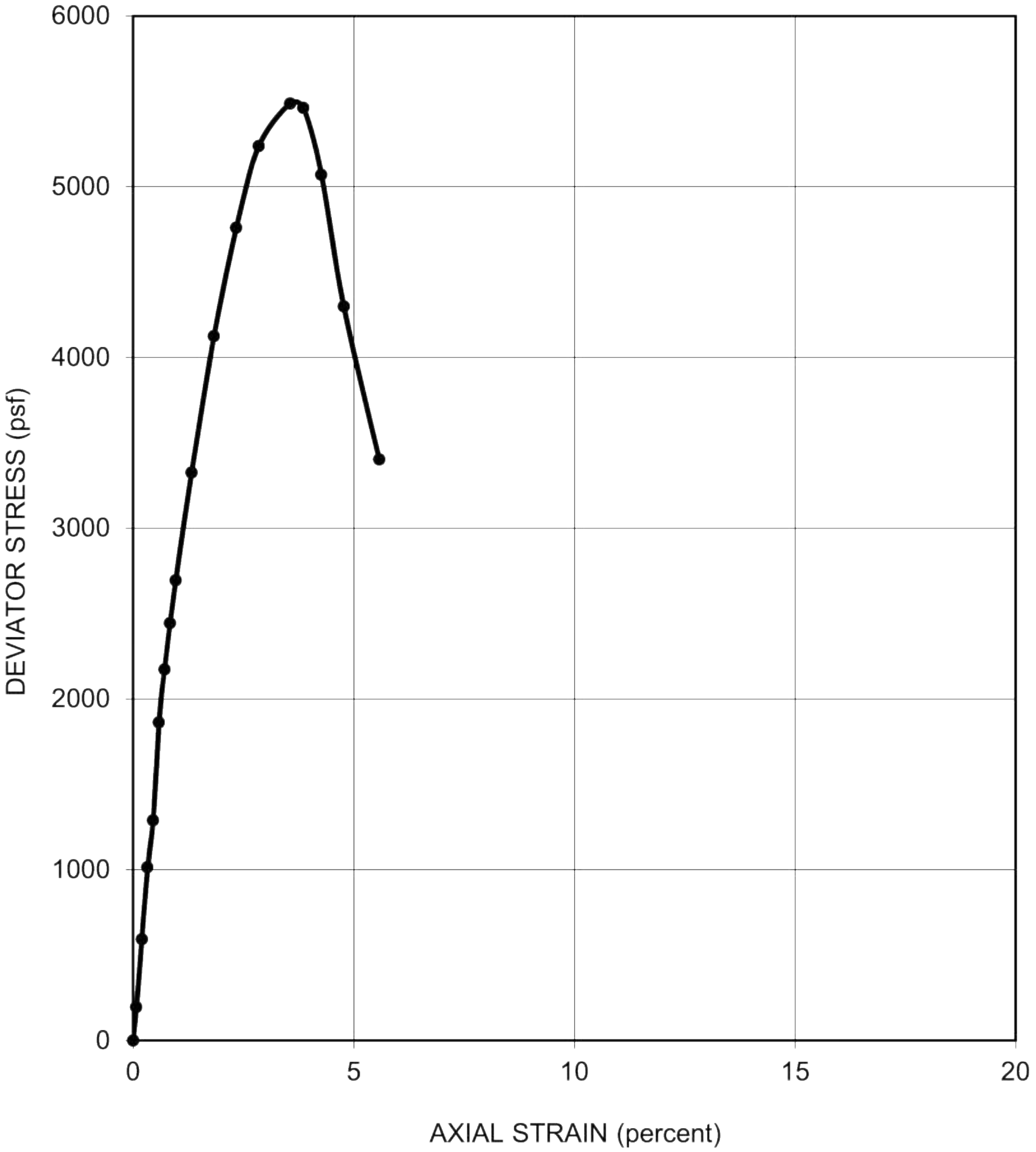
Figure
B-12



SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	2,740	psf
DIAMETER (in.)	2.39	HEIGHT (in.) 5.44		STRAIN AT FAILURE	3.6	%
MOISTURE CONTENT		15.7	%	CONFINING PRESSURE	4,100	psf
DRY DENSITY		119	pcf	STRAIN RATE	0.75	% / min
DESCRIPTION	SHEARED SANDSTONE/ GOUGE, yellow-brown			SOURCE	B-14 at 40.5 feet	

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UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

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Checked By EA

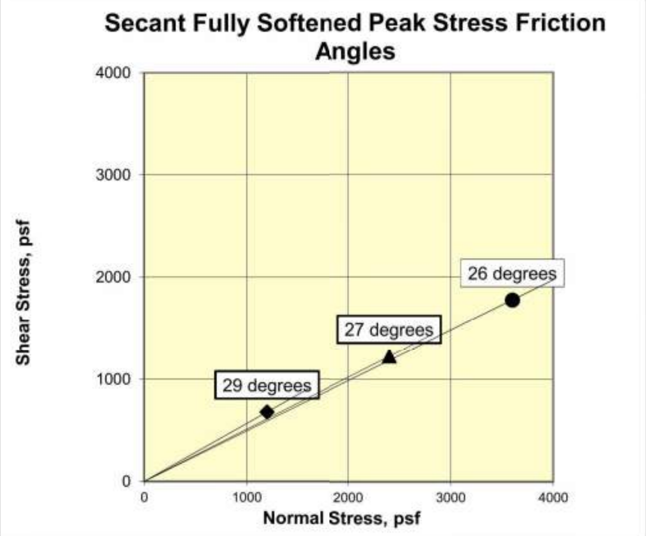
Figure
B-13

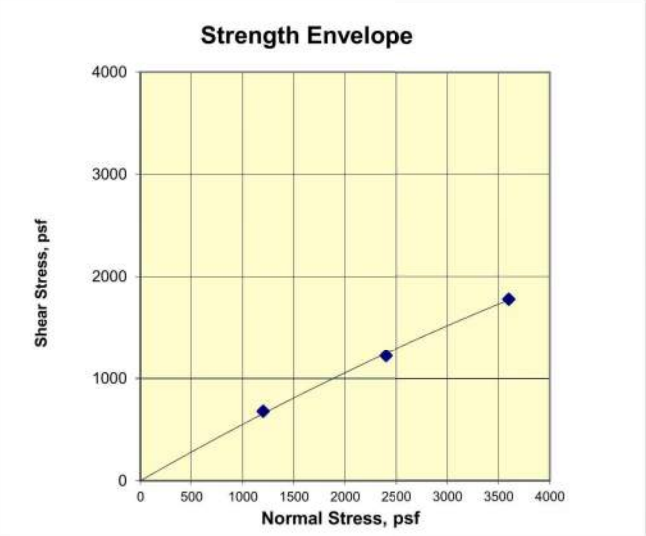
COOPER TESTING LABORATORY

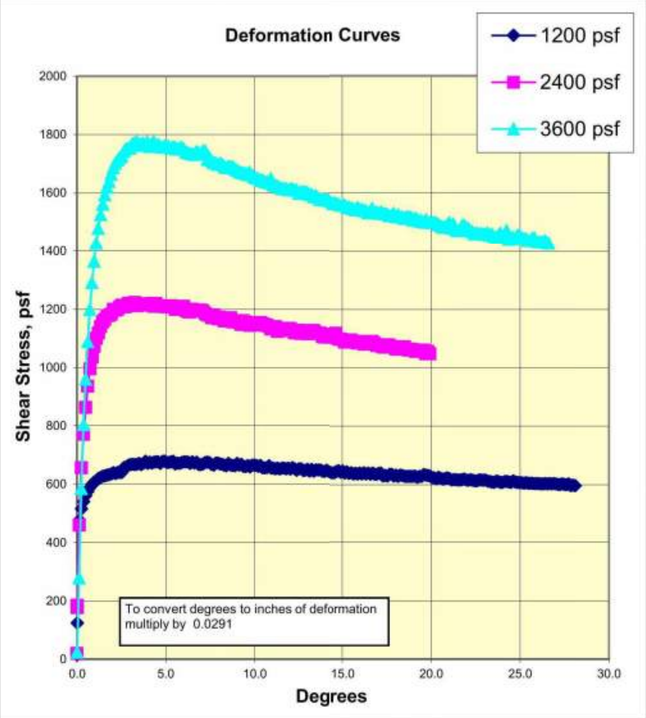
Drained Fully Softened Peak Torsional Shear Strength (ASTM D7608)

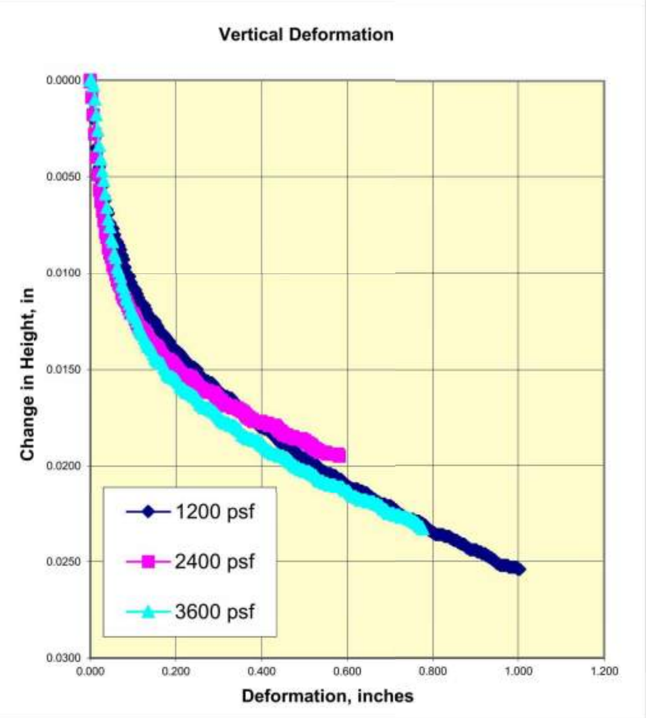
CTL Job No.: 010-1152 **Boring:** B-12 **Date:** 7/22/2020 **Clay, %:**
Client: Langan **Sample:** 6 **By:** PJ **LL:**
Project Name: La Vista Park, Hayward **Depth (ft):** 21 **Checked:** DC **PL:**
Project Number: 750656701-700-002.2 **Test Type:** Fully Softened Peak
Soil Type: Olive Brown Sandy CLAY **Remarks:**

Normal Stress, psf:	1200	2400	3600
Secant Phi, deg.:	29	27	26









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Oakland, CA 94612
T: 510.874.7000 F: 510.874.7001 www.langan.com

Project
LA VISTA PARK
HAYWARD
ALAMEDA COUNTY CALIFORNIA

Drawing Title
DRAINED FULLY SOFTENED PEAK TORSIONAL SHEAR STRENGTH (ASTM D7608)

Project No. 750656701
Date 7/31/2020
Drawn By AG
Checked By EA

Figure
B-14

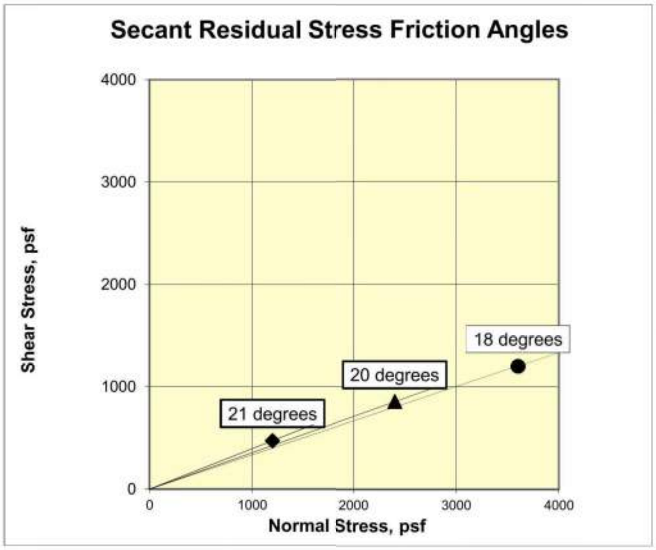
COOPER TESTING LABORATORY

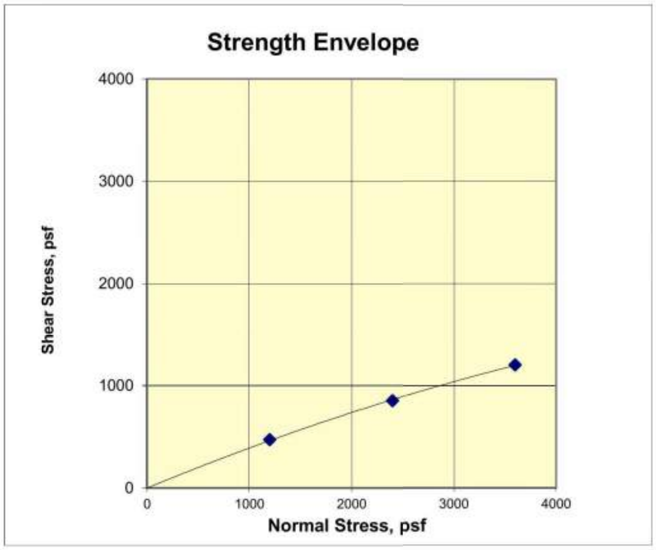
Drained Residual Torsional Shear Strength (ASTM D6467)

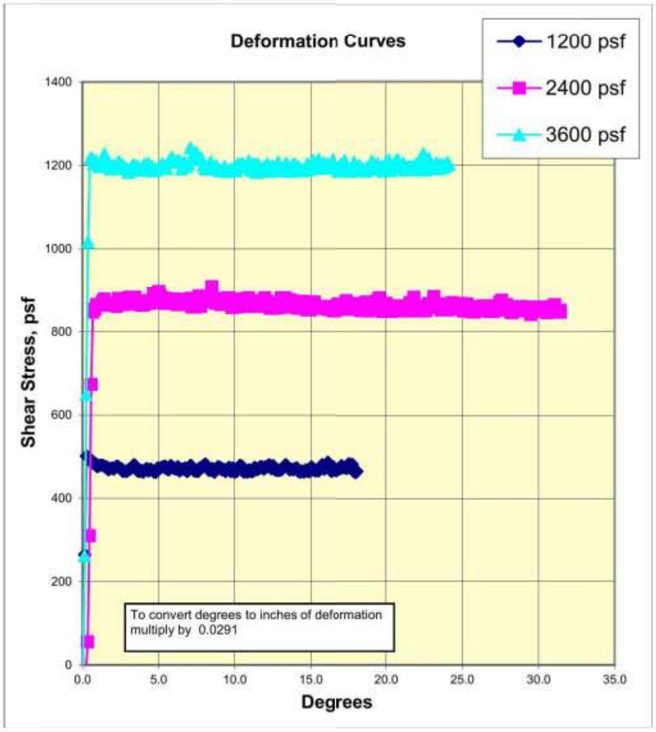
CTL Job No.: 010-1152
Boring: B-12
Date: 7/22/2020
Clay, %:
Client: Langan
Sample: 6
By: PJ
LL:
Project Name: La Vista Park, Hayward
Depth (ft): 21
Checked: DC
PL:
Project Number: 750656701-700-002.2
Test Type: Fully Softened Residual
Soil Type: Olive Brown Sandy CLAY

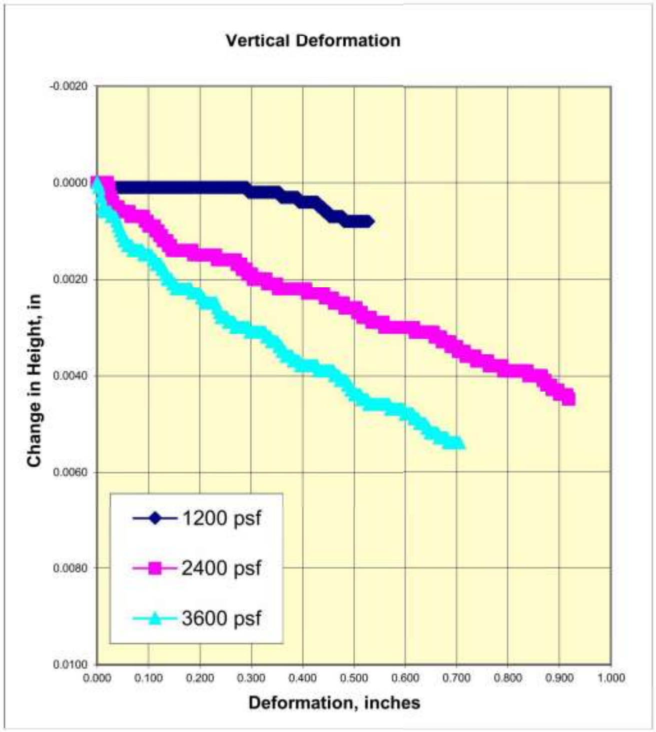
Normal Stress, psf:	1200	2400	3600
Secant Phi, deg.:	21	20	18

Remarks: A small friction correction was applied to each point.









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Project
LA VISTA PARK
HAYWARD
ALAMEDA COUNTY CALIFORNIA

Drawing Title
DRAINED RESIDUAL TORSIONAL SHEAR STRENGTH (ASTM D6467)

Project No. 750656701
Date 7/31/2020
Drawn By AG
Checked By EA
Figure B-15

COOPER TESTING LABORATORY

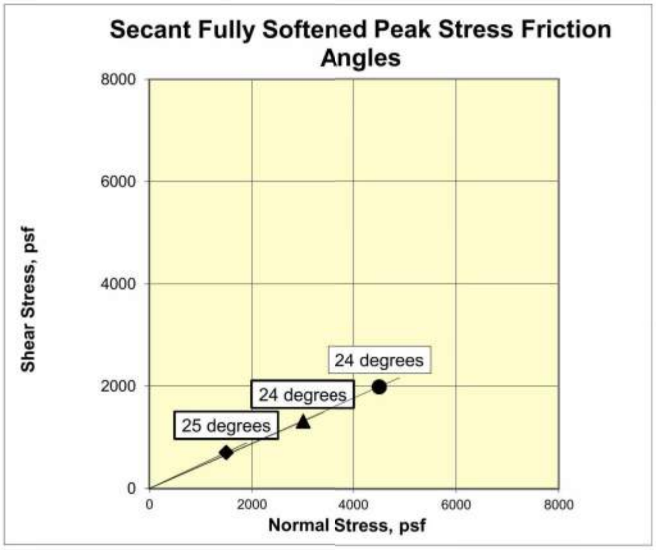
Drained Fully Softened Peak Torsional Shear Strength (ASTM D7608)

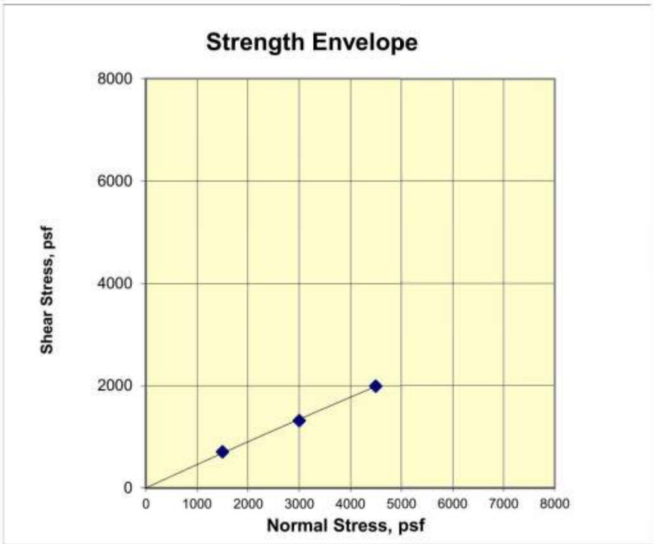
CTL Job No.:	010-1152	**Boring:**	B-14	**Date:**	8/4/2020	**Clay, %:**	
Client:	Langan	**Sample:**	11	**By:**	PJ	**LL:**	
Project Name:	La Vista Park, Hayward	**Depth (ft):**	31	**Checked:**	DC	**PL:**	
Project Number:	750656701-700-002.2	**Test Type:**	Fully Softened Peak				

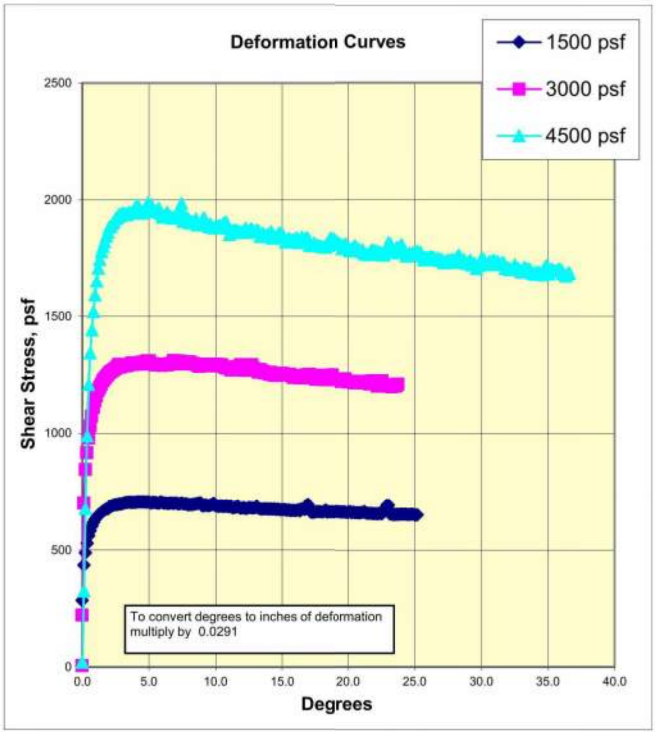
Soil Type: Brown CLAY w/ Sand

Remarks:

