# Draft
# Negative Declaration

# Fullerton Union High School
# Elevator Addition Project

*Lead Agency:*
*Fullerton Joint Union High School District*
*1051 West Bastanchury Road*
*Fullerton, CA 92833*

February 2019

*School Site Solutions, Inc.*

***DRAFT***

# Initial Study and Negative Declaration
# Fullerton Union High School Elevator Addition Project

**Fullerton Joint Union High School District**
1051 West Bastanchury Road
Fullerton, CA 92833
*Contact:* Todd Butcher (714) 870-2818

*Prepared by:*

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2015 H Street, Sacramento, CA

2/7/2019

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# INTRODUCTION

The Fullerton Joint Union High School District (FJUHSD) is proposing to install modular elevators to existing buildings C and D at Fullerton Union High school, located at 201 East Chapman Avenue in the city of Fullerton, Orange County, California. Residential developments encompass the project site with Fullerton College located eastward. Currently the land is owned by the Fullerton Joint Union High School District; assessor parcel number APN 029-050-02. Pursuant to the California Environmental Quality Act (CEQA; *Public Resources Code* Section 21000, et seq. and CEQA Guidelines), FJUHSD has prepared this Initial Study (IS) to consider the potential environmental impacts that might result from the implementation of the proposed elevator addition project.

Fullerton Joint Union High School District is the Lead Agency for CEQA compliance on this project. FJUHSD has determined that the project would not have a significant impact on the environment and mitigation measures will not be necessary to ensure impacts remain less than significant. As a result, a Negative Declaration (ND) is the appropriate CEQA compliance document for this project.

New construction will encompass approximately 682 square feet of elevator additions to existing buildings C and D at Fullerton Union High school; a total of two elevators will be constructed. Demolition will include approximately 2,400 square feet of architectural barrier removal. No classrooms will be added or removed from the Site; there will be no changes to enrollment or master plan capacity.

# INITIAL STUDY FINDINGS

1. **Project title:**
   Fullerton Union High School Elevator Addition Project

2. **Lead agency name and address:**
   Fullerton Joint Union High School District
   1051 West Bastanchury Road
   Fullerton, CA 92833

3. **Contact person and phone number:**
   Todd Butcher
   (714) 870-2818

4. **Project location:**
   Fullerton Union High School – 201 East Chapman Avenue, Fullerton, CA 92832

5. **Project sponsor's name and address:**
   Same as Lead Agency

6. **General plan designation:**
   Schools

7. **Zoning:**
   PL – Public Land

8. **Description of Project:**

   New construction will encompass approximately 682 square feet of elevator additions to existing buildings C and D at Fullerton Union High School; a total of two elevators will be constructed. Demolition will included approximately 2,400 square feet of architectural barrier removal. No classrooms will be added or removed from the Site; no changes to enrollment or master plan capacity.

9. **Surrounding land uses and setting:**
   The Project Area is located in a highly urbanized area north of East Chapman Avenue and west of Fullerton College.

10. **Other Public agencies whose approval is required:**
    FJUHSD has obtained site and plan approval from the Division of the State Architect (DSA). FJUHSD would comply with applicable local, state and federal regulations as related to the permits needed for project construction and implementation. Multiple agencies will be included in the mailing list for review of the CEQA document by the State Clearinghouse. These agencies include the

Air Resource Board, California Highway Patrol, Caltrans District #12, Caltrans Planning, Department of Conservation, Department of Education, Fish and Wildlife Region # 5, Native American Heritage Commission, Office of Historic Preservation, Office of Public School Construction, Department of Parks and Recreation, Regional Water Quality Control Board Area # 8, State Water Resources Control Board, Department of Toxic Substances Control, and the Department of Water Resources.

11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for construction that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**
The Fullerton Joint Union High School District sent a Consultation Request Form to the Native American Heritage Commission (NAHC) on January 11, 2019 requesting CEQA Tribal Consultation List (AB 52) and a Sacred Lands File check. The NAHC responded with a consultation list of tribes within the Site boundaries. Twenty-two different tribes were listed in the consultation letter and the District mailed tribal notification letters to the corresponding tribes on January 24, 2019. The Districted did not receive any requests for consultation. (See Section XVIII. Tribal Cultural Resources).

# ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

## Environmental Factors Potentially Affected

| | | | | | |
|---|---|---|---|---|---|
| | 1. Aesthetics | | 2. Agriculture/Forestry Resources | | 3. Air Quality |
| | 4. Biological Resources | | 5. Cultural Resources | | 6. Energy |
| | 7. Geology/Soils | | 8. Greenhouse Gas Emissions | | 9. Hazards/Hazardous Materials |
| | 10. Hydrology/Water Quality | | 11. Land Use/Planning | | 12. Mineral Resources |
| | 13. Noise | | 14. Population/Housing | | 15. Public Services |
| | 16. Recreation | | 17. Transportation | | 18. Tribal Cultural Resources |
| | 19. Utilities/ Service Systems | | 20. Wildfire | | 21. Mandatory Findings of significance |

# DETERMINATION

On the basis of this initial evaluation:

☑ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least on effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been address by mitigation measures based on the earlier analysis as described on attached sheets. An Environmental Impact Report is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Todd Boutcher 2/5/19

Print Name Date

2/5/19

Signature Date

# INITIAL STUDY CHECKLIST

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simple does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.

2) All answers must take into account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less that significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there is one of more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) Negative Declaration: "Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analysis, as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, and effect has been adequately analyzed in an earlier EIR or negative declaration. Section15063(c)(3)(D). In this case, a brief discussion should identify the following:

   (a) Earlier Analysis Used. Identify and state where they are available for review.
   (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   (c) Mitigation Measures. For effects that are "Less Than Significant with

Mitigation Measures Incorporated, "describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist reference to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to previously prepared or outside document should, where appropriate, include a reference to the page or pages where the is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8) This is only a suggestion form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
a) the significance criteria or threshold, if any, used to evaluate each question; and, b) the mitigation measure identified, if any, to reduce the impact to less than significant.

# *I. AESTHETICS*

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

DISCUSSION: AESTHETICS

*Environmental Setting:*
The Site is located in an area composed of residential and highly developed land. Site plans and Site photos are provided in **Appendix A** and **Appendix B**, respectively.

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

**No Impact.** The Site would not significantly change the current view of the surrounding area to the public. Changes that will be made are the addition of an elevator to classroom buildings C and D. Views within the project area are not considered a scenic vista.

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

**No Impact.** The Project Site is not located within a state scenic highway; the closest highway is Riverside Freeway located 1.42 miles south of the Site.

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

**No Impact.**The Site is located in a highly urbanized area and is zoned PL for public land use and designated for schools as stated in the General Plan. Continued use of the Site for educational purposes is permissible and consistent with the Fullerton General Plan and local zoning requirements. The addition of two elevators would not significantly alter the scenic quality of the school; the Project area is not considered scenic.

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

**No Impact.** No outdoor lighting is planned; only demolition of architectural barriers and construction of the elevators will occur.

## *II. AGRICULTURAL RESOURCES*

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

| II. AGRICULTURE AND FOREST RESOURCES—Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | | | | X |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | | | | X |
| c) 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))? | | | | X |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | | | | X |
| e) 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 or forest land to non-forest use? | | | | X |

DISCUSSION: AGRICULTURAL RESOURCES

*Environmental Setting:*
The Fullerton Union High School is an existing campus located in a highly urbanized area in southern California, Orange County.

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

**No Impact.** The Site is not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; the Site is located on Urban and Built-Up Land according to the California Department of Conservation mapping system.

b) Conflict with zoning for agricultural use, or a Williamson Act?

**No Impact.** The Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.

c) 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))?

**No Impact.** The Site is not located on or near forest lands or timberland of any kind.

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

**No Impact.** This does not apply to the site since it is not located on or adjacent to forestland.

e) 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 or forest land to non-forest use?

**No Impact.** The site is not on forest land and will have no impact to forest use.

## *III. AIR QUALITY*

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

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

DISCUSSION: AIR QUALITY

*Environmental Setting:*
The Project Site is within the South Coast Air Quality Management District (SCAQMD). SCAQMD's mission is to clean the air and protect the health of all residents in the South Coast Air District through practical and innovative strategies. Thresholds of Significance for air quality are identified in the "SCAQMD Air Quality Significance Thresholds". Mass daily thresholds examined for construction and operational activities were identified as oxides of nitrogen (NOx), volatile organic compounds (VOC), respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less ($PM_{10}$), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), Sulphur oxides (SOx), carbon monoxide (CO), and lead (Pb). California Emissions Estimator Model (CalEEMod) was performed using information supplied by Ghataode Bannon Architects (GBA) on January 2, 2019. Results can be found in **Appendix C.**

CalEEMod is a statewide land use emissions computer model used to quantify potential criteria pollutants and greenhouse gas emissions during construction and operation activities. CalEEMod does not measure VOC or Pb directly. According to the CalEEMod Appendix A: *Calculation Details for CalEEMod*, the definition of a VOC is an organic compound that can evaporate into an organic gas. VOCs can be either reactive or non-reactive. CalEEMod calculates the VOC emissions from the application of architectural coatings based on the locally required VOC content limit of the coatings. Reactive Organic Gasses (ROG) is an organic gas that undergoes a photochemical reaction, thus, is reactive. ROG emissions are generated from the exhaust of mobile sources and these combustion emissions are calculated in CalEEMod based on the Air Resource Board's ROG emission factors. Both VOC and ROGs are precursors to ozone so they are summed in the CalEEMod report under the header ROG. For the purposes of comparing the ROG value to a VOC significance threshold, the terms can be used interchangeably. According to the Environmental Protection Agency, major sources of Pb in the air are ore and metal processing and piston-engine aircraft operating on leaded aviation fuel. Other sources are waste incinerators, utilities, and lead-acid battery manufacturers. The highest air concentrations of Pb are usually found near lead smelters. The Project is not expected to generate Pb.

Results for project impacts during construction and operational activities were well below the mass daily threshold allowance for NOx, $PM_{10}$, $PM_{2.5}$, SOx, CO, and ROG/VOC; see **Tables 1** below:

| **Table 1: CalEEMod Results and SCAQMD Thresholds** | | | | | | |
|---|---|---|---|---|---|---|
| **Construction** | | | | | | |
| | NOx lbs./day | PM10 lbs./day | PM2.5 lbs./day | SOx lbs./day | CO lbs./day | ROG/VOC lbs./day |
| **Construction Threshold** | 100 | 150 | 55 | 150 | 550 | 75 |
| **Project Construction Impacts** | 3.14 | 0.21 | 0.18 | <0.01 | 2.48 | 0.33 |
| **Operational** | | | | | | |
| | NOx lbs./day | PM10 lbs./day | PM2.5 lbs./day | SOx lbs./day | CO lbs./day | ROG/VOC lbs./day |
| **Operational Threshold** | 55 | 150 | 55 | 150 | 550 | 55 |
| **Project Operation Impacts** | 0.09 | 0.05 | 0.02 | <0.01 | 0.22 | 0.03 |

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

**Less Than Significant Impact.** SCAQMD thresholds were maintained. None of the pollutants exceeded the thresholds; NOx, PM10, PM2.5, SOx, CO, and ROG/VOC were well under levels for construction and operational thresholds.

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

**Less Than Significant Impact.** Project construction activities would not create an increase in emissions of pollutants that exceed SCAQMD thresholds. Operational use of the Project Site as a school would not create a greater impact on air quality than current conditions.

d) Expose sensitive receptors to substantial pollutant concentrations?

**Less Than Significant Impact.** Sensitive receptors, as defined by the Environmental Protection Agency include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Project construction activities will be timed to minimize exposure to the greatest extent feasible. The anticipated duration of construction activities, size of the Site, and CalEEMod results suggest construction emissions would be less than significant.

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

**No Impact.** The Project would not result in additional emissions, including odors, that would adversely affect a substantial number of people. Environmental odors are those typically associated with confined animal feeding operations, human activities (compost, sewage, garbage, fires, and cleaning agents), industries, nature activities, and vehicle operations. The project does not include animal operations, composting, industry activities, or mass vehicle operations. Construction activities would be brief and entail installation of two elevators at existing buildings.

# *IV. BIOLOGICAL RESOURCES*

| IV. BIOLOGICAL RESOURCES—Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | | | | X |
| 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 US Fish and Wildlife Service? | | | | X |
| c) Have a substantial adverse effect on state or federally protected wetlands as (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | | | | X |
| 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 Project Sites? | | | | X |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | | | | X |

| IV. BIOLOGICAL RESOURCES—Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | | | | X |

DISCUSSION: BIOLOGICAL RESOURCES

*Environmental Setting:*
The Project Site is within the existing footprint of the Fullerton Union High School and does not entail expansion or construction in undisturbed areas of land. Construction activities include the addition of two new elevators within a 682 square feet (sf) area of the Site. Demolition activities include approximately 2,400 sf of architectural barriers. The total square footage of area to be impact by the project is approximately 3,082 sf. Due to the highly urbanized setting and the diminutive area of project impact, biological resources are not predicted to have no impact.

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?

**No Impact.** The Project Site is within the existing footprint of the developed Fullerton Union High School; ground cover consists of paved and turfed areas. It is unlikely that special status species inhabit the Site. Tree removal would be the only source of species displacement if bird species are present on Site. However, construction actives do not include tree removal; therefore, there will be no impact.

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 US Fish and Wildlife Service?

**No Impact.** There are no identified riparian habitats or significant natural communities within the project area; no wetlands or waters of the U.S. were observed within the Site.

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

**No Impact.** There are no federally protected wetlands identified or observed within the Project Site. The site is designated as Schools and zoned for Public Land use

within the City of Fullerton's General Plan and is not intended for habitat use or protection.

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 Project Sites?

**No Impact.** The Site contains highly developed land and does not have suitable habitat to support a wildlife corridor or wildlife nursery site.

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

**No Impact.** Construction of the elevators will occur alongside buildings C and D of the existing Fullerton Union High School footprint. The area of impact is approximately 3,082 sf of highly disturbed and low vegetative land. Project activities are consistent with all local policies and ordinances.

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?

**No Impact.** Project impacts would occur within highly disturbed and low vegetative area of the existing Fullerton campus. No Habitat Conservation Plan (HCP) exists for the City of Fullerton; therefore, there will be no impact to conservation plans.

## *V. CULTURAL RESOURCES*

| V. CULTURAL RESOURCES— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? | | | | X |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | | | | X |
| c) Disturb any human remains, including those interred outside of formal cemeteries? | | | | X |

DISCUSSION: CULTURAL RESOURCES

*Environmental Setting:*
For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources), it generally must be 50 years or older. Under the California Environmental Act (CEQA), historical resources can include pre-contact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts.

Based on the significance criterion identified above, any ground disturbing project could result in significant adverse impacts to cultural resources during construction activities. As part of the Project, appropriate signage will be displayed in the event of potential cultural unearthing. This includes archaeological signage, cultural resource contact information, and inadvertently discovered human remain policies and procedures; see Project Signage and Procedures for Cultural Resources, **Appendix D**. In the event that human skeletal remains are encountered, the applicant is required to immediately notify the County Coroner. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of state law and this chapter. If artifacts are found on the site a

qualified archaeologist shall be contacted along with the County Planning Office. No further disturbance of the artifacts may be made except as authorized by the County Planning Office.