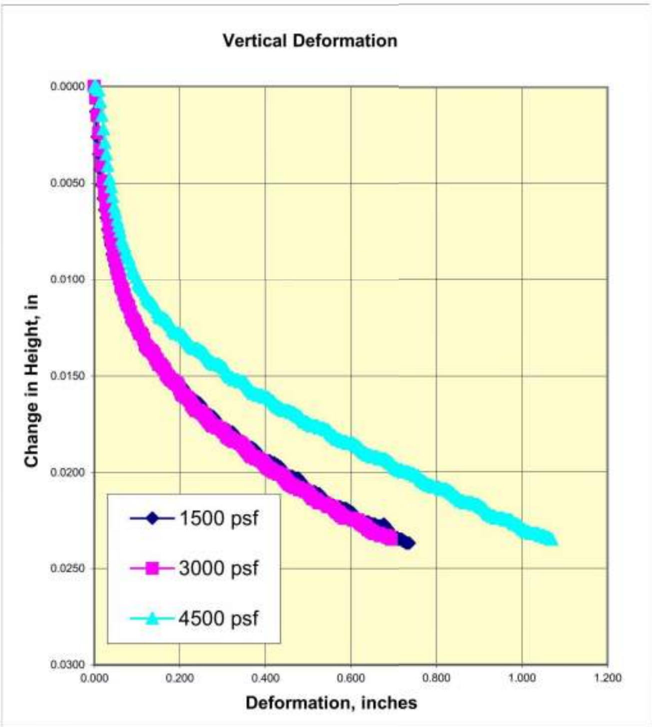
Normal Stress, psf:	1500	3000	4500
Secant Phi, deg.:	25	24	24


Secant Fully Softened Peak Stress Friction Angles


Strength Envelope


Deformation Curves

To convert degrees to inches of deformation multiply by 0.0291


Vertical Deformation

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Project

LA VISTA PARK

HAYWARD

ALAMEDA COUNTY CALIFORNIA

Drawing Title

DRAINED FULLY SOFTENED PEAK TORSIONAL SHEAR STRENGTH (ASTM D7608)

Project No.
750656701

Date
7/31/2020

Drawn By
AG

Checked By
EA

Figure

B-16

Filename: \\langan.com\data\OAK\data7\750656701\Project Data\CAD\01\2D-DesignFiles\Geotechnical\750656701-B-GI0101_Lab-Classification.dwg Date: 8/17/2020 Time: 09:54 User: agekas Style Table: Langan.stb Layout: B-16 Torsional

COOPER TESTING LABORATORY

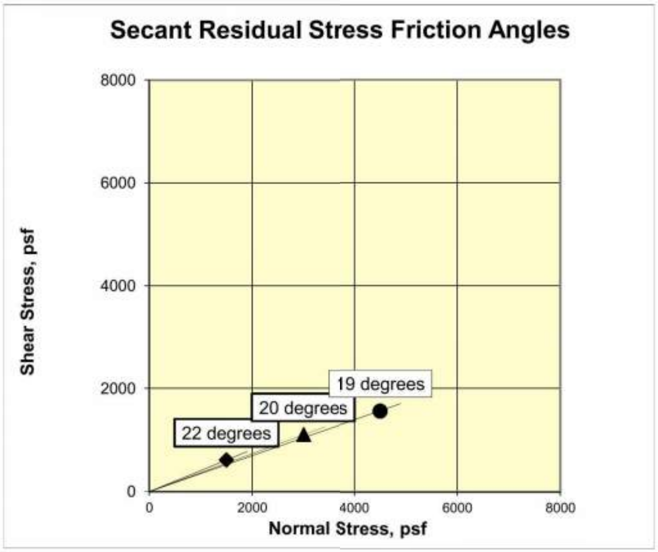
Drained Residual Torsional Shear Strength
(ASTM D6467)

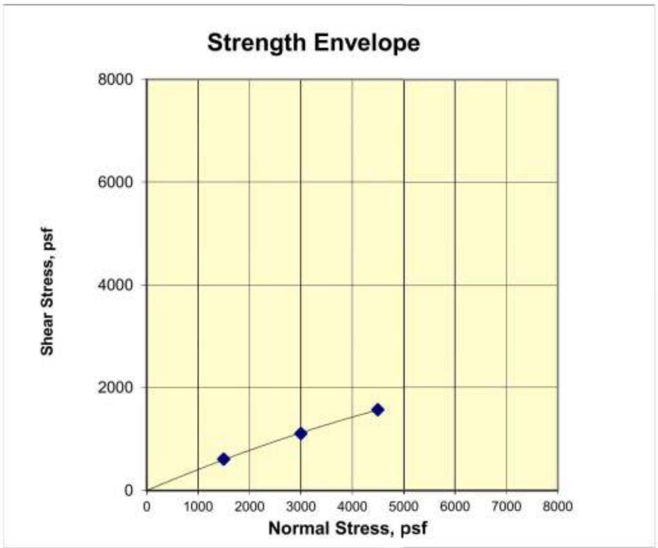
CTL Job No.:	010-1152	**Boring:**	B-14	**Date:**	8/4/2020	**Clay, %:**	
Client:	Langan	**Sample:**	11	**By:**	PJ	**LL:**	
Project Name:	La Vista Park, Hayward	**Depth (ft):**	31	**Checked:**	DC	**PL:**	
Project Number:	750656701-700-002.2	**Test Type:**	Fully Softened Residual				

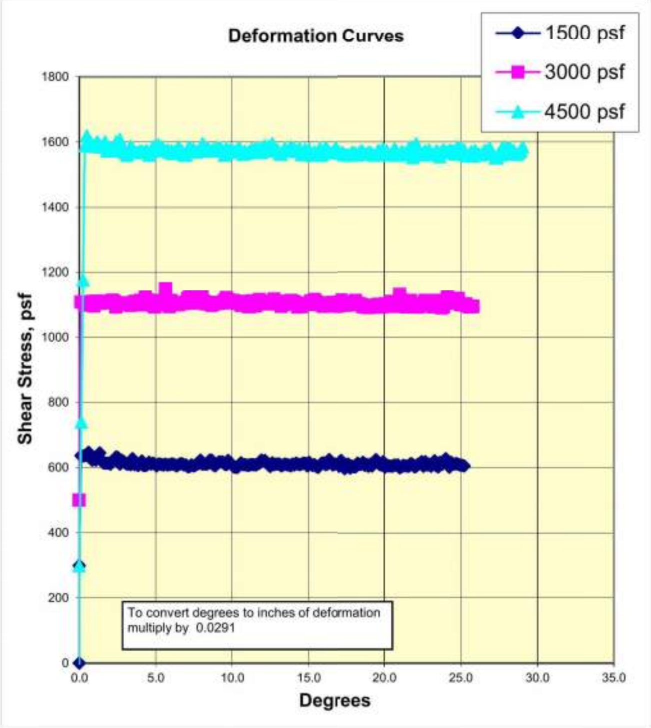
Soil Type: Brown CLAY w/ Sand

Normal Stress, psf:	1500	3000	4500
Secant Phi, deg.:	22	20	19

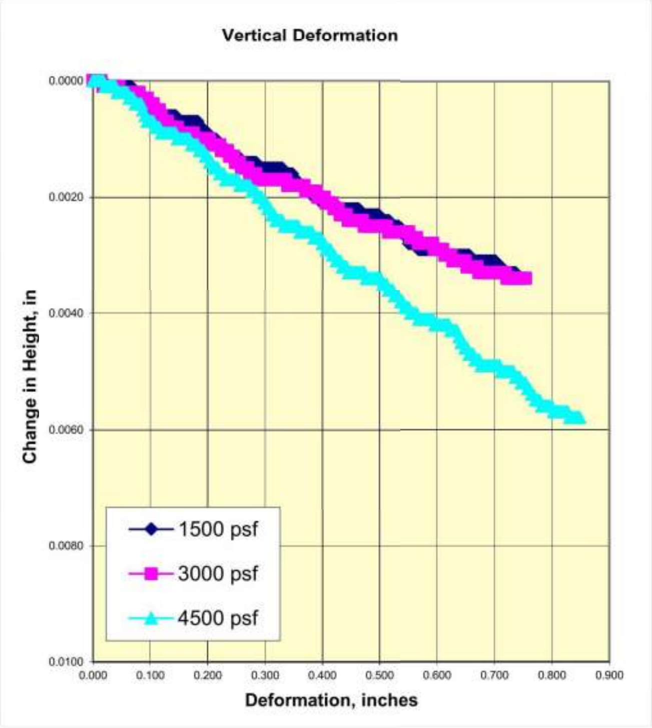
Remarks: A small friction correction was applied to each point.


Secant Residual Stress Friction Angles


Strength Envelope


Deformation Curves

To convert degrees to inches of deformation multiply by 0.0291


Vertical Deformation

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Project

LA VISTA PARK

HAYWARD

ALAMEDA COUNTY CALIFORNIA

Drawing Title

DRAINED RESIDUAL TORSIONAL SHEAR STRENGTH (ASTM D6467)

Project No. 750656701
Date 7/31/2020
Drawn By AG
Checked By EA

Figure

B-17

APPENDIX C

NOA TESTING REPORT

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Langan Engineering & Env. Services Inc.
Marina Mascorro
300 Kimball Drive

Parsippany, NJ 07054

Client ID: L1959
Report Number: N013182
Date Received: 07/17/20
Date Analyzed: 07/22/20
Date Printed: 07/22/20

Job ID/Site: 750656701 - La Vista., Hayward, CA

SGSFL Job ID: L1959
Total Samples Submitted: 5
Total Samples Analyzed: 5

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
A1	12323287	**Tan Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

A2	12323288	**Tan Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

A3	12323289	**Tan Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

B-11-11	12323290	**Dark Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: None Detected
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Langan Engineering & Env. Services Inc.
Marina Mascorro
300 Kimball Drive

Parsippany, NJ 07054

Client ID:	L1959
Report Number:	N013182
Date Received:	07/17/20
Date Analyzed:	07/22/20
Date Printed:	07/22/20

Job ID/Site: 750656701 - La Vista., Hayward, CA

PLM Report Number: N/A

SGSFL Job ID:	L1959
Total Samples Submitted:	5
Total Samples Analyzed:	5

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
B-14-6	12323291	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

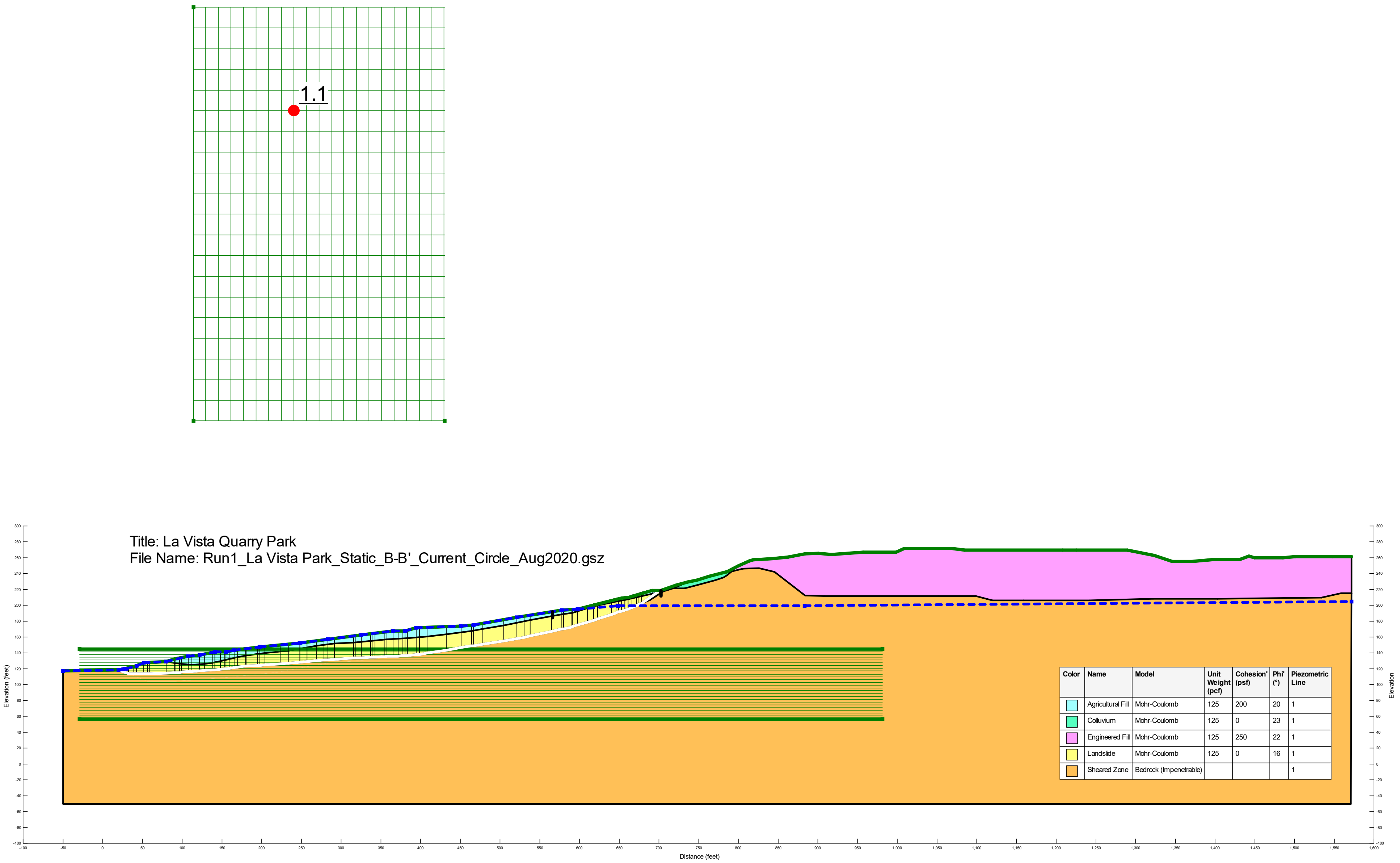
Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

APPENDIX D

RESULTS OF SLOPE STABILITY ANALYSES

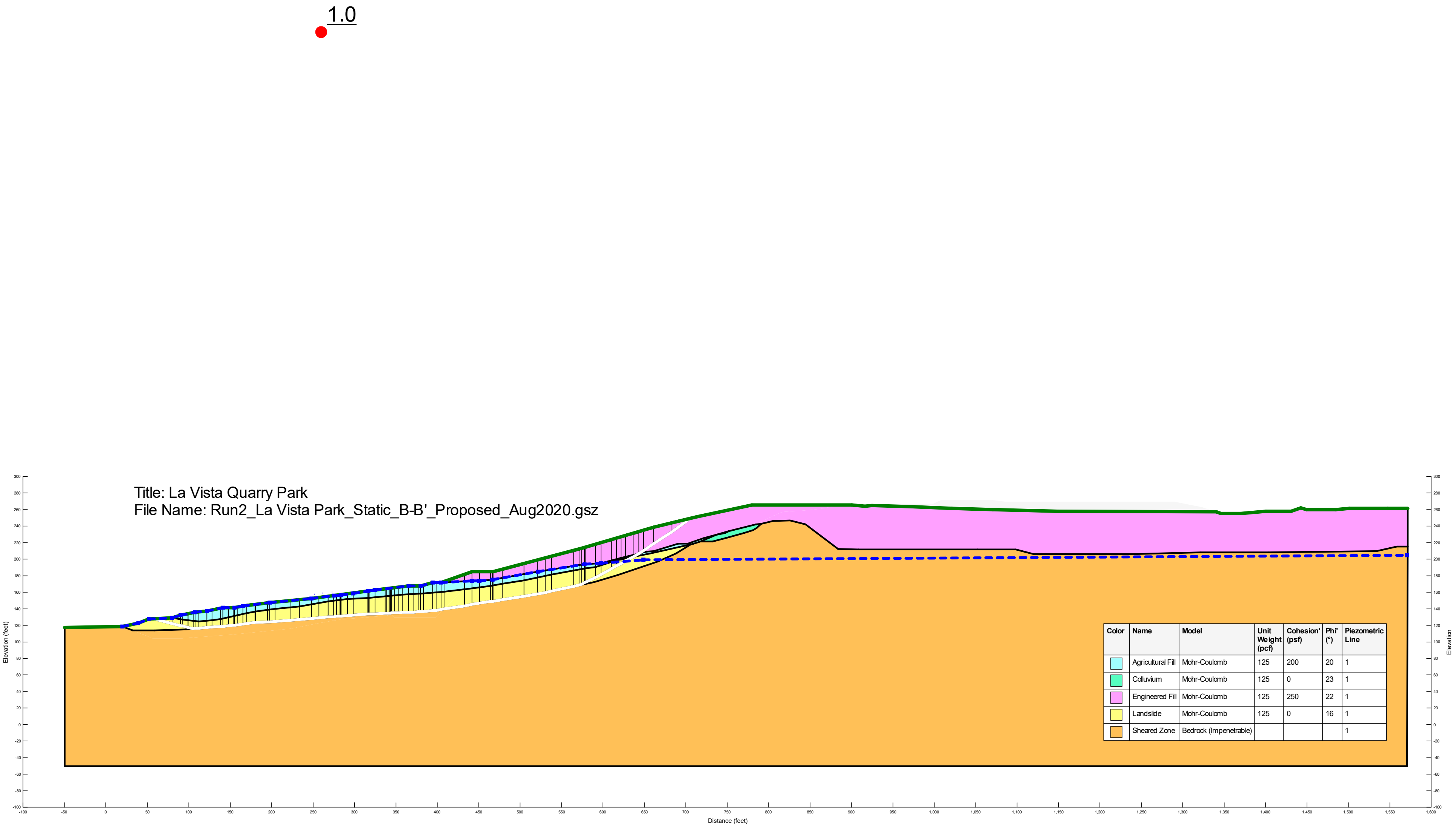


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	200	20	1
■	Colluvium	Mohr-Coulomb	125	0	23	1
■	Engineered Fill	Mohr-Coulomb	125	250	22	1
■	Landslide	Mohr-Coulomb	125	0	16	1
■	Sheared Zone	Bedrock (Impenetrable)				1

Static Case - Existing Grading
Circular Failure Check
Minimum Factor of Safety = 1.1

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

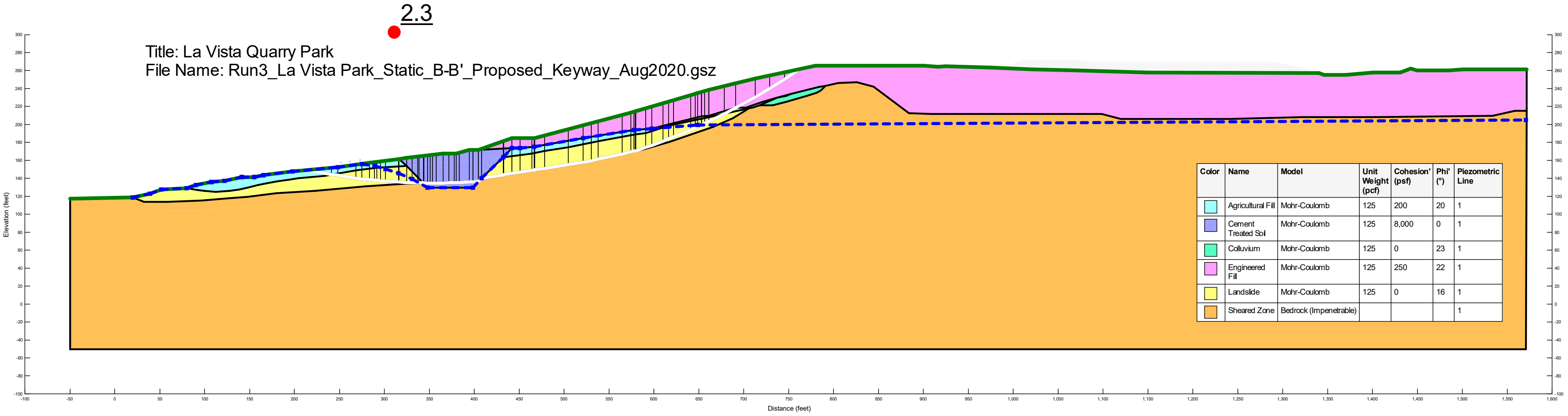


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	200	20	1
🟩	Colluvium	Mohr-Coulomb	125	0	23	1
🟪	Engineered Fill	Mohr-Coulomb	125	250	22	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Static Case - Proposed Grading
Circular Failure Check
Minimum Factor of Safety = 1.0