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

**No Impact.** There are no historic Sites or buildings within the project area. The Site is not listed as historical according to the Office of Historic Preservation data base, and the National Park Service register of historic places.

However, the City of Fullerton does include the Fullerton Union High School as part of its historical resources within The Fullerton Plan, Table 6: *City of Fullerton Local Register of Historical Resources*, page 133. The Fullerton Plan was adopted in 2012 as the City's General Plan and is the guiding document for City policies. The City does not require permitting for alteration of buildings listed as historical by the city. Compliance with the Division of State Architect (DSA) is the only requirement by the city. Site plans have been approved by DSA as of October 23, 2018; File No. 30-H3 Application No. 04-117308.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
c) Disturb any human remains, including those interred outside of formal cemeteries?

**No Impact.** No resources have been identified on the Site; the Project area consists of highly developed and urbanized land. There is no evidence to suggest that human remains may be present within the project boundaries. Project design includes the use of archaeological signage, cultural resource contact information, and policies and procedures for inadvertently discovered human remain in the event of archaeological resources unearthing, see **Appendix D**.

## *VI. ENERGY CONSERVATION*

| VI. ENERGY — Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | | | X | |
| b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | | | X | |

DISCUSSION: ENERGY

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

**Less Than Significant Impact.** The Project is not expected to cause wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Standard construction activities shall be utilized. The operational use of the Site for educational purposes is necessary and would not create any more of an impact than currently produced. Installation of the elevators will adhere to the requirements of Title 24.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

**Less Than Significant Impact.** The City of Fullerton is collaborating with Southern California Edison and SoCalGas through the North Orange County Cities Energy Partnership to help achieve City energy reductions goals. Project activities would meet the requirements of Title 24 and would not conflict with the City's energy conservation goals.

## *VII. GEOLOGY AND SOILS*

| VII. GEOLOGY AND SOILS— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | | | | X |
| ii) Strong seismic ground shaking? | | | X | |
| iii) Seismic-related ground failure, including liquefaction? | | | X | |
| iv) Landslides? | | | | X |
| b) Result in substantial soil erosion or the loss of topsoil? | | | X | |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-Project Site landslide, lateral spreading, subsidence, liquefaction or collapse? | | | X | |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? | | | X | |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | | | | X |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | | | X | |

DISCUSSION: GEOLOGY AND SOILS

*Environmental Setting:*
Construction plans for new buildings at California schools must be submitted to the DSA for review. DSA ensures that construction plans are, at a minimum, in compliance with the 2016 California Building Code (Title 24, California Code of Regulations), which provides for stringent construction requirements on projects in areas of high seismic risk. The project design and construction are required to conform with, or exceed, current best standards for earthquake-resistant construction in accordance with the 2016 California Building Code and with the generally accepted standards of geotechnical practice for seismic design in Northern California. The 2016 California Building Code also requires that a site-specific geotechnical investigation report be prepared by a licensed professional to evaluate geologic and seismic hazards for proposed developments of one or more buildings greater than 4,000 square feet; see the Geotechnical Evaluation completed in April of 2018 by Ninyo & Moore; see **Appendix E**. The purpose of a site-specific geotechnical investigation is to identify seismic and geologic conditions and potential geohazards, such as surface fault rupture, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability, that need to be addressed with specific design approaches and elements. Requirements for the geotechnical investigation are presented in Chapter 16 “Structural Design” and Chapter 18 “Soils and Foundation” of the 2016 California Building Code.

The Field Act, contained in Education Code Sections 17280-17317 and 80030-81149, adds additional seismic safety requirements for California schools. The Field Act includes requirements for seismic design standards, plan review, construction inspections, and testing, which are overseen by the DSA through plan review, permitting, and inspection of schools under construction.

a.) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

**No Impact.** The Project site is not located within an Alquist-Priolo Earthquake Fault Zone as indicated by the Geotechnical Evaluation.

ii.) Strong seismic ground shaking?

**Less Than Significant Impact.** The site is located in a seismically active area, as is the majority of southern California, and there is potential for strong ground shaking. Therefore, the District implemented findings and recommendations from the Geotechnical Evaluation into project design and DSA approved the project on October 23, 2018. Project impacts are expected to be less than significant.

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

**Less Than Significant Impact.** Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The State of California Seismic Hazard Zones Map, included in the Geotechnical Evaluation, indicated the project area is located within an area mapped as subject to seismically induced liquefaction hazards. Accordingly, liquefaction potential of subsurface soils was evaluated in the Geotechnical Evaluation using soil sample blow counts recorded at various depths in exploratory boring. Liquefaction analysis indicates that liquefaction induced settlement for the Site is on the order of ½ inch. Therefore, recommendations were incorporated into project design to reflect the findings of the Geotechnical Evaluation.

iv.) Landslides?

**No Impact.** According to the Geotechnical Evaluation, the site is located in an area of relatively flat terrain. Based on site reconnaissance performed by Ninyo & Moore and based on review of published seismic hazard maps, geologic maps, stereoscopic aerial, and photographs, landslides or indications of deep-seated slope instability are not considered a potential hazard at the site.

b.) Result in substantial soil erosion or the loss of topsoil?
c.) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
d.) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

**Less Than Significant Impact.** The District implemented findings and recommendations from the Geotechnical Evaluation into project design. DSA approved the project on October 23, 2018. Project impacts are expected to be less than significant for soil conditions including soil erosion, loss of topsoil, landslide, lateral spreading, subsidence, liquefaction, and/or expansive soils. Additionally, no new student housed facilities are to be constructed and the Project would not exacerbate existing Site conditions. According to the California Supreme Court decision in December of 2015, CEQA does not require an analysis of impacts that existing environmental conditions may have on project's future users or residents unless they exacerbate hazards that are already present; California Building Industry Association v. Bay Area Air Quality Management District, N. S213478. All student housed facilities are existing structures, no new hazard will be introduced by installation of two elevators at pre-existing classroom buildings.

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

**No Impact.** Project activities are specific to elevator construction and architectural barrier removal; no changes to waste water disposal systems will be made. The project will not utilize a septic tank.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

**Less Than Significant Impact.** No resources have been identified on the Site; the Project area consists of highly developed and urbanized land. There are no paleontological resources or unique geologic features identified or observed within the Site. Project design includes the use of archaeological signage, cultural resource contact information, and policies and procedures for inadvertently discovered human remain in the event of archaeological resources unearthing; see **Appendix D**.

## *VIII. GREENHOUSE GAS EMISSIONS*

| VIII. GREENHOUSE GAS EMISSIONS— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | | | X | |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | | | | X |

DISCUSSION: GREENHOUSE GAS EMISSIONS

*Environmental Setting:*
In 2006, the California State Legislature passed the California Global Warming Solutions Act (Assembly Bill [AB] 32), which requires the California Air Resources Board (CARB) to develop and implement regulatory and market mechanisms that will reduce Greenhouse Gas (GHG) emissions to 1990 levels by 2020. In 2016, the State Legislature adopted Senate Bill (SB) 32, which requires further reduction of GHG emissions to 40 percent below the 1990 level by 2030. In addition, Executive Order S-3-05 set a GHG reduction goal of 80 percent below 1990 levels by 2050.

The primary GHG emissions of concern are carbon dioxide, methane, and nitrous oxide. Other GHGs of concern include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, but their contribution to climate change is less than 1 percent of the total GHGs that are well mixed (i.e., that have atmospheric lifetimes long enough to be homogeneously mixed in the troposphere) (Intergovernmental Panel on Climate Change, 2013). Each GHG has a different global warming potential. For instance, methane traps about 21 times more heat per molecule than carbon dioxide. As a result, emissions of GHGs are reported in metric tons of carbon dioxide equivalents (CO2e), where each GHG is weighted by its global warming potential relative to carbon dioxide.

Given the overwhelming scope of global climate change, it is not anticipated that a single development project would have an individually discernible effect on global climate change. It is more appropriate to conclude that the greenhouse gas emissions generated by the proposed project would combine with emissions across the state, nation, and globe

to cumulatively contribute to global climate change. The primary GHG associated with development projects is carbon dioxide, which is directly generated by fuel combustion (vehicle trips, use of natural gas for buildings) and indirectly generated by use of electricity.

In February of 2012, the City of Fullerton published The Climate Action Plan (CAP) in the Fullerton Plan. The CAP provides a framework for reducing greenhouse gas (GHG) emissions including strategies, recommended targets, thresholds, and best practices. The proposed Project is consistent with the Fullerton Plan projections identified in The Fullerton's Plan's 2030 growth projections; the project is not growth inducing.

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

**Less Than Significant Impact.** The project would not generate greenhouse gas emissions that would significantly impact the environment. The Project is not growth inducing and construction activities would be brief and temporary. The project is also within air quality standards identified by the SCAQMD.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

**No Impact.** The project is consistent with the Fullerton's Plans year 2030 growth projections.

# *IX. HAZARDS AND HAZARDOUS MATERIALS*

| IX. HAZARDS AND HAZARDOUS MATERIALS— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | | | X | |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | | | X | |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | | | X | |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | | | | X |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | | | | X |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | | | X | |
| g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | | | | X |
| h) Be located within 1,500 feet of a high-pressure pipeline that can pose a safety hazard? | | | | X |

DISCUSSION: HAZARDS AND HAZARDOUS MATERIALS

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

**Less Than Significant Impact.** The Project Site is used for educational purposes and will not be associated with routine transport, use, or disposal of hazardous materials. Construction activities would be brief, temporary, and do not involve transportation, disposal, or use of hazardous materials.

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

**Less Than Significant Impact.** The continued use of the Site as a high school indicates that it would be unlikely for hazardous materials to be released into the environment. Construction activities would be brief, temporary, and do not involve hazardous materials.

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

**Less Than Significant Impact.** The project itself will not emit hazardous air emissions, nor will it handle hazardous materials, substances, or waste. Therefore, it will have a less than significant impact to emissions or handling of hazardous materials, substances, or waste.

d) Be located on a Project Site which is included on a list of hazardous materials Project Sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

**No Impact.** The Project Site is an existing high school and is not on a list of hazardous materials project sites.

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

**No Impact.** The Fullerton High School is not located within two miles of a public airport or public use airport. The closest airport is the Fullerton Municipal Airport, located approximately 3.24 miles west of the campus.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

**Less Than Significant Impact.** The proposed project is not expected to interfere with any adopted emergency response plans or emergency evacuation plans and would continue to be utilized for educational purposes. Project plans have been designed by qualified architects and approved by DSA.

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

**No Impact.** According to the Cal Fire Resources and Assessment Program, the project is located within an area associated with wildland fires. Additionally, the Site is not located on or adjacent to a wildland. No significant impact is expected.

h) Be located within 1,500 feet of a high-pressure pipeline that can pose a safety hazard?

**No Impact.** According to the National Pipeline Mapping System, there are no gas transmission or hazardous liquid pipelines located in the Project area. Additionally, the Project does not involve acquisition of a new site or construction of a new school; modifications to the existing facilities are permissible and further analysis of pipelines is not necessary for this Project. The modernization project scope will be consistent with the location of existing facilities and within the existing footprint. The scope of work to be performed will not result in an exacerbation of any potential safety issues.

# *X. HYDROLOGY AND WATER QUALITY*

| X. HYDROLOGY AND WATER QUALITY— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | | | X | |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | | | X | |
| c) Substantially alter the existing drainage pattern of the Project 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: | | | X | |
| i) result in substantial erosion or siltation on- or off-site; | | | X | |
| ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; | | | X | |
| iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | | | X | |
| iv) impede or redirect flood flows? | | | X | |

| X. HYDROLOGY AND WATER QUALITY— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | | | X | |
| e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | | | X | |

DISCUSSION: HYDROLOGY AND WATER QUALITY

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
c) Substantially alter the existing drainage pattern of the Project 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:
    i. Result in substantial erosion or siltation on- or off-site;
    ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    iv. impede or redirect flood flows?
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation??
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

**Less Than Significant Impact.** The Project Site is currently operational and does not violate any water quality standards, waste discharge requirements, does not interfere with groundwater, or alter existing drainage patterns. Construction and demolition activities associated with the Project are less than one acre and would not alter water waste discharge, groundwater, or drainage patterns of the High School. The Site is not located in a flood hazard, tsunami, or seiche zone as indicated in the Geotechnical Evaluation. The addition of elevators at buildings C and D would not create any more impact to hydrology and water quality than already produced by the existing school campus.

## *XI. LAND USE AND PLANNING*

| XI. LAND USE AND PLANNING— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Physically divide an established community? | | | | X |
| b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | | | | X |

DISCUSSION: LAND USE AND PLANNING

*Environmental Setting:*
Fullerton Union High School is located at 201 East Chapman Avenue in the city of Fullerton, Orange County. According to the City of Fullerton, Fullerton Union High School District was established in 1893 at the corner of Spadra Road and Wilshire Avenue. In the 1900's a new complex was erected on Commnwealth Avenue. In 1911, a fire destroyed the main building and the campus was moved to its current location.

a) Physically divide an established community?

**No Impact.** The Fullerton Union High School has been part of the community since 1893 and the addition of two elevators would not change the functionality of the educational facility.

b) 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 Impact.** The Project is consistent with The Fullerton Plan 2030.

## *XII. MINERAL RESOURCES*

| XII. MINERAL RESOURCES— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | | | | X |
| b) Result in the loss of availability of a locally-important mineral resource recovery Project Site delineated on a local general plan, specific plan or other land use plan? | | | | X |

DISCUSSION: MINERAL RESOURCES

*Environmental Setting:*
According to the State of California Department of Conservation, the Project Site is not located in an area of mineral significance including Significant Mineral Aggregate Resource Area or active mineral extraction areas. This is also consistent with the Mineral Land Classification of the Greater Los Angeles Area Special Report 143 completed in 1987 by the California Division of Mines and Geology.

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

**No Impact.** The Project Site is not designated for mineral resource use; therefore, no significant impact to loss of availably of a known mineral resource is expected.

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

**No Impact.** No locally-important mineral resource recovery sites would be impacted by the project. The Site is not in close proximity to mineral resources.