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

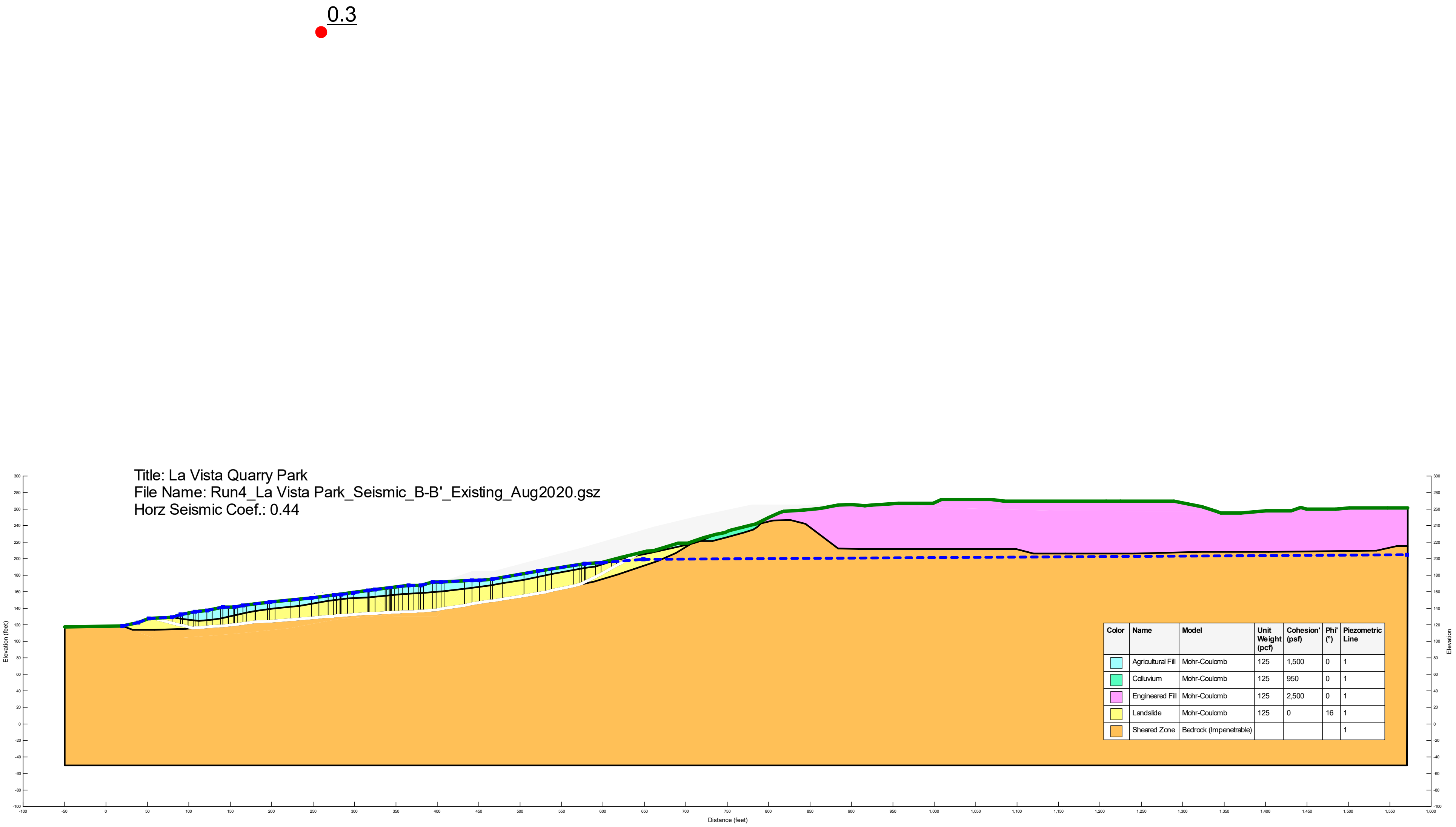


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	200	20	1
🟦	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
🟩	Colluvium	Mohr-Coulomb	125	0	23	1
🟪	Engineered Fill	Mohr-Coulomb	125	250	22	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Static Case - Proposed Grading with Keyway
Circular Failure Check
Minimum Factor of Safety = 2.3

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



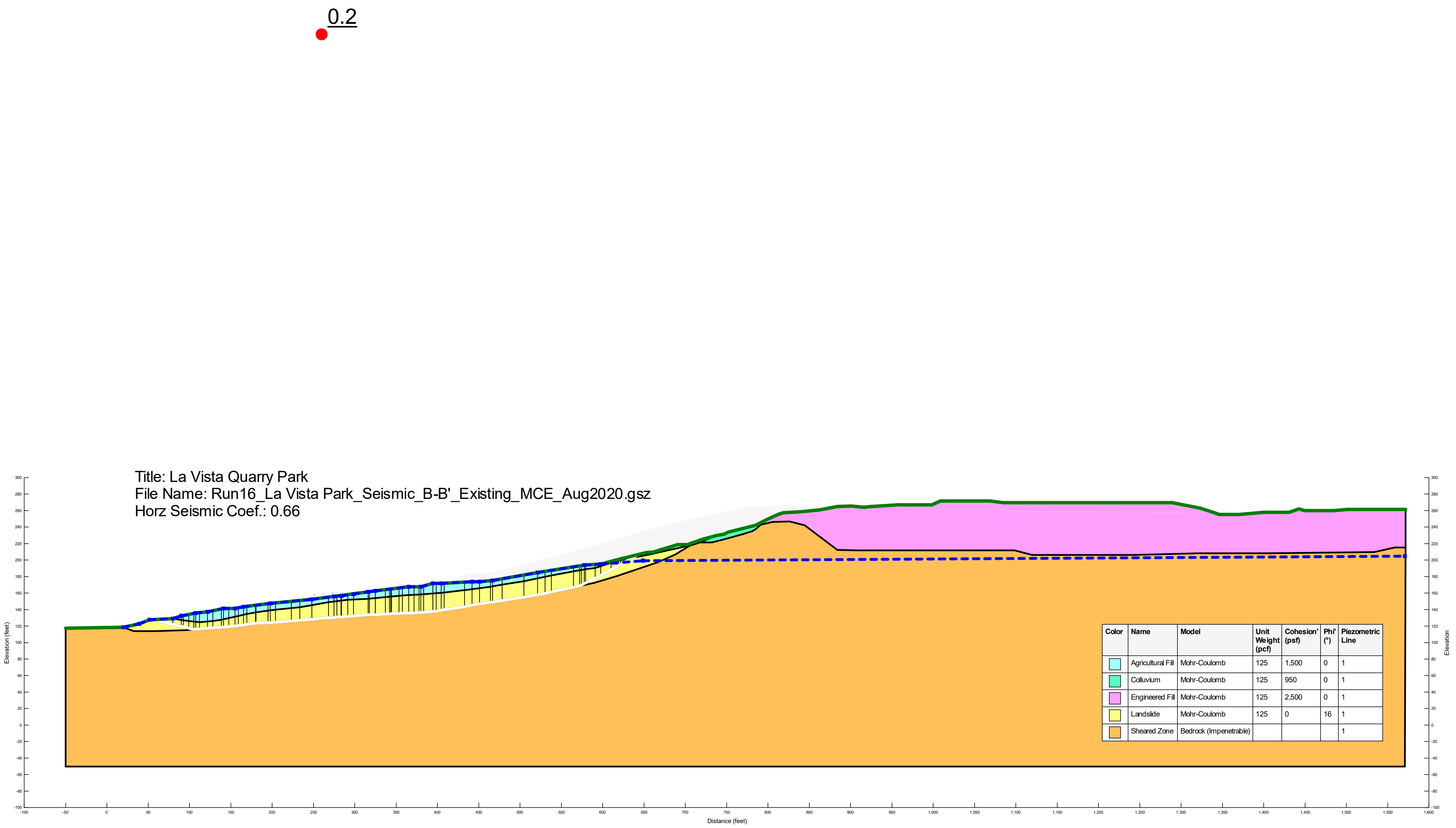
Title: La Vista Quarry Park
File Name: Run4_La Vista Park_Seismic_B-B'_Existing_Aug2020.gsz
Horz Seismic Coef.: 0.44

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
■	Colluvium	Mohr-Coulomb	125	950	0	1
■	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
■	Landslide	Mohr-Coulomb	125	0	16	1
■	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Existing Grading
Circular Failure Check
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 0.3

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

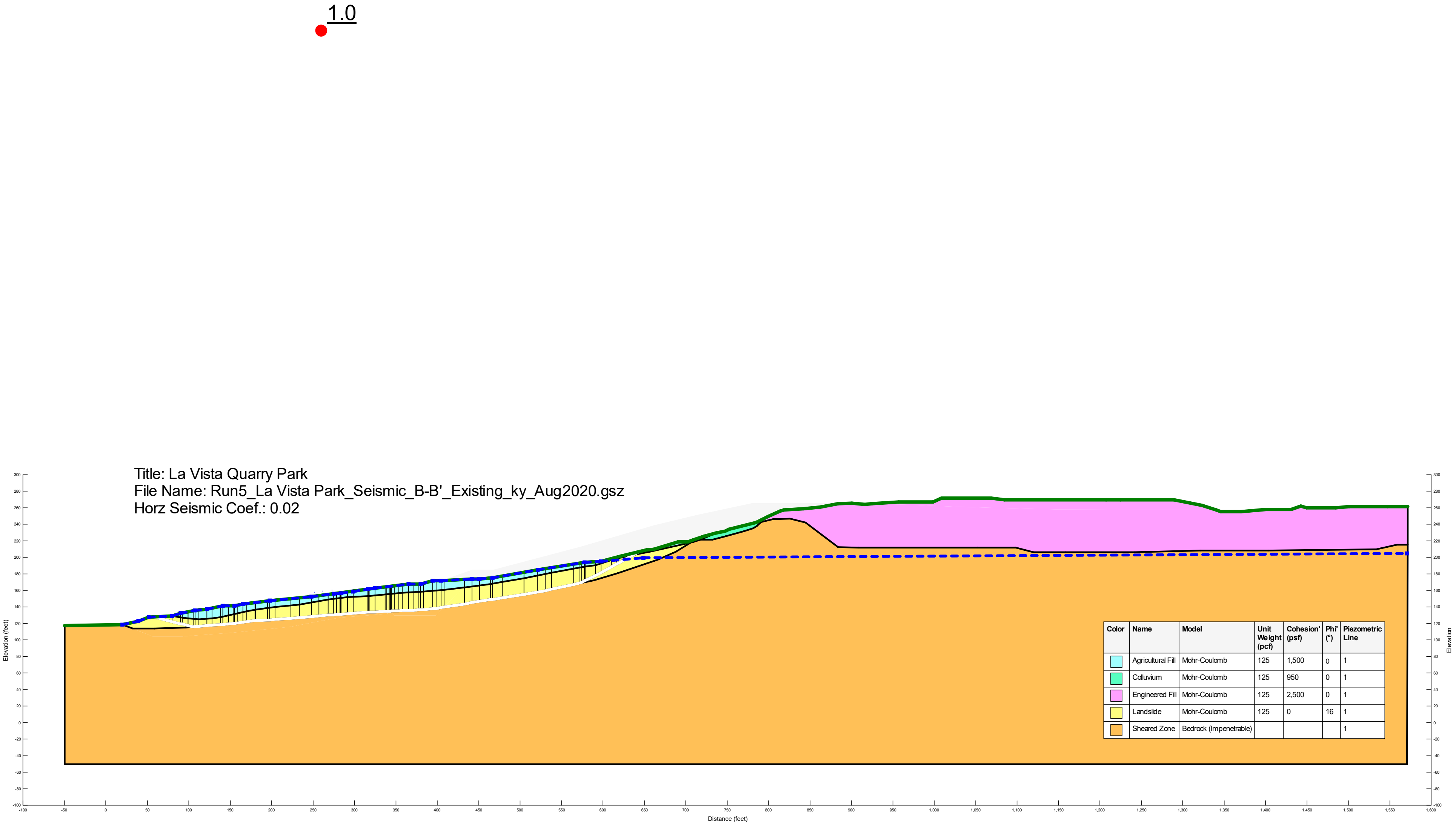


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Existing Grading
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 0.2

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

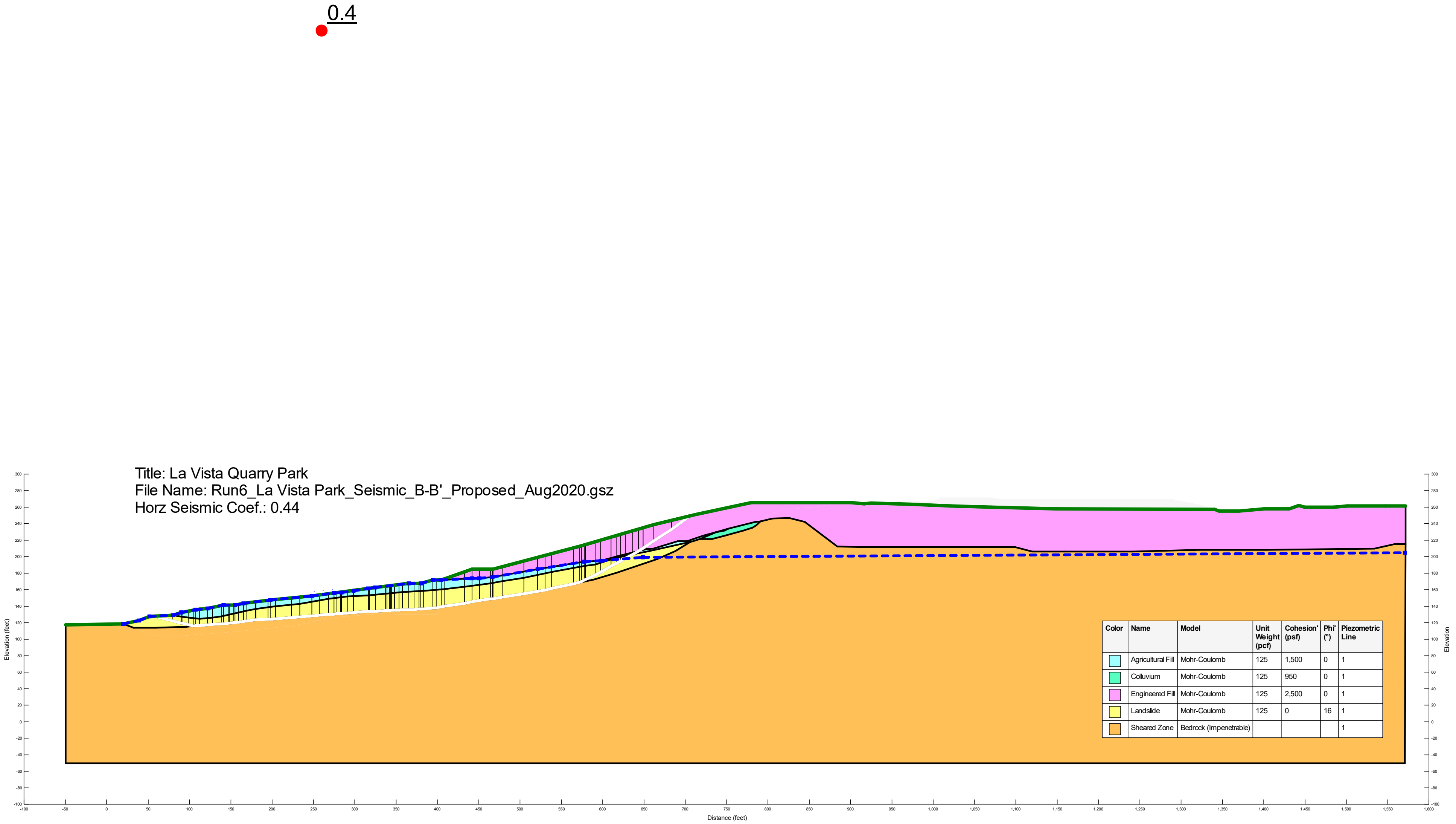


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Existing Grading
Circular Failure Check
Horizontal Seismic Coefficient = 0.02g
Minimum Factor of Safety = 1.0

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

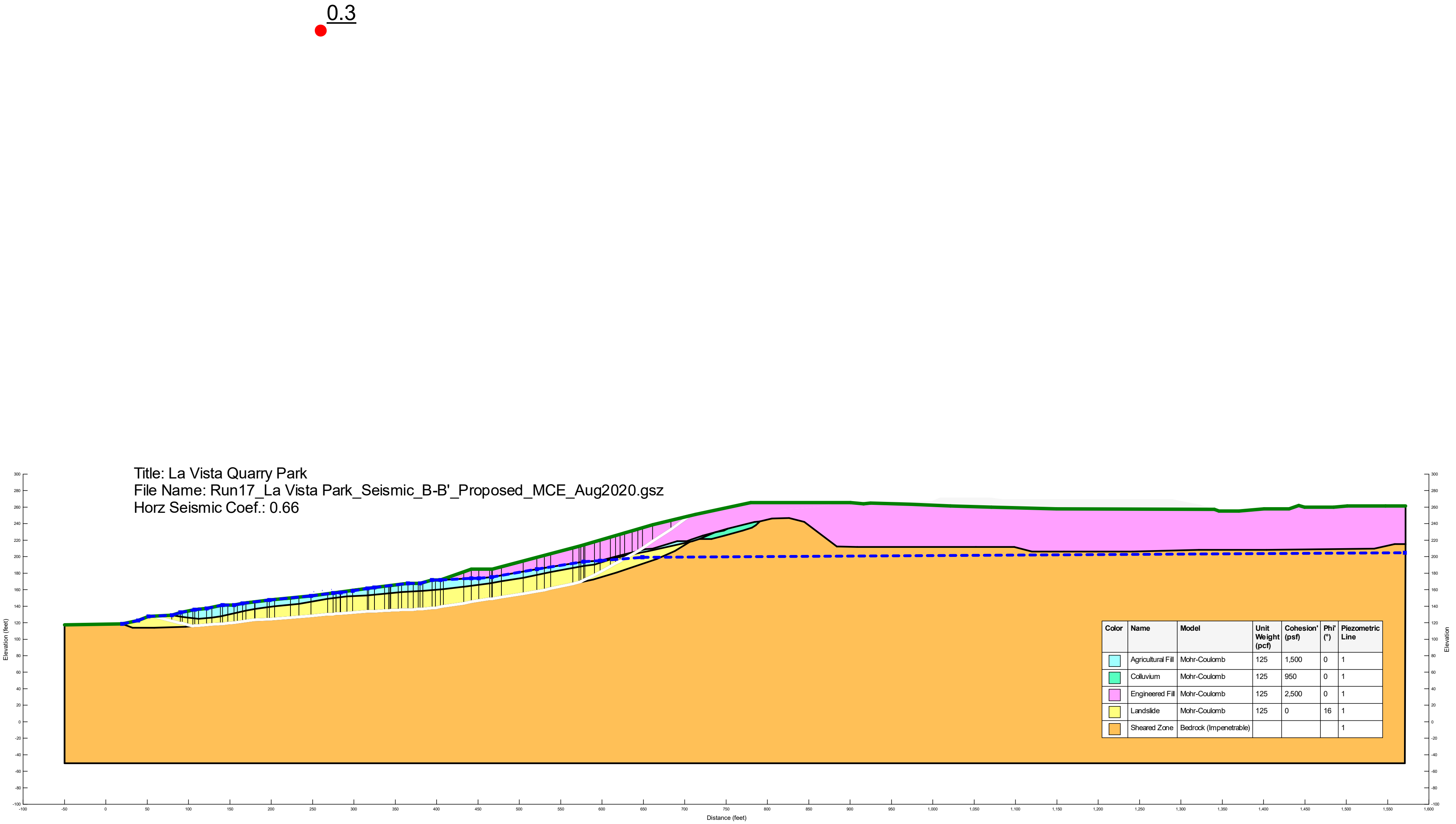


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading
Circular Failure Check
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 0.4

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

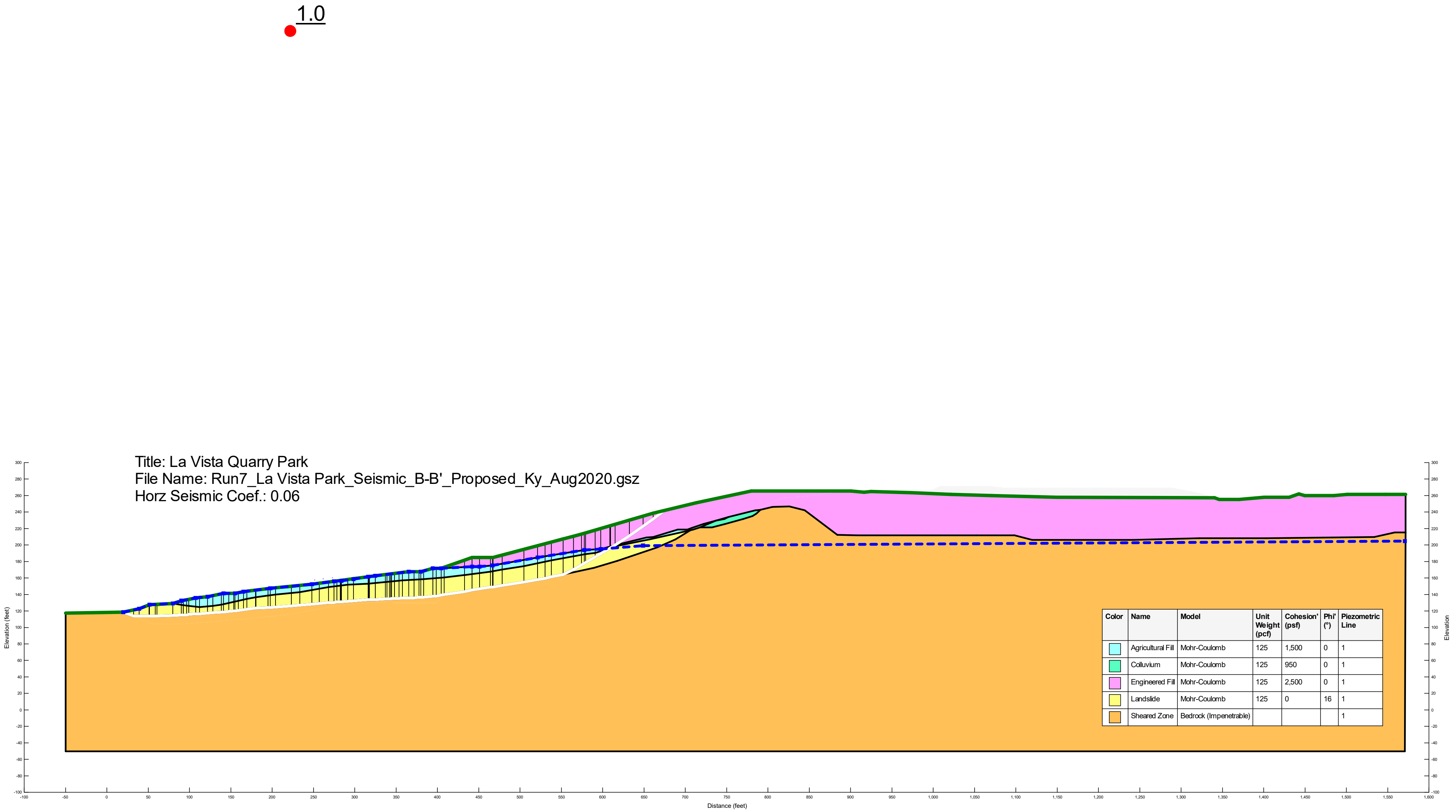


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 0.3

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

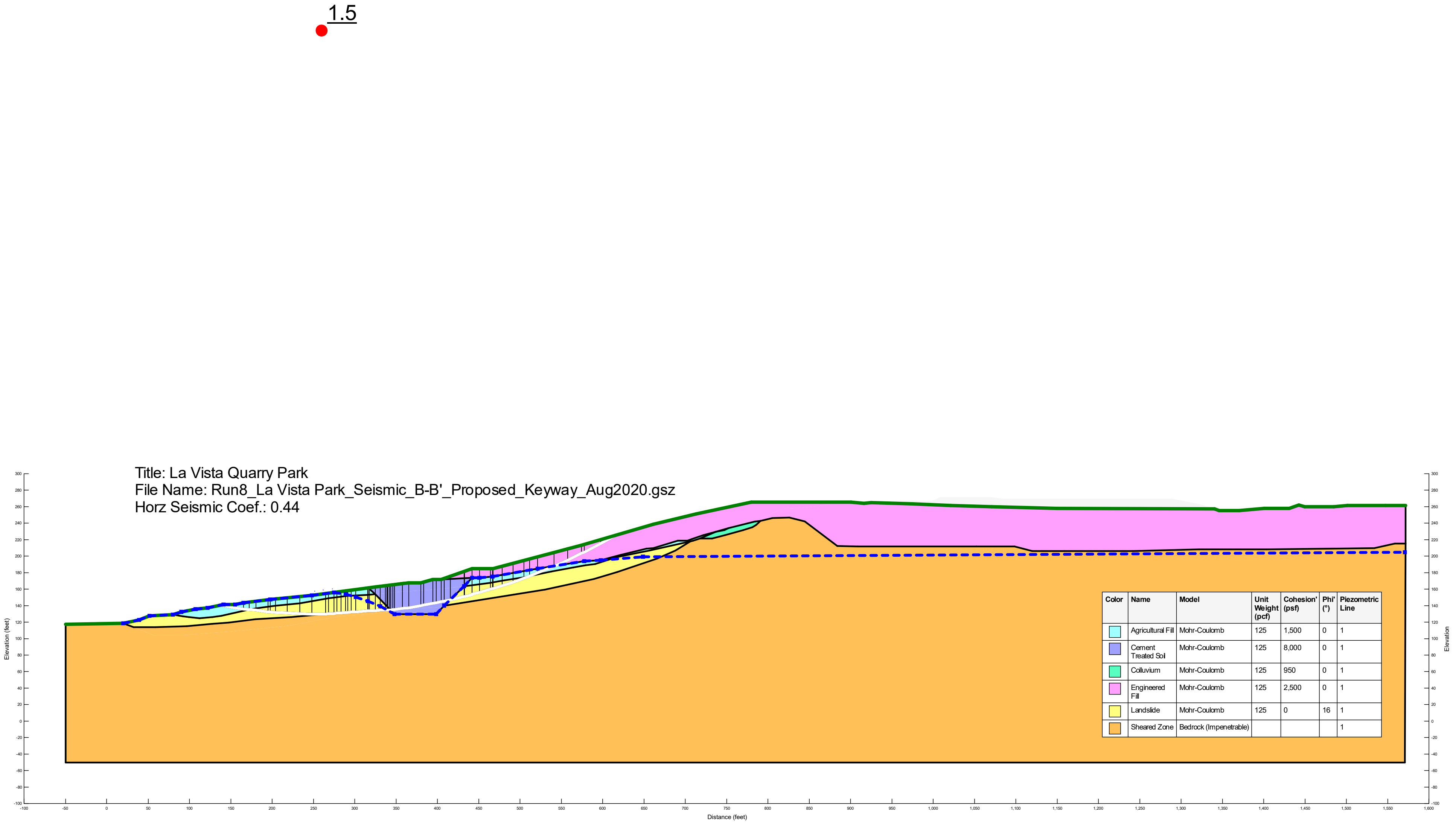


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading
Wedge Failure Check
Horizontal Seismic Coefficient = 0.06 g
Minimum Factor of Safety = 1.0

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



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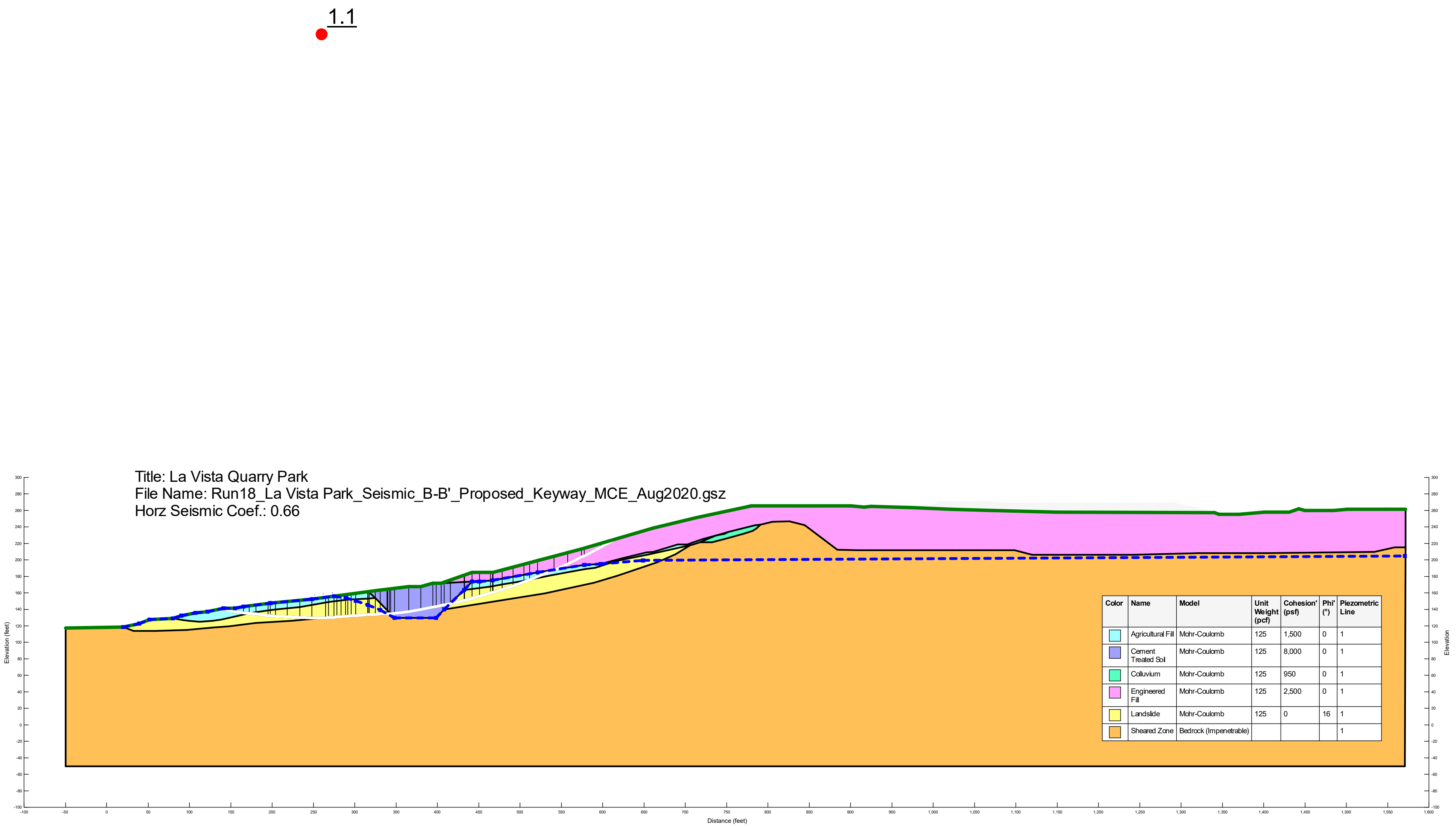
File Name: Run8_La Vista Park_Seismic_B-B'_Proposed_Keyway_Aug2020.gsz
Horz Seismic Coef.: 0.44

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟦	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 1.5

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



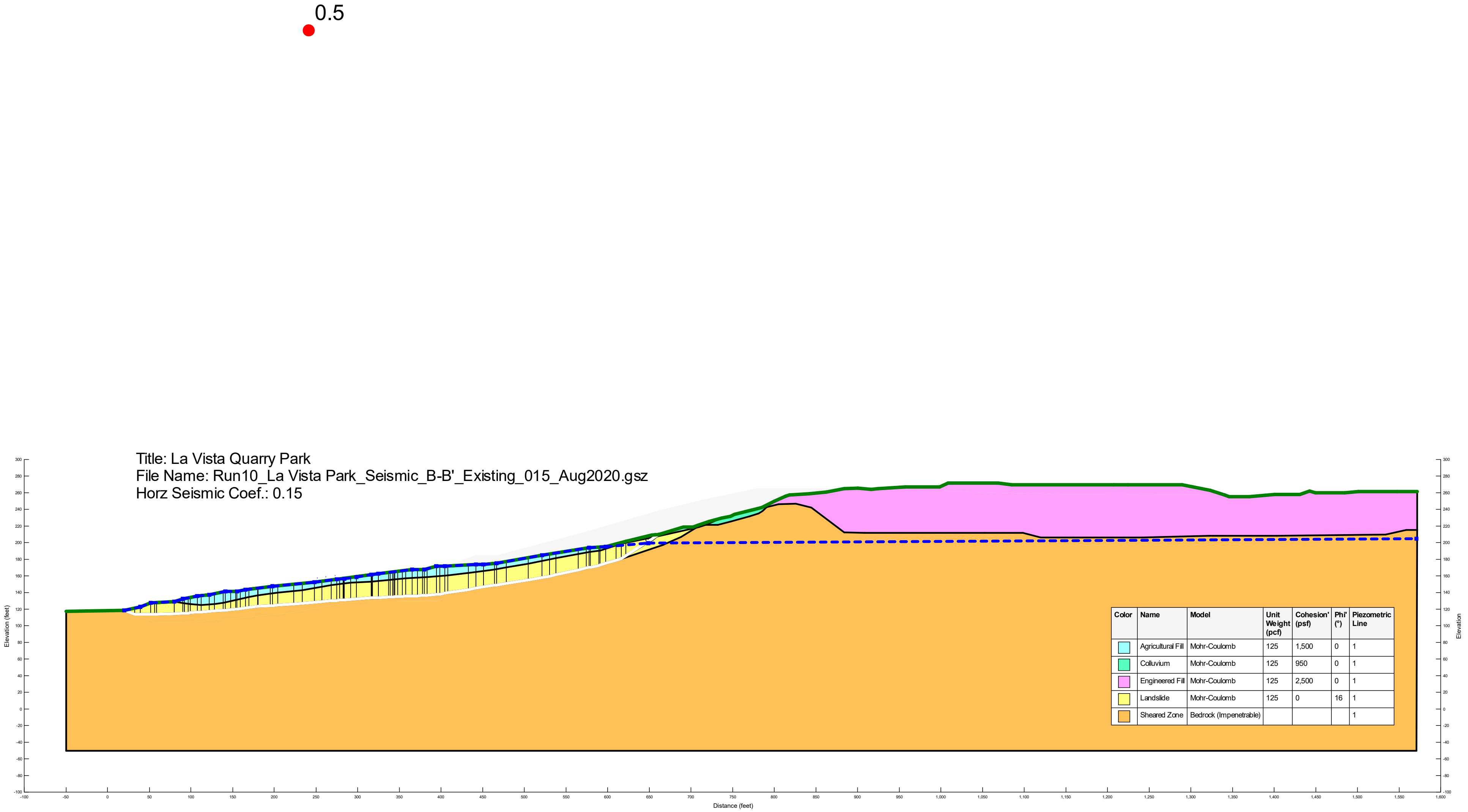
Title: La Vista Quarry Park
File Name: Run18_La Vista Park_Seismic_B-B'_Proposed_Keyway_MCE_Aug2020.gsz
Horz Seismic Coef.: 0.66

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟪	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 1.1

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

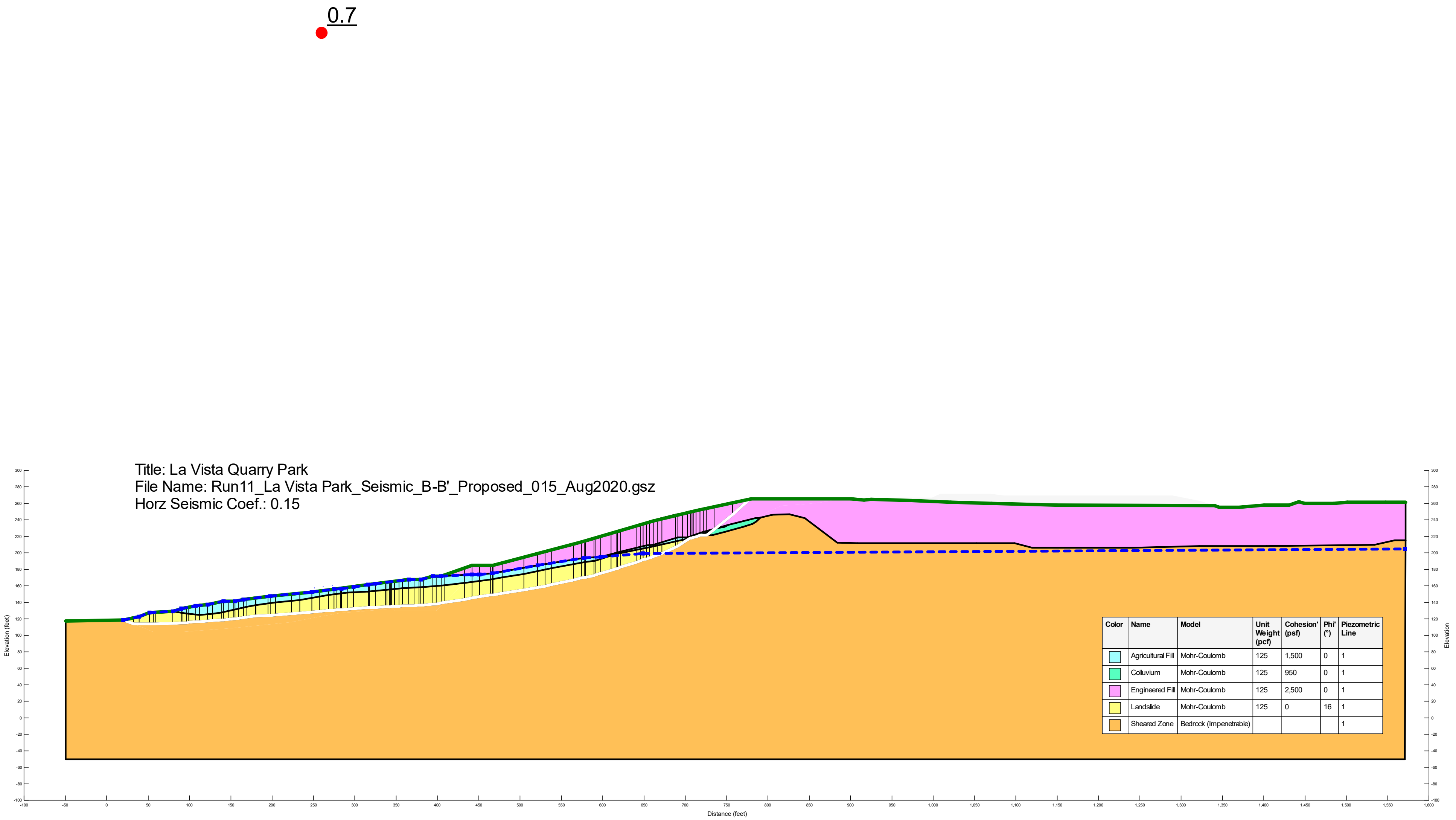


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Existing Grading
Circular Failure Check - Screening
Horizontal Seismic Coefficient = 0.15g
Minimum Factor of Safety = 0.5

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



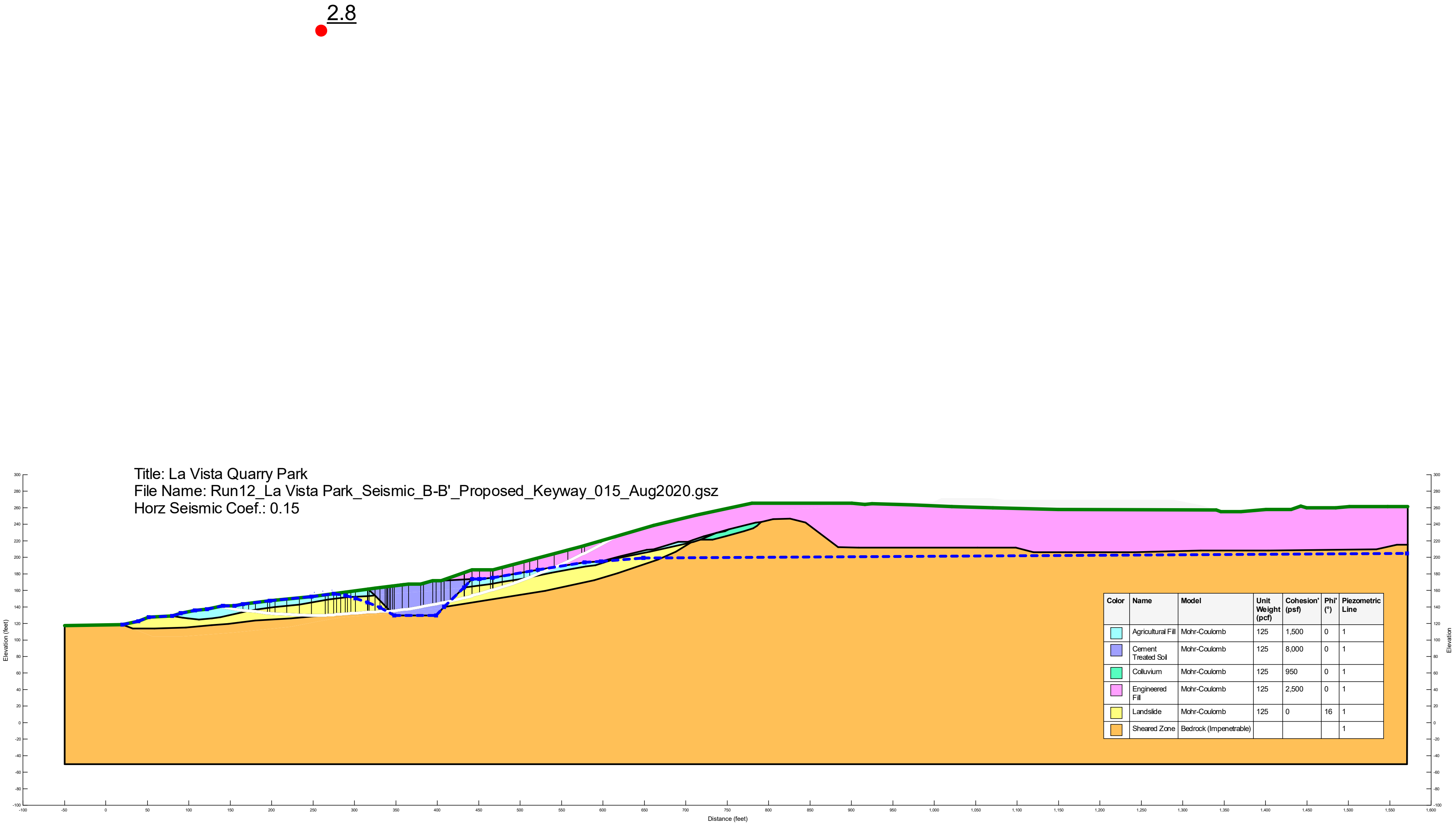
Title: La Vista Quarry Park
File Name: Run11_La Vista Park_Seismic_B-B'_Proposed_015_Aug2020.gsz
Horz Seismic Coef.: 0.15