## *XIII. NOISE*

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

DISCUSSION: NOISE

*Environmental Setting:*
The Fullerton Plan was adopted in 2012 as the City's General Plan and is the guiding document for City policies. City goals regarding noise policies include the noise compatibility guidelines from the State General Plan Guidelines; see Table 8 from the Fullerton Plan below.

| Table 8<br>Land Use Compatibility For Community Noise Environments | | | | |
|---|---|---|---|---|
| Land Use Category | Community Noise Exposure (CNEL) | | | |
| | Normally Acceptable | Conditionally Acceptable | Normally Unacceptable | Clearly Unacceptable |
| Residential-Low Density, Single-Family, Duplex, Mobile Homes | 50 - 60 | 55 - 70 | 70 – 75 | 75 – 85 |
| Residential – Multiple Family | 50 – 65 | 60 – 70 | 70 – 75 | 70 – 85 |
| Transient Lodging – Motel, Hotels | 50 – 65 | 60 – 70 | 70 – 80 | 80 – 85 |
| Schools, Libraries, Churches, Hospitals, Nursing Homes | 50 – 70 | 60 – 70 | 70 – 80 | 80 – 85 |
| Auditoriums, Concert Halls, Amphitheaters | NA | 50 – 70 | NA | 65 – 85 |
| Sports Arenas, Outdoor Spectator Sports | NA | 50 – 75 | NA | 70 – 85 |
| Playgrounds, Neighborhood Parks | 50 – 70 | NA | 67.5 – 77.5 | 72.5 – 85 |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | 50 – 70 | NA | 70 – 80 | 80 – 85 |
| Office Buildings, Business Commercial and Professional | 50 – 70 | 67.5 – 77.5 | 75 – 85 | N/A |
| Industrial, Manufacturing, Utilities, Agriculture | 50 – 75 | 70 – 80 | 75 – 85 | N/A |

CNEL = community noise equivalent level; NA = not applicable

NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design.

CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

*Source: Office of Planning and Research, California, General Plan Guidelines, October 2003.*

The Fullerton Noise Ordinance Standards specify that noise levels cannot be exceeded for certain periods of time at residential and sensitive areas such as schools, hospitals, and religious institutions; see Table 5.9-2 from the City of Fullerton Municipal Codes.

**Table 5.9-2 City of Fullerton Noise Ordinance Standards**

| Time Period | Noise Level (dBA) at Property Line | |
|---|---|---|
| | Exterior | Interior |
| 7:00 AM–10:00 PM | 55 | 55 |
| 10:00 PM–7:00 AM | 50 | 45 |

Source: City of Fullerton Municipal Code Section 15.90.030 (A).

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

**Less Than Significant Impact.** Construction activities would be subject to the City of Fullerton's Noise Control Ordinance. This includes community noise exposure guidelines and time periods. Additionally, Noise suppression attachments will be utilized as part of the project. Equipment idling will be kept to a minimum and equipment will be turned off when not in use. Operational use of the Site as a high school will not result in significant noise impacts.

b) Generation of excessive groundborne vibration or groundborne noise levels?

**Less Than Significant Impact.** During the construction of the project, the Site and immediate vicinity could be subject to ground borne vibration (e.g., from the movement of large pieces of equipment and loaded trucks); however, these impacts would be temporary and therefore less than significant.

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

**No Impact.** The Fullerton Union High School is not located within the vicinity of a private airstrip or airport. The closest airport is the Fullerton Municipal Airport, located approximately 3.24 miles west of the campus.

## *XIV. POPULATION AND HOUSING*

| XIV. POPULATION AND HOUSING— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | | | | X |
| b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | | | | X |

DISCUSSION: POPULATION AND HOUSING

a) 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 Impact.** The construction of two elevators at the existing campus are not considered growth inducing.

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

**No Impact.** The Project would not displace substantial numbers of existing people or housing. No increase in enrollment is expected and no changes will be made to the school's master plan capacity.

## *XV. PUBLIC SERVICES*

| XV. PUBLIC SERVICES— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| Fire protection? | | | X | |
| Police protection? | | | X | |
| Schools? | | | | X |
| Parks? | | | | X |
| Other public facilities? | | | | X |

DISCUSSION: PUBLIC SERVICES

*Environmental Setting:*
The Project would be served by the Fullerton Fire Department (312 East Commonwealth Avenue) approximately 0.3 miles away. The Project would be served by the Fullerton Police Department (237 West Commonwealth) approximately 0.6 miles southwest of the Site.

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

Fire protection?
**Less Than Significant Impact.** The addition of two elevators at the existing high school is not expected to significantly increase the need for fire protection and emergency services at the Site. The Project is not growth inducing and enrollment is predicted to remain the same.

Police protection?
**Less Than Significant Impact.** The Fullerton Police Department is comprised of approximately 220 employees, 150 sworn and 70 civilian positions that handle nearly 50,000 calls annually for service. The proposed Project is not expected to necessitate the need for police protection. The Project would not increase enrollment or induce population growth.

Schools?
**No Impact.** The construction of new elevators is not expected to have a significant or adverse impact to existing schools.

Parks?
**No Impact.** The closest park is Fullerton Bike Loop Parking, approximately 0.7 miles northwest of the site. No significant impacts to parks are expected.

Other public facilities?
**No Impact.** The project is not expected to increase demand for other public facilities.

## *XVI. RECREATION*

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

DISCUSSION: RECREATION

*Environmental Setting:*
The Project would not provide or alter recreational facilities on site. Several parks are in the vicinity of the Project Site, including Lemon Park (0.7 miles south), Hillcrest Park (0.8 miles north), and the City of Fullerton Parks & Recreation (0.8 miles southwest).

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

**Less Than Significant Impact.** The existing campus includes recreational areas onsite and is not expected to significantly increase the use of neighborhood parks

b) 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?

**No Impact.** The Project does not include recreational facilities, nor would it require construction or expansion of recreational facilities.

## *XVII. TRANSPORTATION*

| XVII. TRANSPORTATION— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | | | | X |
| b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)? | | | | X |
| c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | | | | X |
| d) Result in inadequate emergency access? | | | X | |
| e) Be located within 500 feet of the edge of the closest traffic lane of a freeway or other busy traffic corridor (as defined in Senate Bill 352, Chapter 668, Statutes of 2003)? | | | | X |
| f) Be located within 1,500 feet of a railroad easement? | | | | X |

DISCUSSION: TRANSPORTATION/TRAFFIC

*Environmental Setting:*
The addition of two elevators to the existing high school will not impact on-site or off-site traffic circulation; no changes will be made to parking, curb cuts, ingress, or egress. Enrollment is not predicted to changes and no alterations will be made to drop-off or pick-up locations.

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

**No Impact.** No changes will be made to pick-up and drop off zones, parking, or on-site circulation. No conflict with applicable plans, ordinances, or policies for circulation is expected.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?

**No Impact.** Proposed CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on vehicle miles traveled (VMT). The Project would not impact VMT.

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

**No Impact.** Traffic design and features will not be altered in anyway shape or form.

d) Result in inadequate emergency access?

**Less Than Significant Impact.** The Project will include construction of an elevator at two existing buildings. Existing stairways provide accessibility in case of emergency; no changes to existing stairways or other emergency access points will be made.

e) Be located within 500 feet of the edge of the closest traffic lane of a freeway or other busy traffic corridor (as defined in Senate Bill 352, Chapter 668, Statutes of 2003)??

**No Impact.** The closest traffic lane of a freeway is approximately 1.35 miles south at the Riverside Freeway.

f) Be located within 1,500 feet of a railroad easement?

**No Impact.** Fullerton Union High School is approximately 2,095 feet north of the Fullerton Station.

## *XVIII. TRIBAL CULTURAL RESOURCES*

| XVIII. TRIBAL CULTURAL RESOURCES— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Cause a substantial adverse change in the significance of a tribal cultural resources, 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 that is: | | | | |
| a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | | | X | |
| b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.in applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 the lead agency shall consider the significance of the resource to a California Native American tribe. | | | X | |

DISCUSSION: TRIBAL CULTURAL RESOURCES

*Environmental Setting:*
Assembly Bill 52, which became effective on July 1, 2015, revised several portions of California's Public Resources Code to broaden the requirements for tribal consultation and to provide a more formal structure for California's tribes to provide meaningful input to protect their cultural heritage during the CEQA process. California Public Resources Code section 21084.2 now establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Lead agencies are required to avoid,

when feasible, damaging effects to any tribal cultural resource. This requires lead agencies to begin consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project, "[p]rior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project." Pub. Res. Code § 21080.1.1(b).