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading
Circular Failure Check - Screening
Horizontal Seismic Coefficient = 0.15g
Minimum Factor of Safety = 0.7

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

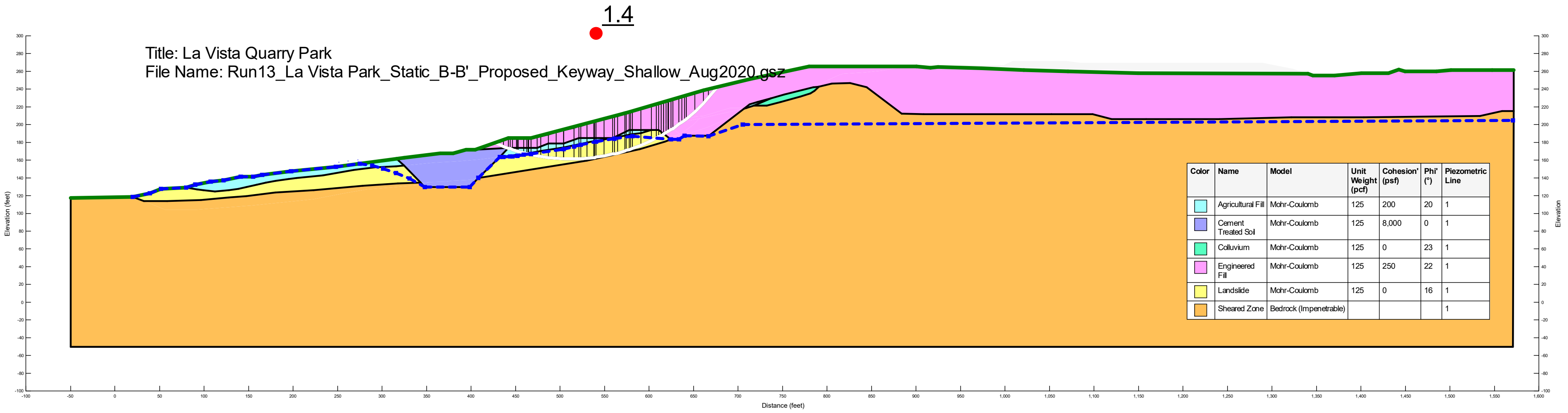


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
■	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
■	Colluvium	Mohr-Coulomb	125	950	0	1
■	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
■	Landslide	Mohr-Coulomb	125	0	16	1
■	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check - Screening
Horizontal Seismic Coefficient = 0.15g
Minimum Factor of Safety = 2.8

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

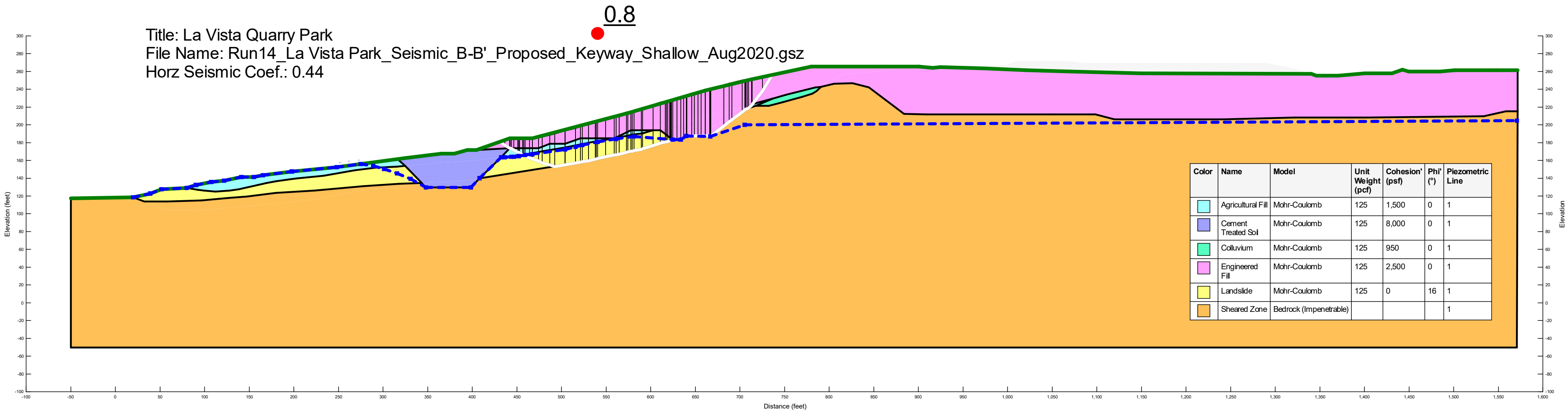


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	200	20	1
🟦	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
🟩	Colluvium	Mohr-Coulomb	125	0	23	1
🟪	Engineered Fill	Mohr-Coulomb	125	250	22	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Static Case - Proposed Grading with Keyway
Circular Failure Check - Upslope
Minimum Factor of Safety = 1.4

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



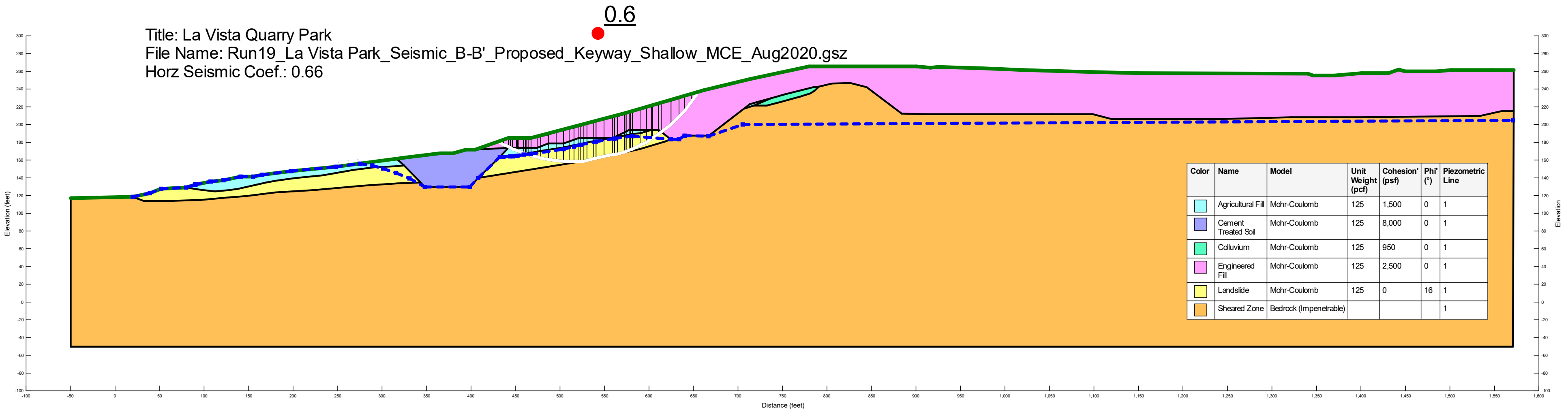
Title: La Vista Quarry Park
File Name: Run14_La Vista Park_Seismic_B-B'_Proposed_Keyway_Shallow_Aug2020.gsz
Horz Seismic Coef.: 0.44

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟦	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check - Screening
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 0.8

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

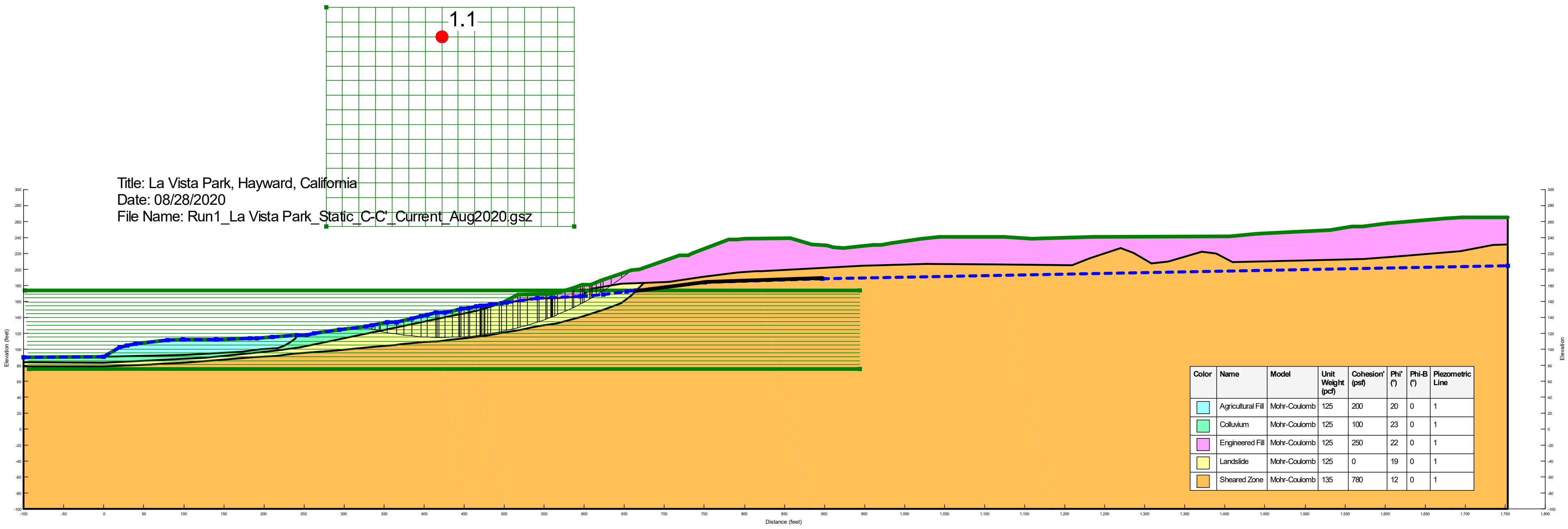


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	1
🟪	Cement Treated Soil	Mohr-Coulomb	125	8,000	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	1
🟨	Landslide	Mohr-Coulomb	125	0	16	1
🟧	Sheared Zone	Bedrock (Impenetrable)				1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 0.6

Slope Stability of Section B-B'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

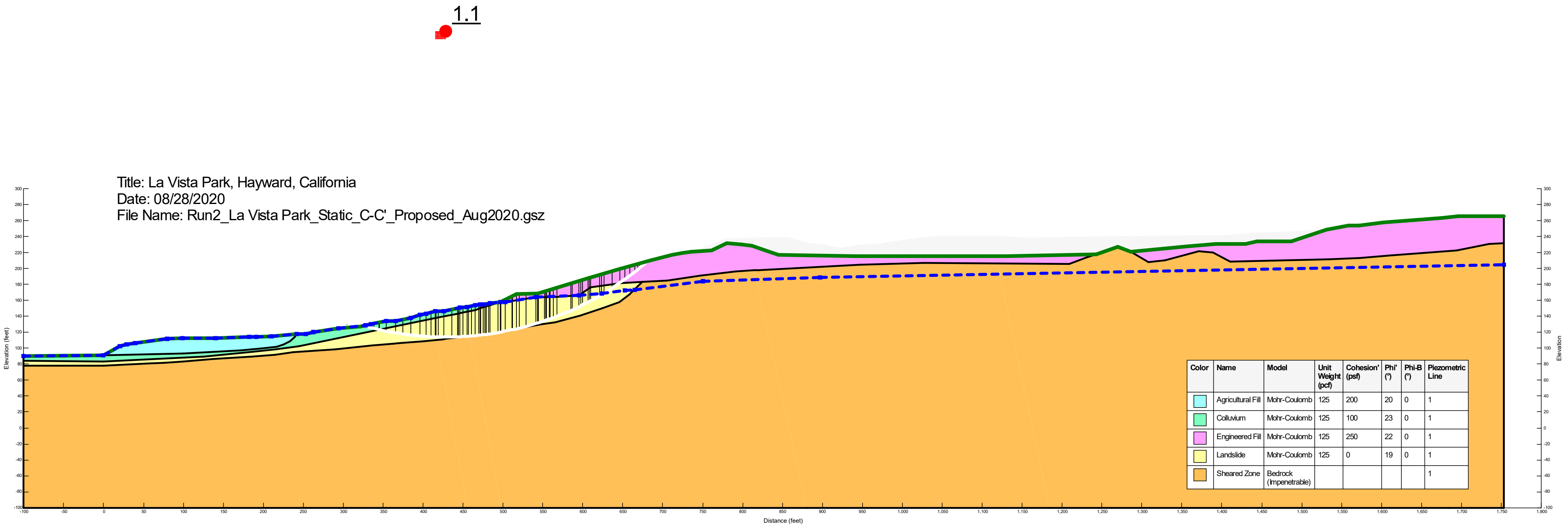


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	200	20	0	1
■	Colluvium	Mohr-Coulomb	125	100	23	0	1
■	Engineered Fill	Mohr-Coulomb	125	250	22	0	1
■	Landslide	Mohr-Coulomb	125	0	19	0	1
■	Sheared Zone	Mohr-Coulomb	135	780	12	0	1

Static Case - Existing Grading
Circular Failure Check
Minimum Factor of Safety = 1.1

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



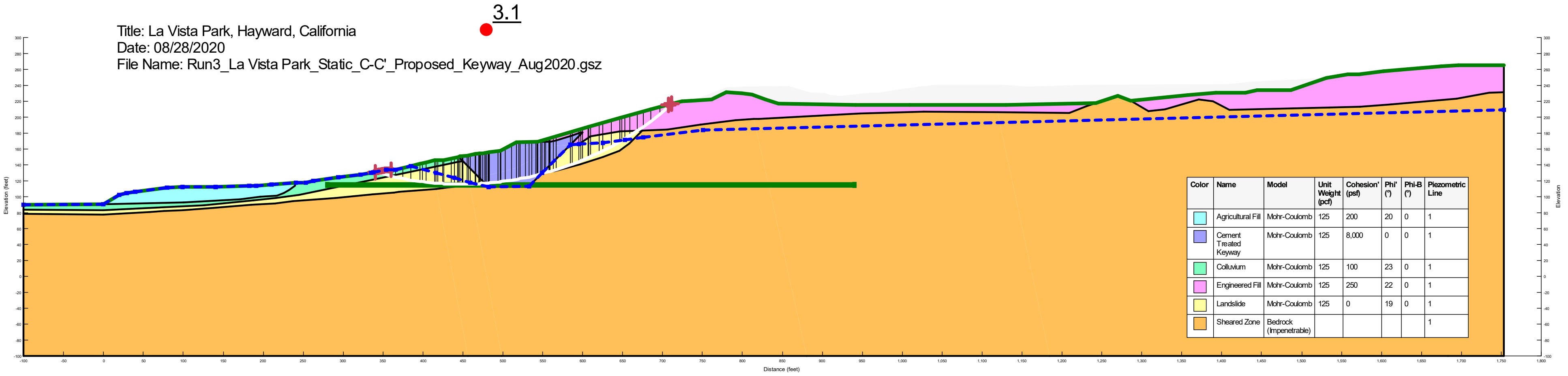
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run2_La Vista Park_Static_C-C'_Proposed_Aug2020.gsz

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	200	20	0	1
🟩	Colluvium	Mohr-Coulomb	125	100	23	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	250	22	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Bedrock (Impenetrable)					1

Static Case - Proposed Grading
Circular Failure Check
Minimum Factor of Safety = 1.1

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

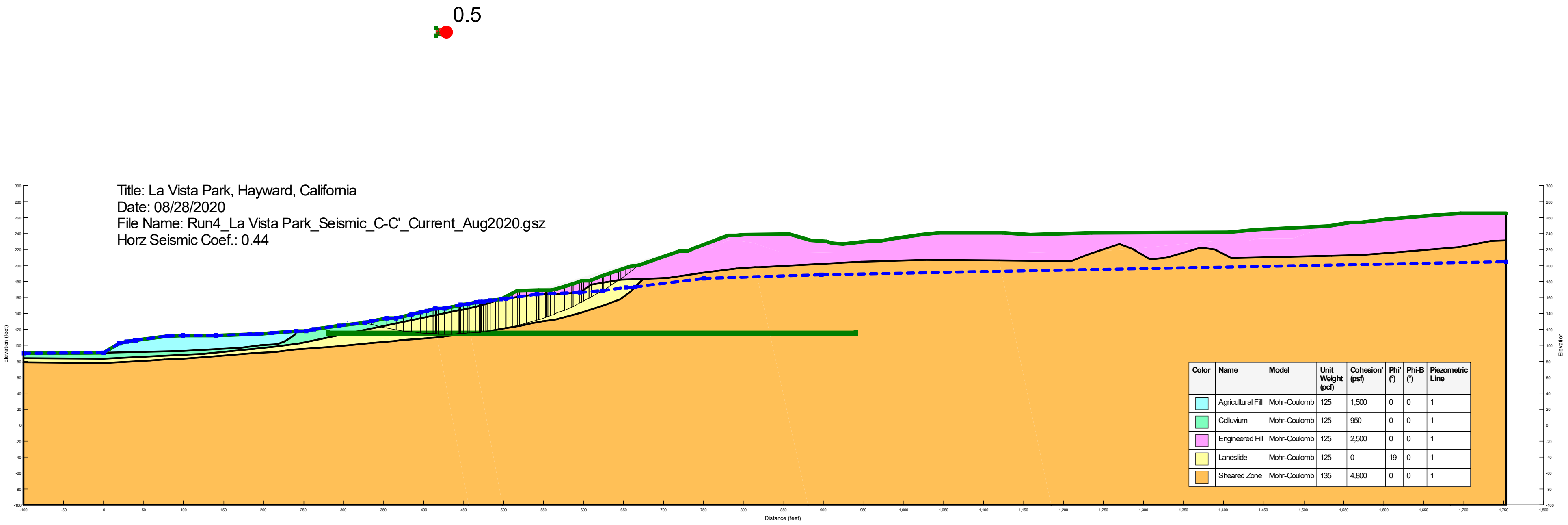


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	200	20	0	1
🟪	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	100	23	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	250	22	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Bedrock (Impenetrable)					1

Static Case - Proposed Grading with Keyway Circular Failure Check Minimum Factor of Safety = 3.1

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



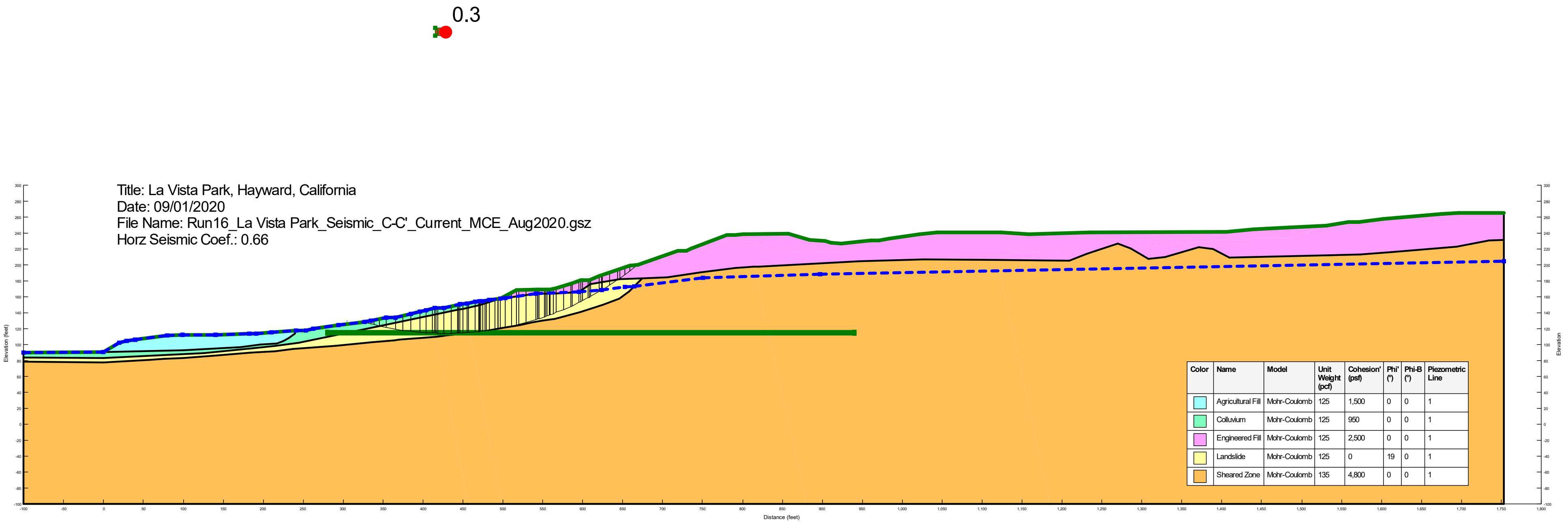
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run4_La Vista Park_Seismic_C-C'_Current_Aug2020.gsz
Horz Seismic Coef.: 0.44

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
☐	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Existing Grading
Circular Failure Check
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 0.5

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



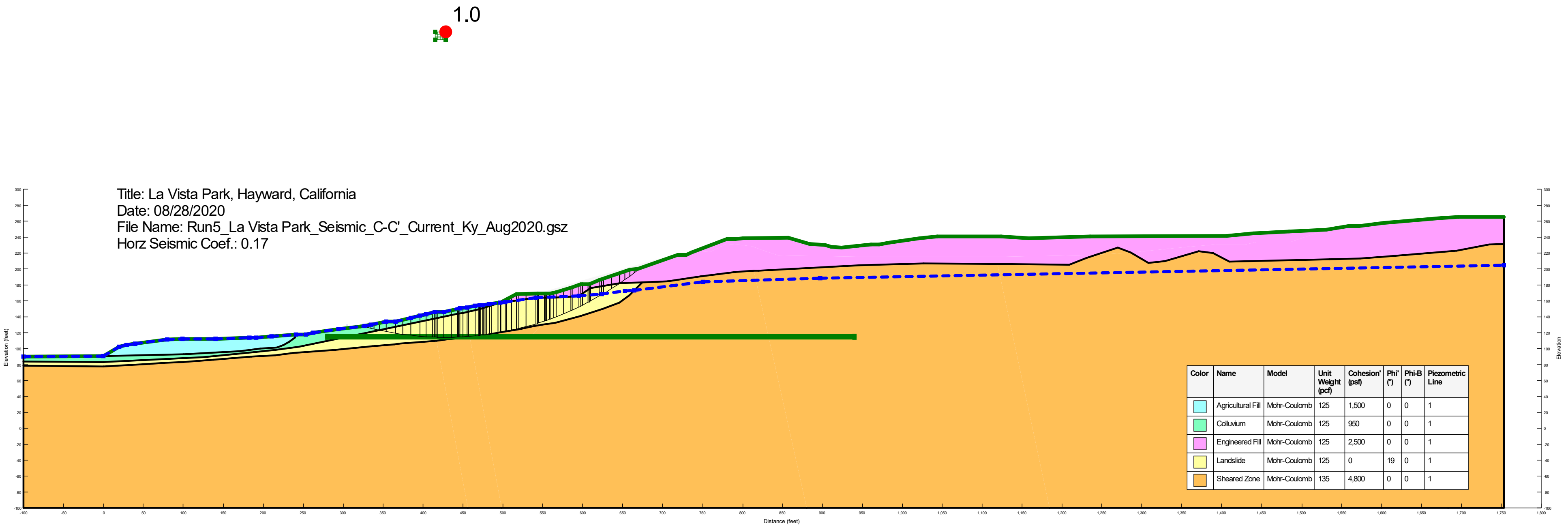
Title: La Vista Park, Hayward, California
Date: 09/01/2020
File Name: Run16_La Vista Park_Seismic_C-C'_Current_MCE_Aug2020.gsz
Horz Seismic Coef.: 0.66

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Existing Grading
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 0.3

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

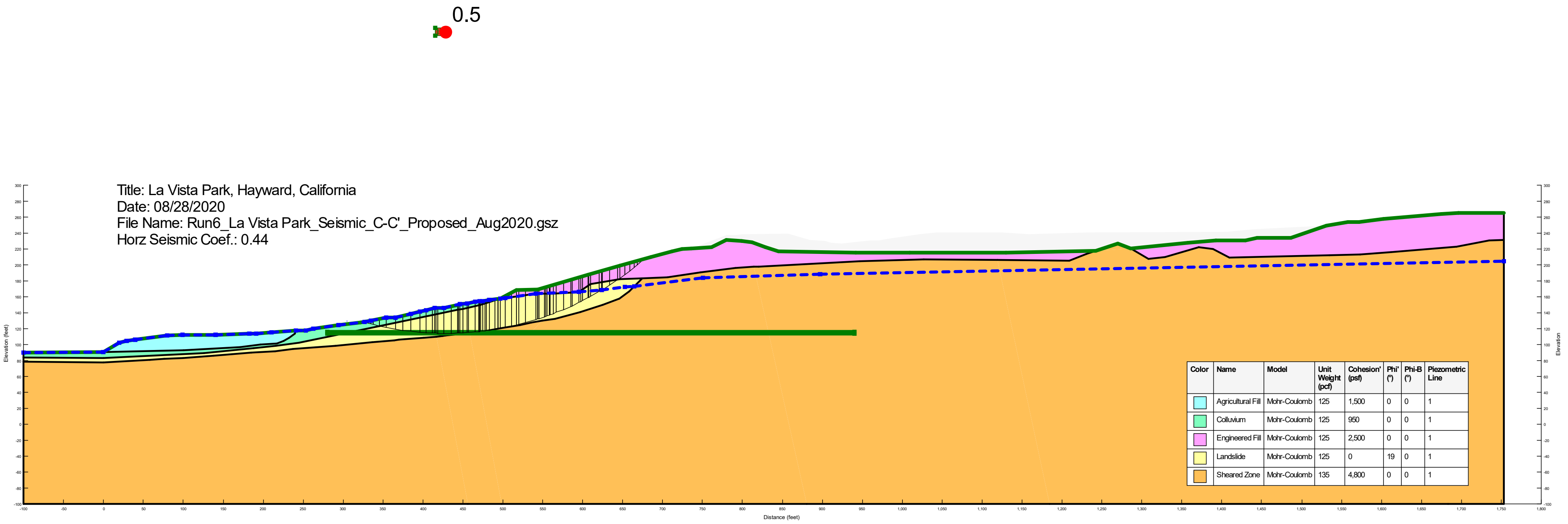


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Existing Grading
Circular Failure Check
Horizontal Seismic Coefficient = 0.17g
Minimum Factor of Safety = 1.0

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

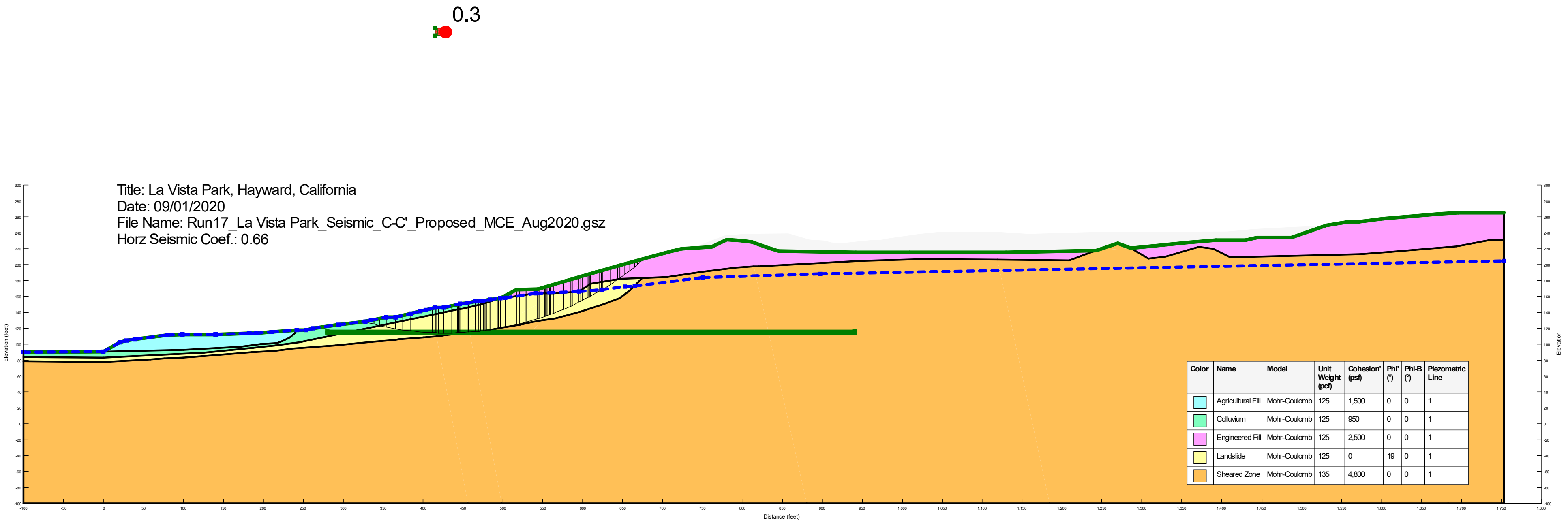


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading
Circular Failure Check
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 0.5

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

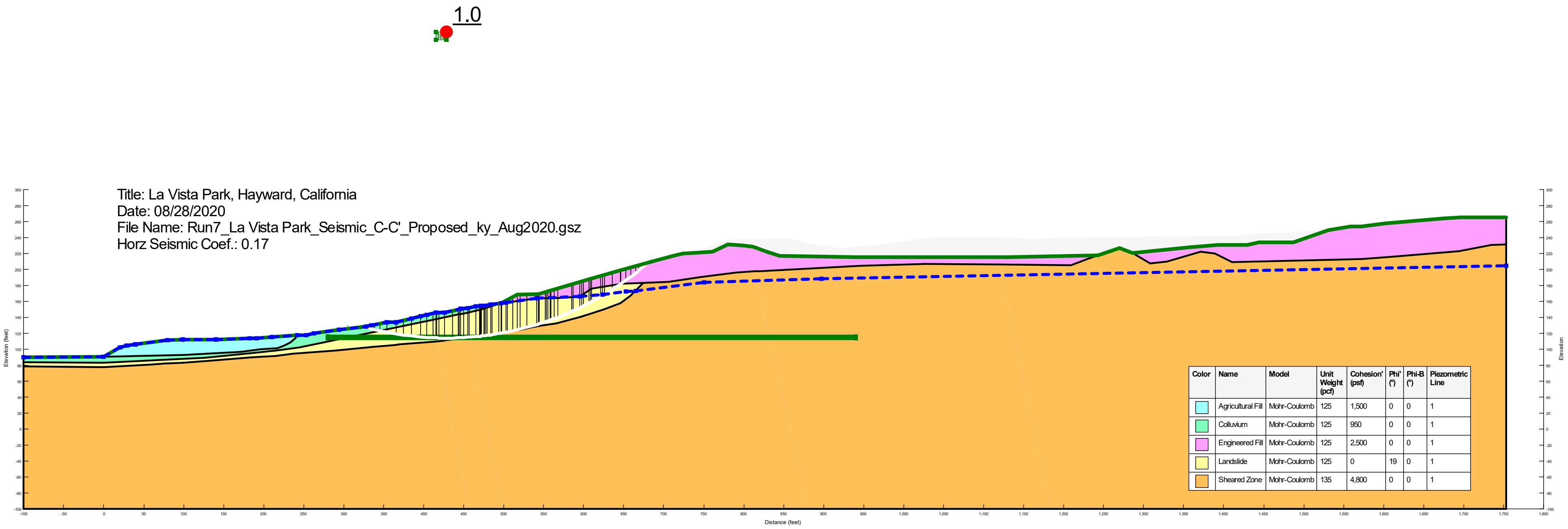


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 0.3

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

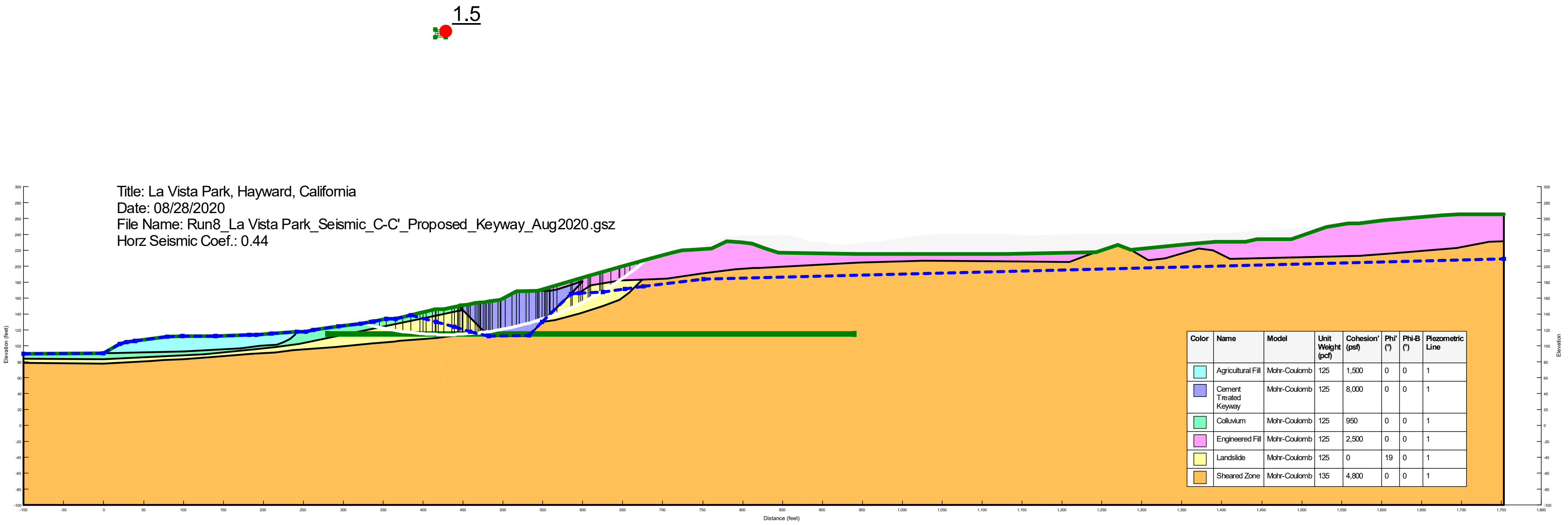


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading
Circular Failure Check
Horizontal Seismic Coefficient = 0.17g
Minimum Factor of Safety = 1.0

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



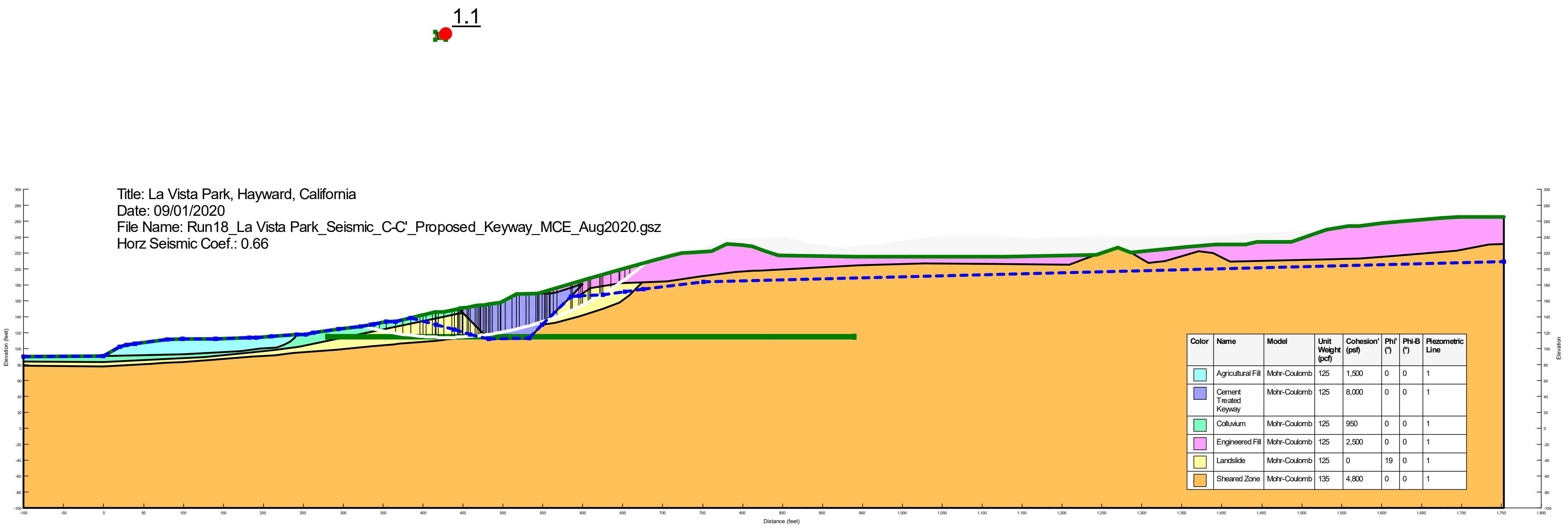
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run8_La Vista Park_Seismic_C-C'_Proposed_Keyway_Aug2020.gsz
Horz Seismic Coef.: 0.44

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
■	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
■	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 1.5

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



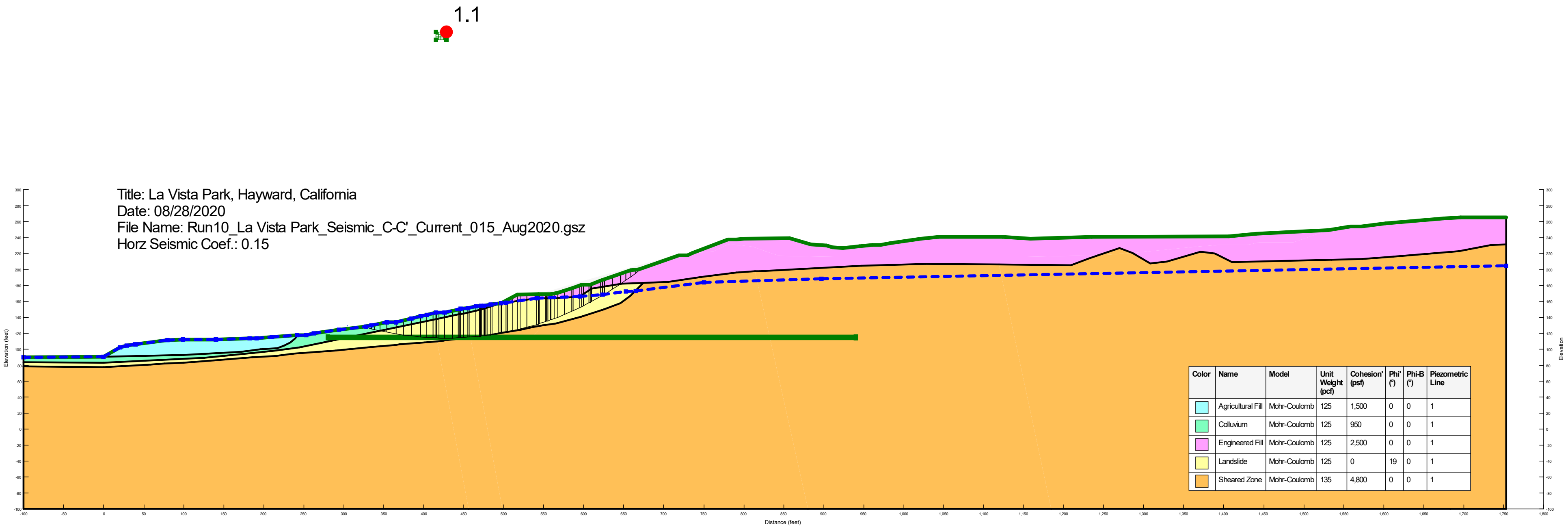
Title: La Vista Park, Hayward, California
Date: 09/01/2020
File Name: Run18_La Vista Park_Seismic_C-C'_Proposed_Keyway_MCE_Aug2020.gsz
Horz Seismic Coef.: 0.66

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
■	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
■	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 1.1

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



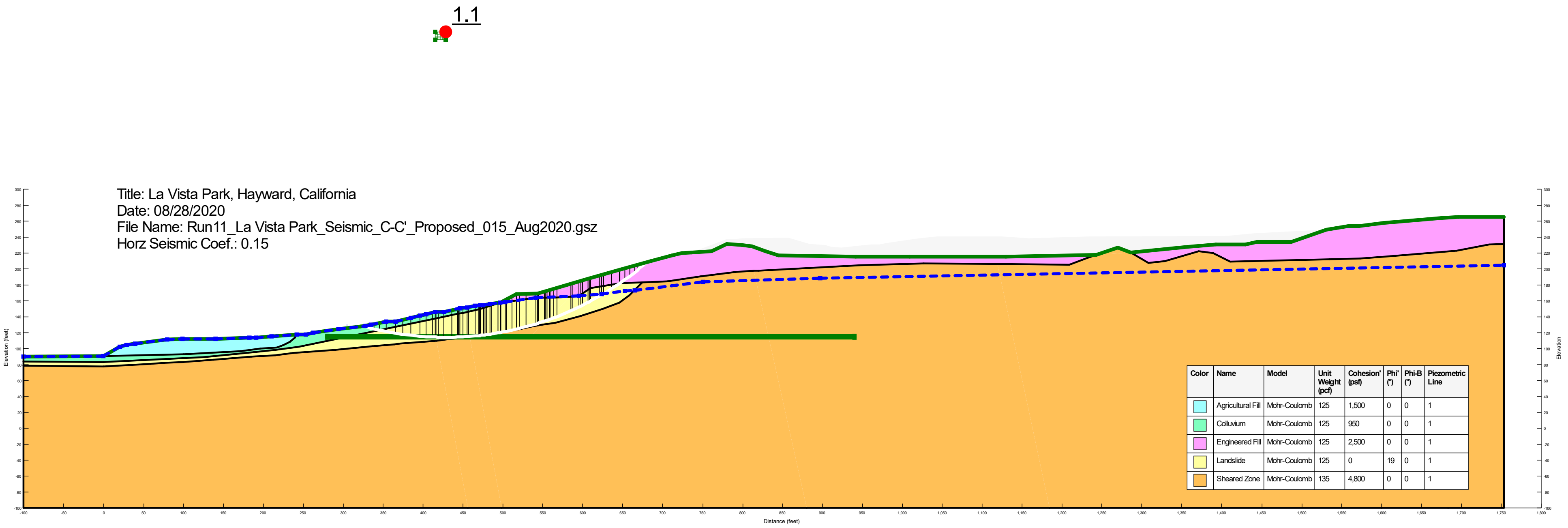
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run10_La Vista Park_Seismic_C-C'_Current_015_Aug2020.gsz
Horz Seismic Coef.: 0.15