Consultation with Native American tribes is necessary, not only for the purpose of determining appropriate mitigation measures, but also to help the lead agency identify locations where the proposed project might impact culturally significant areas. Assembly Bill 52's requirement that lead agencies consult with tribes early in a project's development facilitates identification of cultural resources known to tribes and provides a better opportunity to undertake appropriate mitigation measures, if needed.

The Fullerton Joint Union School District sent a Consultation Request Form to the Native American Heritage Commission (NAHC) on January 11, 2019, requesting CEQA Tribal Consultation List (AB 52) and a Sacred Lands File check. The NAHC responded with a consultation list of tribes within the boundaries of the Site. Twenty-two different tribes were listed in the consultation letter and the District mailed tribal notification letter to the corresponding tribes on January 24, 2019. The Districted did not receive any requests for consultation. It is possible that an unknown Tribal Cultural Resource (TCR) could be found during ground disturbing activities. Compliance with existing federal, State, and local laws and regulations would protect unrecorded TCR's within the project site through excavation or preservation activities, thereby preventing or minimizing the material impairment of archaeological deposits.

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resources, 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 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),

**Less Than Significant Impact.** A Sacred Lands File check was requested on January 11, 2019, and results were negative for tribal resources. There are no known listed or eligible for listing resources on the Site.

b) Would the project cause a substantial adverse change in the significance of a tribal cultural resources, 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 that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.in applying the criteria set forth in subdivision (c) of Public Resources

Code Section 5024.1 the lead agency shall consider the significance of the resource to a California Native American tribe.

**Less Than Significant Impact.** The District mailed twenty-two tribal notification letters to the corresponding tribes from the NAHC consultation list. No requests were obtained by the District. As a result, no known resources will be significantly or adversely impacted.

## *XIX. UTILITIES AND SERVICE SYSTEMS*

| XIX. UTILITIES AND SERVICE SYSTEMS—Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | | | | X |
| b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | | | | X |
| c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | | | | X |
| d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | | | | X |
| e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | | | | X |

DISCUSSION: UTILITIES AND SERVICE SYSTEMS

*Environmental Setting:*
Fullerton City utilities are provided by Southern California Edison for electric, the Southern California Gas Company for gas, and the City of Fullerton for water supply and wastewater services.

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

**No Impact.** The Site is currently supported by the City of Fullerton water supply. Additions to school site are considered minor and could potentially meet the qualifications of a class 14 Categorical Exemption under the California Environmental Quality Act. It is not likely that the project would exceed wastewater treatment requirements of Fullerton City.

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

**No Impact.** The addition of two elevators will not require water supply during operational activities of the Site.

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

**No Impact.** The Project is not expected to impact wastewater treatment.

d) 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 Impact.** Activities associated with elevator use are not indicative of solid waste generation; no impact is expected.

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

**No Impact.** Activities associated with elevator use are not indicative of solid waste generation; no impact is expected.

## *XX. WILDFIRE*

| XX. WILDFIRE— Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: | | | | |
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | | | | X |
| b) Due to the 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? | | | | X |
| c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? | | | | X |
| d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | | | | X |

DISCUSSION: WILDFIRE

*Environmental Setting*:
According to the Cal Fire, Fire and Resource Assessment Program (FRAP), the Project Site is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. The Fire Hazard Severity Zone Viewer indicates that Fullerton Union High School is within a local responsibility area and is neither very high, high, or moderate for fire hazard severity. Therefore, the project will have no impact to wildfires.

## *XXI. MANDATORY FINDINGS OF SIGNIFICANCE*

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

DISCUSSION: MANDATORY FINDINGS OF SIGNIFICANCE

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

**Less Than Significant Impact.** The project is not expected to degrade the quality of the environment, substantially reduce or threaten natural habitats, or eliminate important examples of the major periods of California history or prehistory.

b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

**Less Than Significant Impact.** The proposed Project has no potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. The Project will enhance and contribute to long-term environmental goals with some short-term less than significant impacts.

c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

**Less Than Significant Impact.** All potential impacts described in previous sections are considered less than significant and would remain less than significant when cumulatively considered.

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

**Less Than Significant Impact.** The project will not cause substantial or adverse effects on human beings directly or indirectly.

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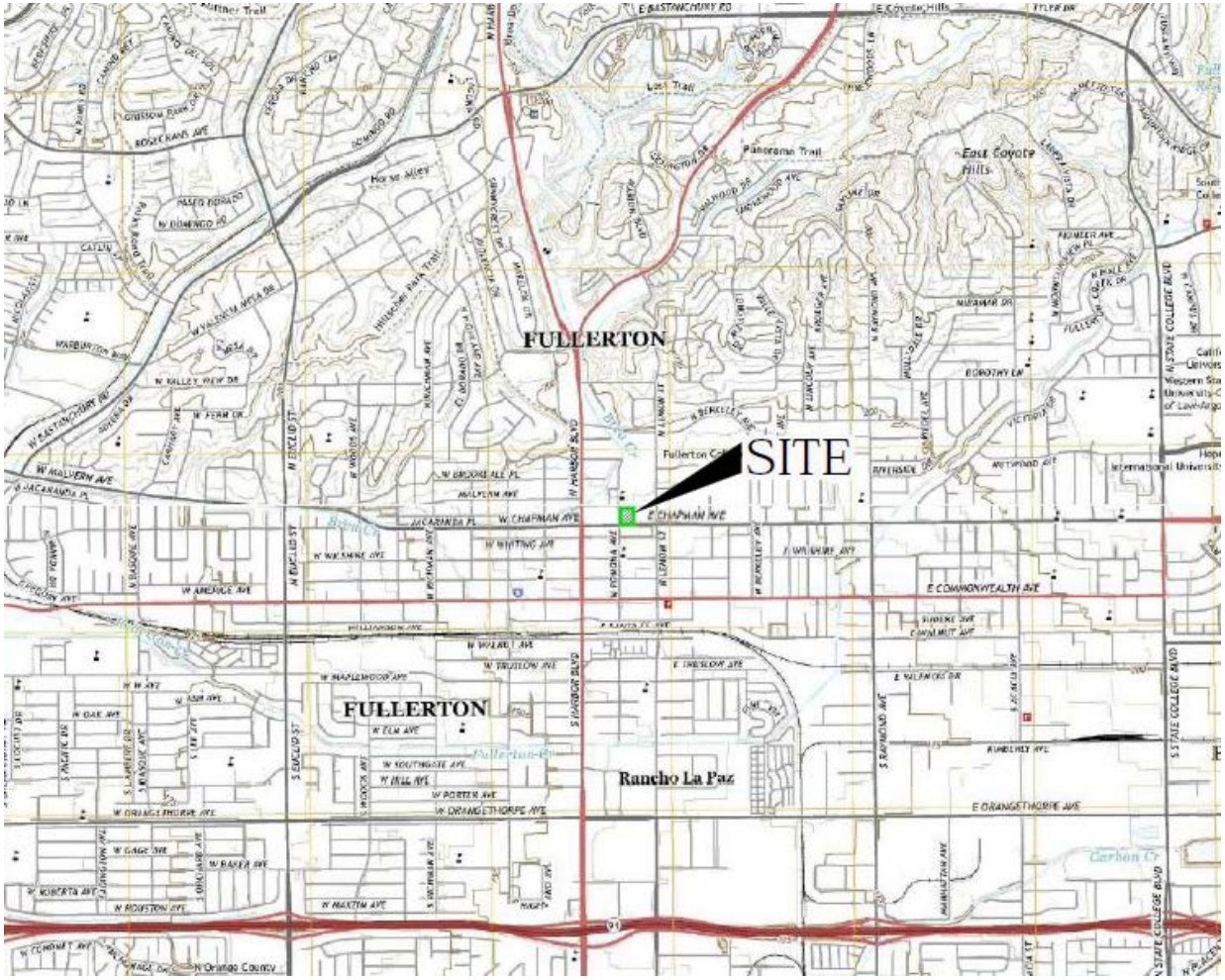
Figure 1
Project Site Location Map – Topographic