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Existing Grading
Circular Failure Check - Screening
Horizontal Seismic Coefficient = 0.15
Minimum Factor of Safety = 1.1

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



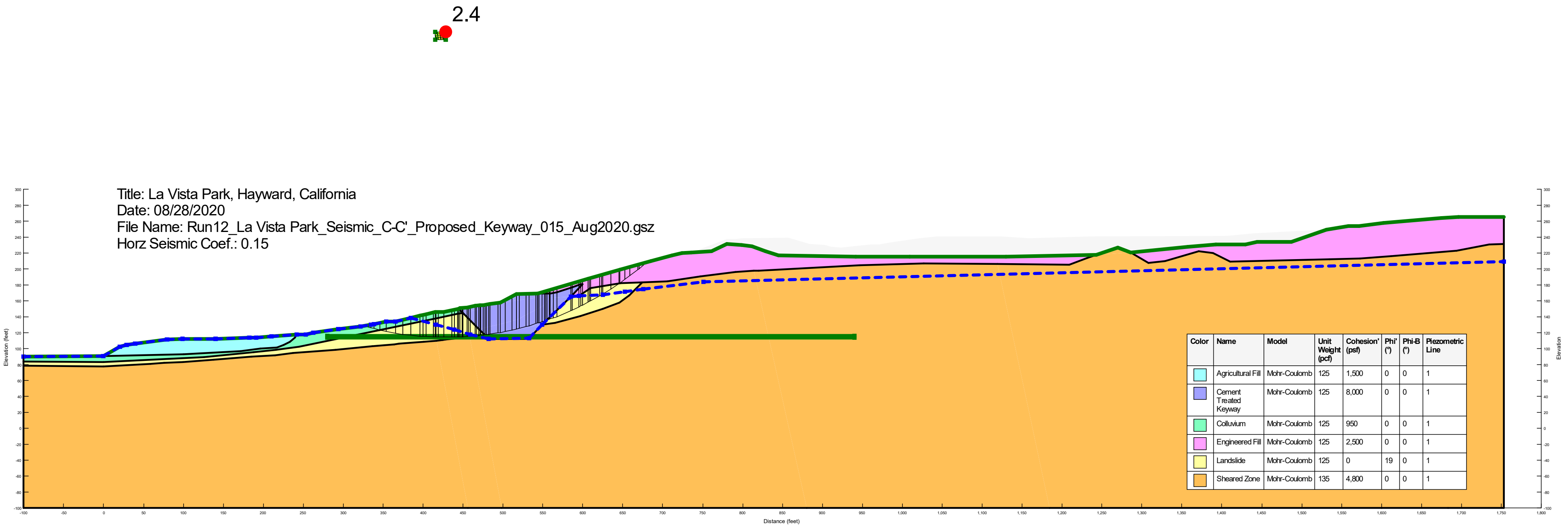
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run11_La Vista Park_Seismic_C-C'_Proposed_015_Aug2020.gsz
Horz Seismic Coef.: 0.15

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
☐	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading
Circular Failure Check - Screening
Horizontal Seismic Coefficient = 0.15g
Minimum Factor of Safety = 1.1

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



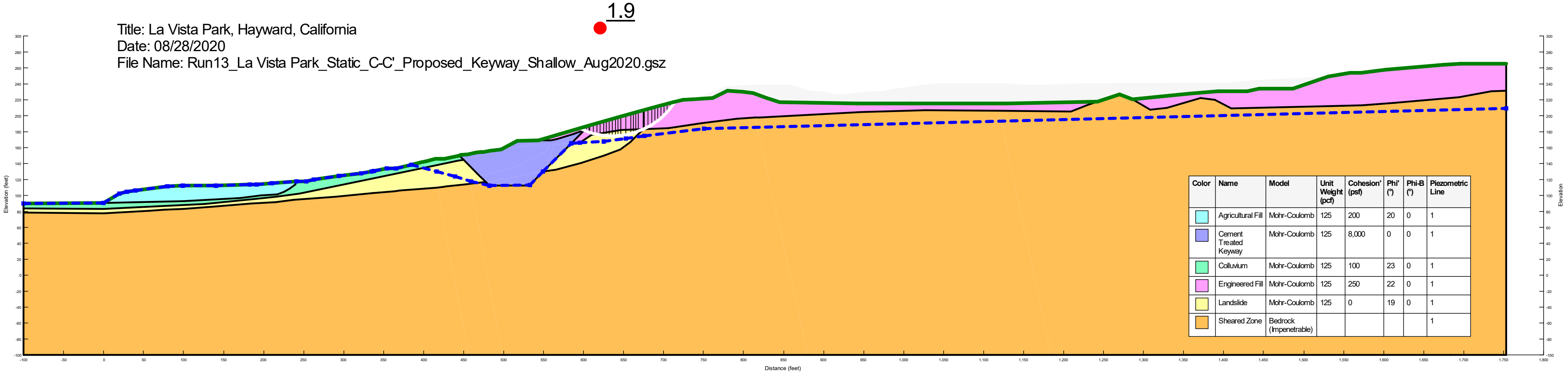
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run12_La Vista Park_Seismic_C-C'_Proposed_Keyway_015_Aug2020.gsz
Horz Seismic Coef.: 0.15

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟪	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Mohr-Coulomb	135	4,800	0	0	1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check - Screening
Horizontal Seismic Coefficient = 0.15g
Minimum Factor of Safety = 2.8

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



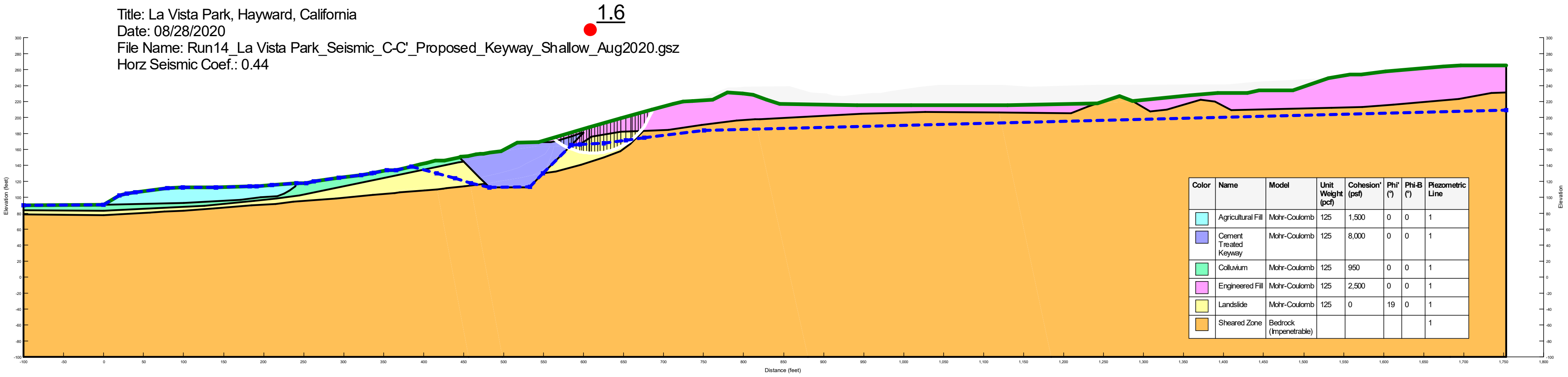
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run13_La Vista Park_Static_C-C'_Proposed_Keyway_Shallow_Aug2020.gsz

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	200	20	0	1
🟪	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	100	23	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	250	22	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Bedrock (Impenetrable)					1

Static Case - Proposed Grading Circular Failure Check - UpslopeMinimum Factor of Safety = 1.9

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



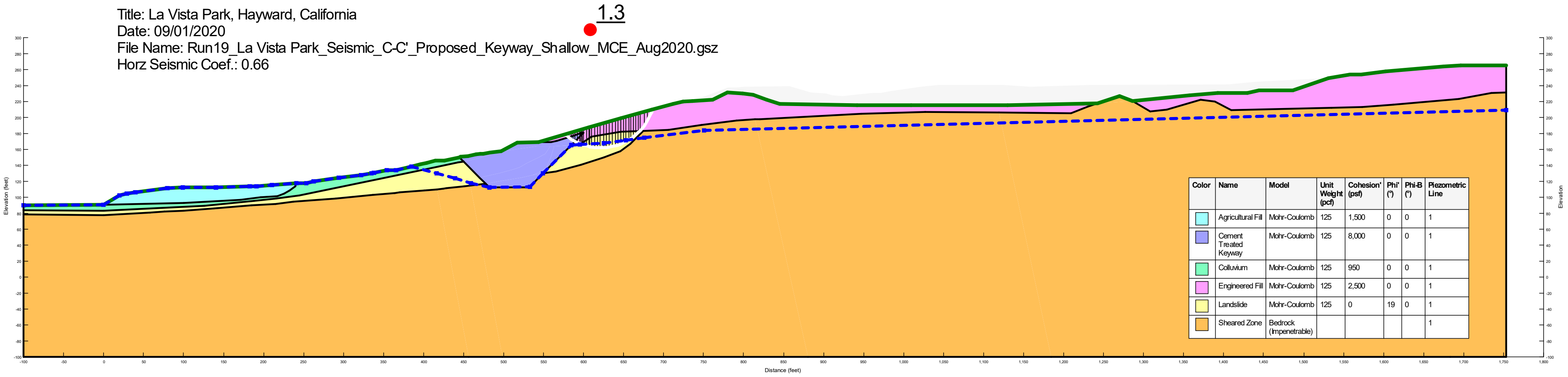
Title: La Vista Park, Hayward, California
Date: 08/28/2020
File Name: Run14_La Vista Park_Seismic_C-C'_Proposed_Keyway_Shallow_Aug2020.gsz
Horz Seismic Coef.: 0.44

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
🟦	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
🟦	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
🟩	Colluvium	Mohr-Coulomb	125	950	0	0	1
🟪	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
🟨	Landslide	Mohr-Coulomb	125	0	19	0	1
🟧	Sheared Zone	Bedrock (Impenetrable)					1

Seismic Case - Proposed Grading
Circular Failure Check - Upslope
DE Level of Shaking
Horizontal Seismic Coefficient = 0.44g
Minimum Factor of Safety = 1.6

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
■	Agricultural Fill	Mohr-Coulomb	125	1,500	0	0	1
■	Cement Treated Keyway	Mohr-Coulomb	125	8,000	0	0	1
■	Colluvium	Mohr-Coulomb	125	950	0	0	1
■	Engineered Fill	Mohr-Coulomb	125	2,500	0	0	1
■	Landslide	Mohr-Coulomb	125	0	19	0	1
■	Sheared Zone	Bedrock (Impenetrable)					1

Seismic Case - Proposed Grading with Keyway
Circular Failure Check - Upslope
MCE Level of Shaking
Horizontal Seismic Coefficient = 0.66g
Minimum Factor of Safety = 1.3

Slope Stability of Section C-C'

La Vista Park, Hayward, California
Langan Project No. 750656701
8/28/2020

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
slender silver moss *Anomobryum julaceum*	Rank 4.2	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 325 to 3280 feet (100 to 1000 meters).	**No Potential.** Broadleafed upland forest, lower montane coniferous forest, or North Coast coniferous forest habitats are absent from the Project Area. This species typically occurs on temporarily moist sandstone outcrops, and sandstone outcrops are absent from the Project Area.	No further actions are recommended for this species.
Mt. Diablo manzanita *Arctostaphylos auriculata*	Rank 1B.3	Chaparral (sandstone), cismontane woodland. Elevation ranges from 440 to 2135 feet (135 to 650 meters). Blooms Jan-Mar.	**No Potential.** Chaparral or cismontane woodland habitats and sandstone substrate are absent from the Project Area	No further actions are recommended for this species.
Contra Costa manzanita *Arctostaphylos manzanita ssp. laevigata*	Rank 1B.2	Chaparral (rocky). Elevation ranges from 1410 to 3610 feet (430 to 1100 meters). Blooms Jan-Mar(Apr).	**No Potential.** Chaparral habitat and rocky substrate are absent from the Project Area.	No further actions are recommended for this species.
pallid manzanita *Arctostaphylos pallida*	FT, SE, Rank 1B.1	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub. Elevation ranges from 605 to 1525 feet (185 to 465 meters). Blooms Dec-Mar.	**No Potential.** Broadleafed upland forest, coniferous forest, chaparral, and woodland habitats are absent from the Project Area. This species occurs on silicious shale or thin chert on uplifted marine terraces, and such conditions are absent from the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
alkali milk-vetch *Astragalus tener var. tener*	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 0 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	**No Potential.** Seasonally flooded flats or depressions and alkaline substrate are absent from the Project Area.	No further actions are recommended for this species.
big-scale balsamroot *Balsamorhiza macrolepis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 145 to 5100 feet (45 to 1555 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.** The nearest occurrence of this species is 6.25 miles NNW of the Project Area.	No further actions are recommended for this species.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	Rank 1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 95 to 2755 feet (30 to 840 meters). Blooms Apr-Jun.	**Unlikely.** This species is known from wooded and brushy slopes, and such habitat is absent from the Project Area. In addition, the Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, further reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
Oakland star-tulip *Calochortus umbellatus*	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 325 to 2295 feet (100 to 700 meters). Blooms Mar-May.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.** The nearest occurrence of this species is 3 miles northeast of the Project Area.	No further actions are recommended for this species.
chaparral harebell *Campanula exigua*	Rank 1B.2	Chaparral (rocky, usually serpentine). Elevation ranges from 900 to 4100 feet (275 to 1250 meters). Blooms May-Jun.	**No Potential.** Chaparral habitat and rocky substrate are absent from the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
johnny-nip *Castilleja ambigua var. ambigua*	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. Elevation ranges from 0 to 1425 feet (0 to 435 meters). Blooms Mar-Aug.	**Unlikely.** This taxon is known from coastal prairie, brackish marsh, and seasonally mesic flats and depressions, and such habitats are absent from the Project Area. All known occurrences from the East Bay and South Bay are associated with brackish marsh. The seasonal wetland in the Project Area is on a slope and is not depressional. In addition, the heavy utilization by horses greatly reduces the quality of the wetland habitat.	No further actions are recommended for this species.
Congdon's tarplant *Centromadia parryi ssp. congdonii*	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 0 to 755 feet (0 to 230 meters). Blooms May-Oct(Nov).	**Unlikely.** The Project Area lacks alkaline substrate. The nearest known occurrence, historic or otherwise, is approximatley 4.25 miles west of the Project Area and is associated with alkaline substrate in flatlands.	No further actions are recommended for this species.
Point Reyes bird's-beak *Chloropyron maritimum ssp. palustre*	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	**No Potential.** The Project Area does not contain marsh or swampl habitat.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
robust spineflower *Chorizanthe robusta car. robusta*	FE, Rank 1B.1	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub. Elevation ranges from 5 to 985 feet (3 to 300 meters). Blooms Apr-Sep.	**No Potential**. The Proejct Area does not have chaparral, woodland, or scrub habitats or sandy substrate.	No further actions are recommended for this species.
Santa Clara red ribbons *Clarkia concinna ssp. automixa*	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 295 to 4920 feet (90 to 1500 meters). Blooms (Apr)May-Jun(Jul).	**No Potential**. The Project Area lacks chaparral or woodland habitats.	No further actions are recommended for this species.
Presidio clarkia *Clarkia franciscana*	FE, SE, Rank 1B.1	Coastal scrub, valley and foothill grassland (serpentine). Elevation ranges from 80 to 1100 feet (25 to 335 meters). Blooms May-Jul.	**No Potential**. The Project Area lacks serpentine substrate.	No further actions are recommended for this species.
Hospital Canyon larkspur *Delphinium californicum ssp. interius*	Rank 1B.2	Chaparral (openings), cismontane woodland (mesic), coastal scrub. Elevation ranges from 635 to 3595 feet (195 to 1095 meters). Blooms Apr-Jun.	**No Potential**. The Project Area lacks chaparral, woodland, and coastal scrub habitats.	No further actions are recommended for this species.
western leatherwood *Dirca occidentalis*	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. Elevation ranges from 80 to 1395 feet (25 to 425 meters). Blooms Jan-Mar(Apr).	**No Potential**. The Project Area lacks forest, chaparral, and woodland habitats.	No further actions are recommended for this species.
Tiburon buckwheat *Eriogonum luteolum var. caninum*	Rank 1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms May-Sep.	**No Potential**. The Project Area lacks serpentine substrate.	No further actions are recommended for this species.

SPECIES	**STATUS**	**HABITAT REQUIREMENTS**	**POTENTIAL TO OCCUR IN THE PROJECT AREA**	**RESULTS AND RECOMMENDATIONS**
Mt. Diablo buckwheat *Eriogonum truncatum*	Rank 1B.1	Chaparral, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1150 feet (3 to 350 meters). Blooms Apr-Sep(Nov-Dec).	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.** The nearest known extant occurrence of this species is on Mount Diablo, 18 miles NNE of the Project Area.	No further actions are recommended for this species.
Hoover's button-celery *Eryngium aristulatum var. hooveri*	Rank 1B.1	Vernal pools. Elevation ranges from 5 to 150 feet (3 to 45 meters). Blooms (Jun)Jul(Aug).	**Unlikely.** The Project Area lacks vernal pools or other seasonally inundated depressions. The nearest known occurrence is approximately 7.75 miles south of the Project Area, in vernal pool and seasonal wetland depression habitat. The seasonal wetland in the Project Area is on a slope and is not depressional. In addition, the heavy utilization by horses greatly reduces the quality of the wetland habitat.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
Jepson's coyote thistle *Eryngium jepsonii*	Rank 1B.2	Valley and foothill grassland, vernal pools. Elevation ranges from 5 to 985 feet (3 to 300 meters). Blooms Apr-Aug.	**No Potential.** The Project Area lacks vernal pool habitat.	No further actions are recommended for this species.
San Joaquin spearscale *Extriplex joaquinana*	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 0 to 2740 feet (1 to 835 meters). Blooms Apr-Oct.	**No Potential**. The Project Area lacks alkaline substrate and no perennial or late-season-annual alkaline substrate species associated with San Joaquin spearscale were observed.	No further actions are recommended for this species.
fragrant fritillary *Fritillaria liliacea*	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	**Unlikely.** Although the Project Area contains clay substrate, it has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
dark-eyed gilia *Gilia millefoliata*	Rank 1B.2	Coastal dunes. Elevation ranges from 5 to 100 feet (2 to 30 meters). Blooms Apr-Jul.	**No Potential.** The Project Area lacks coastal dune habitat.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Diablo helianthella *Helianthella castanea*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation ranges from 195 to 4265 feet (60 to 1300 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area lacks forest chaparral, woodland, and scrub habitats. This species is usually found in chaparral/oak woodland interface in rocky soils. In addition, it has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
Brewer's western flax *Hesperolinon breweri*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 95 to 3100 feet (30 to 945 meters). Blooms May-Jul.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.**	No further actions are recommended for this species.
Loma Prieta hoita *Hoita strobilina*	Rank 1B.1	Chaparral, cismontane woodland, riparian woodland. Elevation ranges from 95 to 2820 feet (30 to 860 meters). Blooms May-Jul(Aug-Oct).	**No Potential.** The Project Area lacks serpentine substrate.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Santa Cruz tarplant *Holocarpha macradenia*	FT, SE, Rank 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 30 to 720 feet (10 to 220 meters). Blooms Jun-Oct.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.**	No further actions are recommended for this species.
Kellogg's horkelia *Horkelia cuneata var. sericea*	Rank 1B.1	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub. Elevation ranges from 30 to 655 feet (10 to 200 meters). Blooms Apr-Sep.	**No Potential.** The Project Area lacks forest, chaparral, dune, and scrub habitat and sandy substrate.	No further actions are recommended for this species.
coast iris *Iris longipetala*	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms Mar-May.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.**	No further actions are recommended for this species.
Contra Costa goldfields *Lasthenia conjugens*	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	**No Potential.** The Project Area lacks vernal pool habitat and alkaline substrate.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
bristly leptosiphon *Leptosiphon acicularis*	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species**.**	No further actions are recommended for this species.
Hall's bush-mallow *Malacothamnus hallii*	Rank 1B.2	Chaparral, coastal scrub. Elevation ranges from 30 to 2495 feet (10 to 760 meters). Blooms (Apr)May-Sep(Oct).	**No Potential.** The Project Area lacks chaparral and scrub habitats. In addition, it has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, further reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
Oregon meconella *Meconella oregana*	Rank 1B.1	Coastal prairie, coastal scrub. Elevation ranges from 820 to 2035 feet (250 to 620 meters). Blooms Mar-Apr.	**No Potential.** The Project Area lacks coastal prairie and coastal scrub habitats. In addition, it has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, further reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Mt. Diablo cottonweed *Micropus amphibolus*	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 145 to 2705 feet (45 to 825 meters). Blooms Mar-May.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
San Antonio Hills monardella *Monardella antonina ssp. antonina*	Rank 3	Chaparral, cismontane woodland. Elevation ranges from 1045 to 3280 feet (320 to 1000 meters). Blooms Jun-Aug.	**No Potential.** The Project Area lacks chaparral and woodland habitats. In addition, it has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, further reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
woodland woolythreads *Monolopia gracilens*	Rank 1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland. Elevation ranges from 325 to 3935 feet (100 to 1200 meters). Blooms (Feb)Mar-Jul.	**Unlikely.** This species is known from sandy to rocky soils, often on serpentine substrate after burns, and such substrate and conditions are absent from the Project Area. In addition, the Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
pincushion navarretia *Navarretia myersii ssp. myersii*	Rank 1B.1	Vernal pools. Elevation ranges from 65 to 1085 feet (20 to 330 meters). Blooms Apr-May.	**No Potential.** The Project Area lacks vernal pool habitat.	No further actions are recommended for this species.
shining navarretia *Navarretia nigelliformis ssp. radians*	Rank 1B.2	Cismontane woodland, valley and foothill grassland, vernal pools. Elevation ranges from 210 to 3280 feet (65 to 1000 meters). Blooms (Mar)Apr-Jul.	**Unlikely.** The Project Area lacks vernal pool habitat. In addition, the Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Patterson's navarretia *Navarretia paradoxiclara*	Rank 1B.3	Meadows and seeps. Elevation ranges from 490 to 1410 feet (150 to 430 meters). Blooms May-Jun(Jul).	**No Potential.** The Project Area lacks serpentine substrate.	No further actions are recommended for this species.
Mt. Diablo phacelia *Phacelia phacelioides*	Rank 1B.2	Chaparral, cismontane woodland. Elevation ranges from 1640 to 4495 feet (500 to 1370 meters). Blooms Apr-May.	**No Potential.** The Project Area lacks chaparral and woodland habitats. This species is known from rock outcrops and talus slopes, which are absent from the Project Area. In addition, the Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, further reducing the habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
Michael's rein orchid *Piperia michaelii*	Rank 4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest. Elevation ranges from 5 to 3000 feet (3 to 915 meters). Blooms Apr-Aug.	**No Potential.** The Project Area lacks scrub, forest, chaparral, and woodland habitats. This species is known from mudstone and humus, which are absent from the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
San Francisco popcornflower *Plagiobothrys diffusus*	SE, Rank 1B.1	Coastal prairie, valley and foothill grassland. Elevation ranges from 195 to 1180 feet (60 to 360 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area lacks vernal pool habitat. In addition, the Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species. The nearest known occurrence of this species is 12.5 miles NNW of the Project Area.	No further actions are recommended for this species.
hairless popcornflower *Plagiobothrys glaber*	Rank 1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt). Elevation ranges from 45 to 590 feet (15 to 180 meters). Blooms Mar-May.	**No Potential.** The Project Area lacks salt marsh and alkaline meadown habitats.	No further actions are recommended for this species.
Oregon polemonium *Polemonium carneum*	Rank 2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation ranges from 0 to 6005 feet (0 to 1830 meters). Blooms Apr-Sep.	**No Potential.** The Project Area lacks coastal prairie, scrub, and forest habitats.	No further actions are recommended for this species.
Marin knotweed *Polygonum marinense*	Rank 3.1	Marshes and swamps (coastal salt or brackish). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms (Apr)May-Aug(Oct).	**No Potential.** The Project Area lacks salt and brackish marsh habitat.	No further actions are recommended for this species.
Lobb's aquatic buttercup *Ranunculus lobbii*	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools. Elevation ranges from 45 to 1540 feet (15 to 470 meters). Blooms Feb-May.	**No Potential.** The Project Area lacks areas that ponds for an extended duration.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
adobe sanicle *Sanicula maritima*	SR, Rank 1B.1	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland. Elevation ranges from 95 to 785 feet (30 to 240 meters). Blooms Feb-May.	**Unlikely.** The Project Area has experienced sitewide historic disturbance, and most of it has been heavily grazed by horses currently and in the recent past, greatly reducing the habitat quality and likelihood of supporting this species. The only known occurrence in the broader vicinity of the Project Area is 13 miles to the NNW and is presumed extirpated.	No further actions are recommended for this species.
rock sanicle *Sanicula saxatilis*	SR, Rank 1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland. Elevation ranges from 2030 to 3855 feet (620 to 1175 meters). Blooms Apr-May.	**No Potential.** The Project Area lacks rock outcrops and talus slopes.	No further actions are recommended for this species.
chaparral ragwort *Senecio aphanactis*	Rank 2B.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 45 to 2625 feet (15 to 800 meters). Blooms Jan-Apr(May).	**No Potential.** The Project Area lacks drying, alkaline flats.	No further actions are recommended for this species.
long-styled sand-spurrey *Spergularia macrotheca var. longistyla*	Rank 1B.2	Meadows and seeps, marshes and swamps. Elevation ranges from 0 to 835 feet (0 to 255 meters). Blooms Feb-May(Jun).	**No Potential.** The Project Area lacks meadow, seep, marsh, and swamp habitats and alkaline substrate.	No further actions are recommended for this species.
most beautiful jewelflower *Streptanthus albidus ssp. peramoenus*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 310 to 3280 feet (95 to 1000 meters). Blooms (Mar)Apr-Sep(Oct).	**No Potential.** The Project Area lacks serpentine substrate.	No further actions are recommended for this species.
Mt. Diablo jewelflower *Streptanthus hispidus*	Rank 1B.3	Chaparral, valley and foothill grassland. Elevation ranges from 1195 to 3935 feet (365 to 1200 meters). Blooms Mar-Jun.	**No Potential.** The Project Area lacks talus or rock outcrops.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	Rank 2B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 980 to 7055 feet (300 to 2150 meters). Blooms May-Jul.	**No Potential.** The Project Area lacks lakes, drainage channels or other areas of prolonged inundation.	No further actions are recommended for this species.
California seablite *Suaeda californica*	FE, Rank 1B.1	Marshes and swamps (coastal salt). Elevation ranges from 0 to 50 feet (0 to 15 meters). Blooms Jul-Oct.	**No Potential.** The Project Area lacks salt marsh habiat.	No further actions are recommended for this species.
saline clover *Trifolium hydrophilum*	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	**No Potential.** The Project Area lacks vernal pools or other depressional, seasonally inundated habitats and alkaline substrate.	No further actions are recommended for this species.
coastal triquetrella *Triguetrella californica*	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 30 to 330 feet (10 to 100 meters).	**No Potential.** The Project Area lacks scrub habitats and thin soils.	No further actions are recommended for this species.
oval-leaved viburnum *Viburnum ellipticum*	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 705 to 4595 feet (215 to 1400 meters). Blooms May-Jun.	**No Potential.** The Project Area lacks chaparral, woodland, forest habitats.	No further actions are recommended for this species.
Mammals				
pallid bat *Antrozous pallidus*	SSC, WBWG High	Occupies a variety of habitats at low elevation including grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	**Unlikely.** The Project Area does not contain rocky areas to support roosting by this species.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG High	Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Building roost sites must be cave like. Very sensitive to human disturbance.	**Unlikely.** The Project Area does not contain caves, mines, or abandoned buildings to support roosting by this species. Several sheds are present in the Project Area. However, the structures are constructed of plywood, sheet metal, and other scrap materials with open siding. These structures are not likely to support roosting by this species due to the natural light and lack of thermal insulation.	No further actions are recommended for this species.
western mastiff bat *Eumops perotis*	SSC, WBWG High	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**Unlikely.** The Project Area does not contain large rocky outcrops or other roosting habitat to support this species.	No further actions are recommended for this species.
silver-haired bat *Lasionycteris noctivagans*.	WBWG Medium	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**Unlikely.** The Project Area does not contain rocky outcrops, large snags, hollow trees, or other roosting habitat to support this species.	No further actions are recommended for this species.
hoary bat *Lasiurus cinereus*	WBWG Medium	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	**Unlikely.** The Project Area does not contain the dense forested habitat typically used for roosting by this species.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Typically occurs in forest habitats of moderate canopy and moderate to dense understory, especially redwood. Also found in chaparral habitats.	**Unlikely.** The Project Area does not contain forest habitat or dense vegetation to support this species.	No further actions are recommended for this species
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**No Potential.** No salt marsh habitat is present to support the species.	No further actions are recommended for this species.
Alameda Island mole *Scapanus latimanus parvus*	SSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	**No Potential.** The Project Area is outside of this species known range.	No further actions are recommended for this species.
salt-marsh wandering shrew *Sorex vagrans halicoetes*	SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6 to 8 feet above sea level where abundant driftwood is scattered among *Salicornia*.	**No Potential.** The Project Area does not contain marsh habitat.	No further actions are recommended for this species
San Joaquin kit fox *Vulpes macrotis mutica*	FE, ST	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	**Unlikely.** Grassland within the Project Area is heavily disturbed from grazing, and the Project Area is surrounded by development and anthropogenic disturbance. The nearest documented occurrences are over 10 miles east of the Project Area (CDFW 2020).	No further actions are recommended for this species

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable, uncultivated soils. Prey on burrowing rodents.	**Unlikely.** Grassland within the Project Area is heavily disturbed from grazing, and the Project Area is surrounded by development and anthropogenic disturbance. No suitably sized burrows were observed during the August 2020 site visit.	No further actions are recommended for this species.
Birds				
tricolored blackbird *Agelaius tricolor*	SSC, ST	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Nesting area must be large enough to support about 50 pairs.	**Unlikely.** The Project Area does not contain suitable expanses of marsh or dense patches of freshwater vegetation to support nesting by a colony of this species.	No further actions are recommended for this species.
golden eagle *Aquila chrysaetos*	CFP, BGEPA	Year-round resident in rolling foothills with open grasslands, scattered trees, and cliff-walled canyons.	**Unlikely.** The Project Area is bordered by dense urban development to the west and active construction to the east. The Project Area is subject to a high level of anthropogenic disturbance and does not provide open foraging to support this species. Golden eagle may occur in the undeveloped hills east of the Project Area and may occasionally fly over the Project Area.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
short-eared owl *Asio flammeus*	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**Unlikely**. Grassland within the Project Area is heavily disturbed through grazing and does not provide dense herbaceous vegetation to support this species. In addition, the Project Area is outside of this species typical breeding range.	No further actions are recommended for this species.
burrowing owl *Athene cunicularia*	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Moderate Potential.** The Project Area is open with sparse vegetation and dense small mammal burrows in some areas, making it potentially suitable for burrowing owl. However, compaction and disturbance of the soil due to grazing activity, as well as the hilly topography of the Project Area decrease the likelihood that owls occur. Burrowing owl has a moderate potential to occur.	A pre-construction survey shall be performed no more than 14 days prior to initial ground disturbance. See section 7.1 for further details.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Swainson's hawk *Buteo swainsoni*	ST	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**Unlikely.** The Project Area is outside of this species typical breeding range. The nearest documented occurrence is a historic occurrence over 18 miles from the Project Area (CDFW 2020).	No further actions are recommended for this species.
western snowy plover *Charadrius alexandrinus nivosus*	FT, SSC	Federal listing applies only to the Pacific coastal population. Found on sandy beaches, salt pond levees, and shores of large alkali lakes. Requires sandy, gravelly, or friable soils for nesting.	**No Potential.** There is no sand, dune or beach habitat present within the Project Area to support nesting by the species.	No further actions are recommended for this species.
northern harrier *Circus cyaneus*	SSC	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge.	**Unlikely.** Grassland within the Project Area is grazed and disturbed with little to no herbaceous cover to support this species.	No further actions are recommended for this species.
yellow rail *Coturnicops noveboracensis*	SSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	**No Potential.** The Project Area does not contain freshwater marsh or wet meadow to support breeding by this species.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
white-tailed kite *Elanus leucurus*	CFP	Year-long resident of coastal and valley lowlands. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	**Moderate Potential.** Trees and shrubs within and adjacent to the Project Area may support nesting by this species. Grazing reduces prey availability and suitability for this species.	Perform ground disturbance and vegetation removal outside of the breeding bird season (Sep 1 – Jan 31). If project activities occur within the breeding bird season (Feb 1 – Aug 31), perform preconstruction breeding bird survey within 14 days start of work. Any active nests will be protected by work windows or exclusion buffers. See section 7.1 for further details.
American peregrine falcon *Falco peregrinus*	CFP	Resident and winter visitor to region. Occurs near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	**Unlikely.** The Project Area does not contain suitable cliffs or tall structures to support nesting by the species.	No further actions are recommended for this species.
San Francisco (saltmarsh) common yellowthroat *Geothlypis trichas sinuosa*	SSC	Resident of San Francisco bay region fresh and salt-water marshes. Requires thick, continuous cover down to water surface for foraging, tall grasses, tule patches, willows for nesting.	**Unlikely.** The Project Area does not contain marsh habitat to support nesting and foraging by the species.	No further actions are recommended for this species.
bald eagle *Haliaeetus leucocephalus*	SE, CFP, BGEPA	Frequents ocean shores, lake margins, and rivers for both nesting and wintering. Requires abundant fish and adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branch-work.	**Unlikely.** The Project Area does not contain suitable large trees or open water to support nesting and foraging by this species. This species may occasionally fly over.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
California black rail *Laterallus jamaicensis coturniculus*	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No Potential.** The Project Area does not contain marsh habitat to support nesting by this species.	No further actions are recommended for this species.
Alameda song sparrow *Melospiza melodia pusillula*	SSC	Year-round resident in tidal-influenced marshes along the eastern and southern portions of San Francisco Bay.	**No Potential.** The Project Area is outside the typical range of this subspecies and does not contain marsh or tidal habitats.	No further actions are recommended for this species.
California Ridgway's (clapper) rail *Rallus obsoletus (longirostris) obsoletus*	FE, SE, CFP	Associated with tidal salt marsh and brackish marshes supporting emergent vegetation, upland refugia, and incised tidal channels.	**No Potential.** The Project Area does not contain marsh habitat to support nesting by this species.	No further actions are recommended for this species.
bank swallow *Riparia riparia*	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and bands with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.	**Unlikely.** The Project Area does not contain cliff habitat required for nesting by this species.	No further actions are recommended for this species.
black skimmer *Rynchops niger*	SSC	Found primarily in southern California; South San Francisco Bay has a small resident population. Nests colonially on gravel bars, low islets, and sandy beaches	**No Potential.** The Project Area does not contain gravel bars, islets, or sandy beach habitat to support nesting by this species.	No further actions are recommended for this species.
(Brester's) yellow warbler *Setophaga (= Dendroica) petechia brewsteri*	SSC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting variable, but dense willow growth is typical. Occurs widely on migration.	**Unlikely.** The Project Area does not contain riparian vegetation to support breeding by this species.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
California least tern *Sterna antillarum browni*	FE, SE, CFP	Nests along the coast from San Francisco bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**No Potential.** There is no sand, dune or beach habitat present within the Project Area to support nesting by the species.	No further actions are recommended for this species.
Reptiles and Amphibians				
western pond turtle *Actinemys [Emys] marmorata*	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	**Unlikely.** The Project Area does not contain marshes, ponds, or slow moving streams suitable to support breeding by the species.	No further actions are recommended for this species.
California tiger salamander *Ambystoma californiense*	FT, ST	Populations in Santa Barbara and Sonoma counties currently listed as endangered; threatened in remainder of range. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Adults are fossorial and utilize mammal burrows and other subterranean refugia. Breeding occurs primarily in vernal pools and other seasonal water features.	**Unlikely.** The nearest documented occurrence is over 4.5 miles east of the Project Area (CDFW 2020). The Project Area is surrounded by dense urban development to the west and is heavily disturbed to the east from historic quarry operations. The surrounding development and disturbance serves as a dispersal barrier.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, ST	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses and small mammal burrows provide basking and refuge.	**Moderate Potential.** The Project Area does not contain rocky outcroppings, chaparral or hardwood habitat. The Project Area is disturbed through ongoing grazing and provides little vegetative cover or prey base to support this species. However, Alameda whipsnake has been documented in the hills east of the Project Area and may occasionally disperse into the Project Area from oak and scrub habitat along the northern boundary of the Project Area.	Mitigation measures include worker environmental awareness training, preconstruction surveys, and exclusion fence. See section 7.1 for further details.
foothill yellow-legged frog *Rana boylii*	SE, SSC	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**No Potential.** The Project Area does not contain stream habitat to support this species.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
California red-legged frog *Rana draytonii*	FT, SSC	Associated with quiet perennial to intermittent ponds, stream pools, and wetlands with adjacent upland habitat containing refugia. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	**Unlikely.** The Project Area does not contain marshes, ponds, or slow moving streams suitable to support breeding by the species. This species occurs in the hills to the east of the Project Area, with the nearest documented occurrence approximately 2 miles from the Project Area (CDFW 2020). However, the Project Area is bordered to the west by dense urban development which represents a complete barrier to dispersal. It is unlikely that individuals would disperse through the Project Area due to lack of nearby aquatic habitat. In addition, the Project Area is grazed and does not provide vegetative cover.	No further actions are recommended for this species.
Fish				
tidewater goby *Eucyclogobius newberryi*	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches; requires fairly still but not stagnant water and high oxygen levels.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Delta smelt *Hypomesus transpacificus*	FT, SE	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.
hardhead *Mylopharodon conocephalus*	SSC	Found in low to mid-elevation streams in the Sacramento-San Joaquin drainage; also occurs in the Russian River and tributaries. Favors clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic Centrarchids predominate.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.
Coho salmon - Central CA Coast ESU *Oncorhynchus kisutch*	FE, SE	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.
steelhead, Central California Coast ESU *Oncorhynchus mykiss irideus*	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.
longfin smelt *Spirinchus thaleichthys*	FC, ST	Found in open waters of estuaries, mostly in the middle or bottom of the water column. This species prefers salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.

Species	Status	Habitat Requirements	Potential to Occur in the Project Area	Results and Recommendations
Pacific lamprey *Entosphenus (=Lampetra) tridentatus*	SSC	Spawns between March and July in gravel bottomed streams in riffle habitat. Larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	**No Potential.** The Project Area does not contain aquatic habitat.	No further actions are recommended for this species.
Invertebrates				
Crotch bumblebee *Bombus crotchii*	SC	Range largely restricted to California, favoring grassland and scrub habitats. Typical of bumble bees, nests are usually constructed underground.	**Unlikely**. The Project Area is outside of this species known current distribution. There are no recent documented occurrences of this species in the vicinity of the Project Area (CDFW 2020).	No further actions are recommended for this species.
western bumblebee *Bombus occidentalis*	SC	Once widespread in the western United States and Canada, populations of this insect have drastically declined in recent decades. Pollinates a variety of wild flowering plants and crops. Nests in the ground, usually in association with small mammal burrows with sunny aspects. Current populations are thought to be restricted to high elevation sights in the Sierras with scattered occurrences on the northern California coast (Xerces, 2018).	**Unlikely**. The Project Area is outside of this species known current distribution. There are no recent documented occurrences of this species in the vicinity of the Project Area (CDFW 2020).	No further actions are recommended for this species.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	Limited to the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on in rocky outcrops and cliffs in coastal scrub habitat on steep, north-facing slopes within the fog belt. Species range is tied to the distribution of the larval host plant, Sedum spathulifolium.	**No Potential.** The Project Area is outside of this species known range. In addition, the species host plan was not observed in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Monarch butterfly *Danaus plexippus*	(winter roosting sites monitored by CDFW)	Winter roost sites located in wind-protected tree groves (Eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Winter roosts monitored by CDFW.	**Unlikely.** The Project Area does not contain wind protected tree groves to support roosting by this species. The nearest documented winter roost is approximately 4 miles west of the Project Area. This species may be observed during migration.	No further actions are recommended for this species.
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *O. purpurscens* are the secondary host plants.	**No Potential.** The Project Area does not contain the larval host plant for this species. The nearest documented occurrences (approximately 10 miles north) are associated with a population that has since been extirpated (CDFW 2020).	No further actions are recommended for this species.
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**Unlikely.** The Project Area does not contain vernal pool habitat to support this species. There are no documented occurrences within 10 miles of the Project Area (CDFW 2020).	No further actions are recommended for this species.