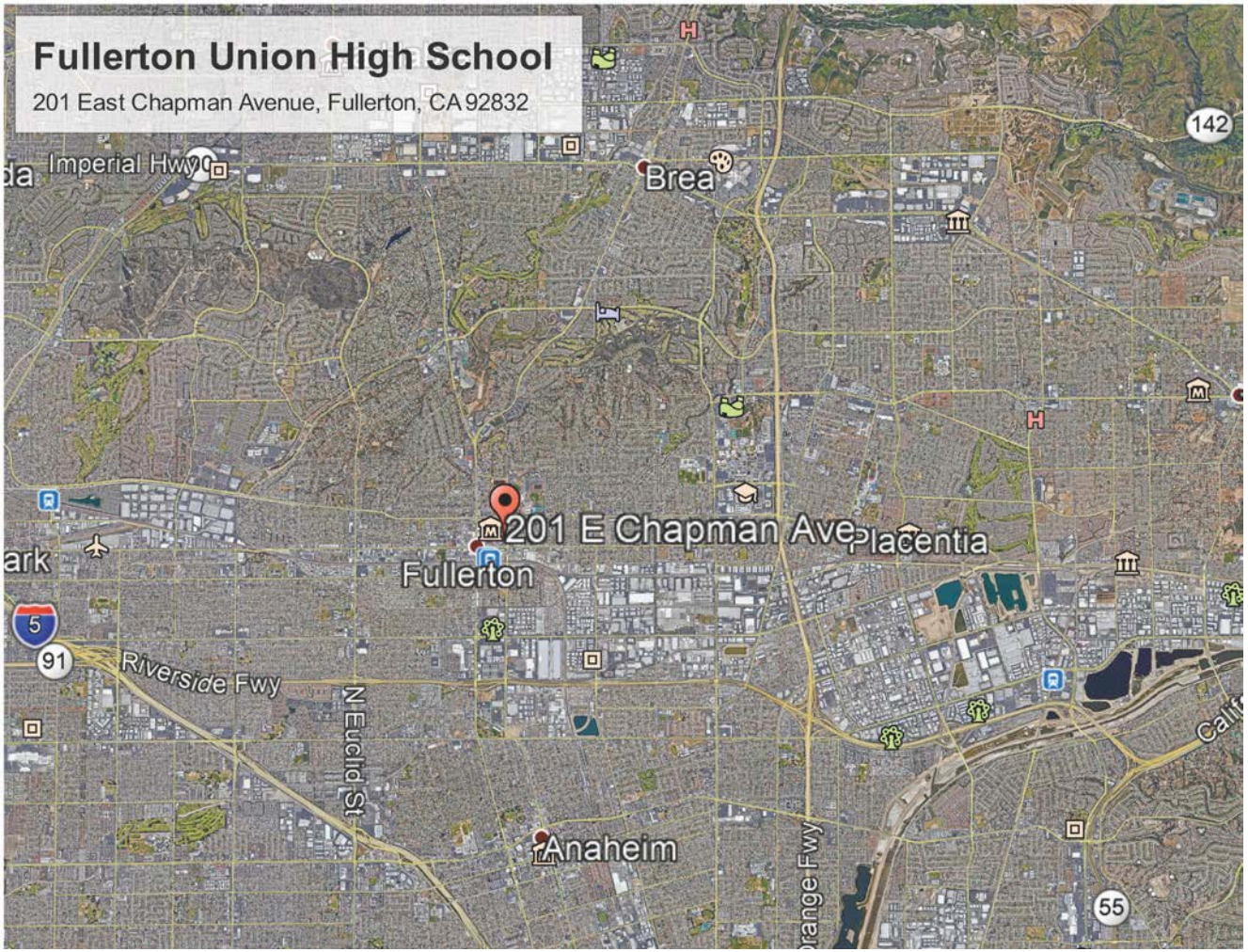

**Source:**
Ninyo & Moore

**Site Location Map – Topographic**
Fullerton Joint Union High School District
Fullerton Union High School

Figure
1

N

Figure 2
Project Site Location Map – Vicinity




**Source:**
Google Earth Pro.

**Site Location Map – Vicinity**
Fullerton Joint Union High School District
Fullerton Union High School

Figure
2

N

Figure 3
Parcel Map

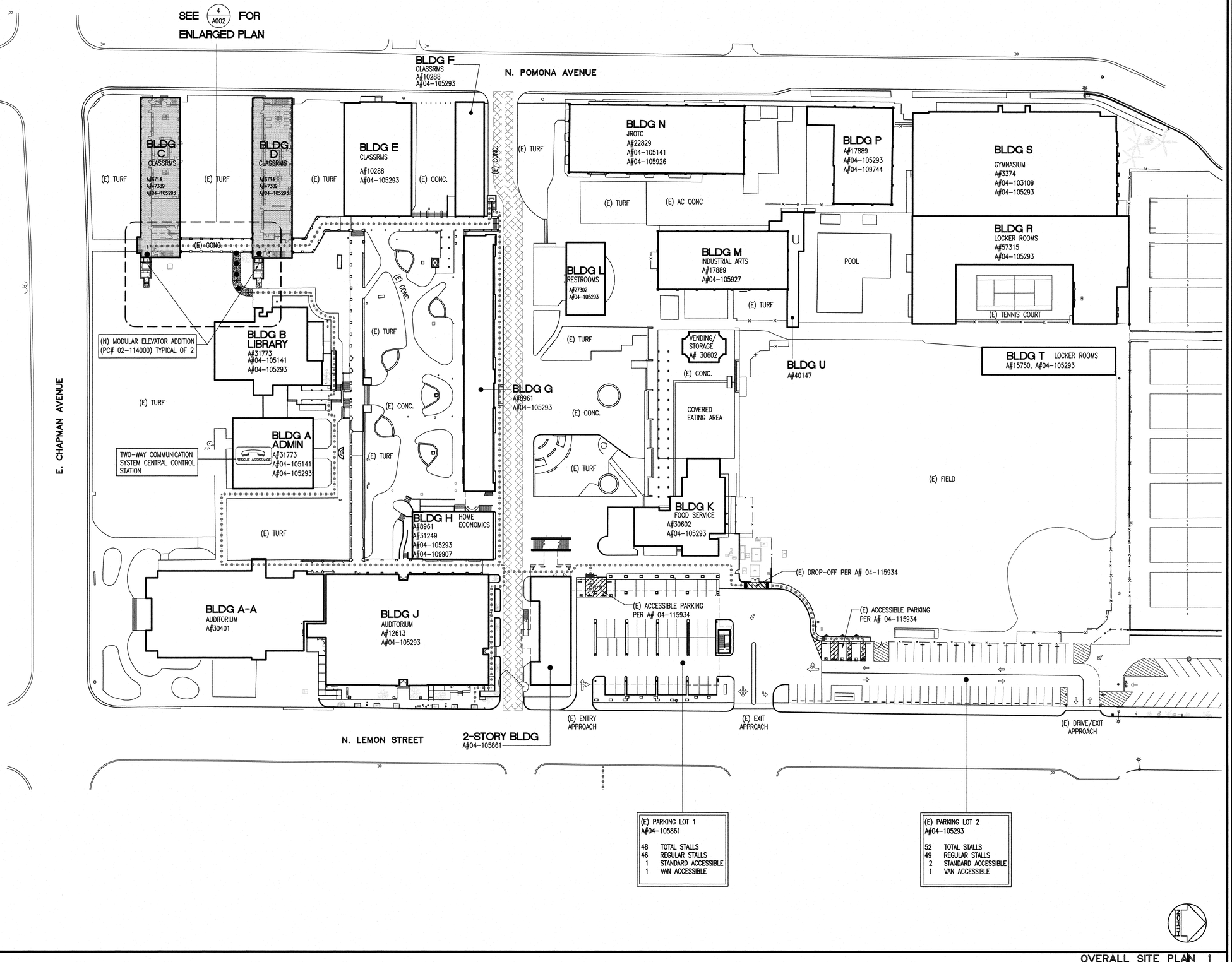

**Source:**
The City of Fullerton
GoZone 2.1

**Site Location Map – Parcel Map**
Fullerton Joint Union High School District
Fullerton Union High School

Figure
3

N

# Appendix A
Proposed Site Plan




OVERALL SITE PLAN 1
1"=40'-0"

KEYNOTES GENERALLY CORRESPOND TO SPECIFICATION SECTIONS BY MEANS OF THE SIX-DIGIT NUMBER IDENTIFYING THE SPECIFICATION SECTION AS A MATTER OF REFERENCE AND CONVENIENCE. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL WORK INDICATED HEREIN PERSUANT TO THE GENERAL CONDITIONS AND TECHNICAL SPECIFICATIONS OF THE CONTRACT, REGARDLESS OF WHETHER OR NOT THE KEYNOTE(S) SPECIFICALLY CORRESPOND TO ANY SPECIFICATION DIVISION PROVIDED IN THE TECHNICAL SPECIFICATIONS.

## SITE NOTES

1. FOR TYP SYMBOLS AND ABBREVIATIONS, SEE SHEET G001.
2. PROTECT AND SAFEGUARD FROM DAMAGES ALL EXISTING CONSTRUCTION AND FINISHES TO REMAIN.
3. PROVIDE TEMPORARY 6' HIGH CHAIN LINK FENCE ENCLOSURES WITH LOCKABLE GATES AS REQUIRED FOR CONSTRUCTION ACCESS AT CONTRACTOR'S STAGING AREA AND AROUND ALL CONSTRUCTION SITES.
4. WHERE REMOVAL OF CONCRETE WALKS, MOWSTRIPS, CURBS AND GUTTERS IS REQUIRED BY THE EXECUTION OF THIS CONTRACT, REMOVE THE CONCRETE WORK TO THE NEAREST EXISTING EXPANSION OR CONTROL JOINT (SAWCUT IF REQUIRED). CURBS AND GUTTERS MAY BE REMOVED IN MINIMUM LENGTHS OF 6' IF THE DISTANCE BETWEEN EXISTING JOINTS IS 12' OR MORE. REPLACE REMOVED WORK WITH REINFORCED CONCRETE TO MATCH ADJACENT EXISTING WORK IN PROFILE, JOINT LAYOUT AND FINISH. DOWEL NEW CONCRETE WORK INTO EXISTING PER DETAIL 16/A002.
5. WHERE ASPHALT PAVING IS DAMAGED BY THE EXECUTION OF THIS CONTRACT, PATCH & REPAIR TO ORIGINAL OR BETTER CONDITION. WHERE (E) LAWNS ARE DAMAGED BY THE EXECUTION OF THIS CONTRACT, FILL, COMPACT, AND REPLANT AREA TO MATCH EXISTING TURF AREA.
6. CONTRACTOR SHALL MAINTAIN EXISTING PLANTING WITHIN THE JOB SITE FENCE ENCLOSURE DURING DEMOLITION AND CONSTRUCTION PHASES. EXISTING IRRIGATION SYSTEMS SHALL EITHER REMAIN OPERATIONAL FOR CONTRACTOR'S USE OR CONTRACTOR SHALL HAND WATER EXISTING PLANT MATERIALS AT LEAST ONCE A WEEK.
7. REPAIR EXISTING IRRIGATION SYSTEMS DAMAGED DURING THE EXECUTION OF THIS CONTRACT. REPLACE PLANT MATERIALS DAMAGED DURING THE CONSTRUCTION PERIOD WITH THE SAME SPECIES OF EQUAL OR GREATER SIZE.

## SITE PLAN LEGEND

- (E) BUILDINGS (NIC)
- (E) BUILDING IN SCOPE OF WORK
- NEW ELEVATOR ADDITION
- NEW CONCRETE PAVING
- E.J. CONCRETE PAVING EXPANSION JOINT PER (16/A002)
- C.J. CONCRETE PAVING CONTROL JOINT PER (17/A002)
- EXISTING ACCESSIBLE P.O.T PER A#04-105293
- P.O.T. – PATH OF TRAVEL

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE IN CHARGE STATEMENT: THE P.O.T. IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS, AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS, OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NONCOMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS, OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS. DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

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Architect Seal

Consultant Seal

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
FILE NO.: 30-H3
APPL. NO.: 04-117308
AC. FLS. SS.
DATE OCT 2 3 2018

FULLERTON UNION HIGH SCHOOL - WHEELCHAIR LIFT
ARCHITECTURAL BARRIER REMOVAL
201 E CHAPMAN AVE, FULLERTON, CA 92832
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

OVERALL SITE PLAN

REVISIONS:
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Date: 10/23/18
Job: 1725
Scale:
Drawn:

A001

SHEET OF XXX
XREF:

# Appendix B
Site Photos

**Fullerton Joint Union High School District**
**Site Photos – Fullerton Union High School Elevator Addition Project**

Building D

Location of proposed elevator addition

Building C

Location of proposed elevator addition

Building D

Facing North Pomona Avenue

Building C

Facing the corner of North Pomona Avenue and East Chapman Avenue

| | | |
|---|---|---|
| **Source:** Ghataode Bannon Architects | **Site Photos** Fullerton Joint Union High School District Fullerton Union High School Elevator Addition Project | SSS |

# Appendix C
CalEEMod Analysis

# Fullerton Union High School - Elevator Addition

**South Coast Air Basin, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| High School | 0.68 | 1000sqft | 0.02 | 682.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 31 |
| **Climate Zone** | 8 | | | **Operational Year** | 2019 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 702.44 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

Project Characteristics -

Land Use -

Demolition -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

## 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2019 | 0.0604 | 0.5734 | 0.4527 | 7.0000e-004 | 3.4700e-003 | 0.0351 | 0.0386 | 9.6000e-004 | 0.0325 | 0.0334 | 0.0000 | 62.4499 | 62.4499 | 0.0183 | 0.0000 | 62.9081 |
| **Maximum** | **0.0604** | **0.5734** | **0.4527** | **7.0000e-004** | **3.4700e-003** | **0.0351** | **0.0386** | **9.6000e-004** | **0.0325** | **0.0334** | **0.0000** | **62.4499** | **62.4499** | **0.0183** | **0.0000** | **62.9081** |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2019 | 0.0604 | 0.5734 | 0.4527 | 7.0000e-004 | 3.4700e-003 | 0.0351 | 0.0386 | 9.6000e-004 | 0.0325 | 0.0334 | 0.0000 | 62.4499 | 62.4499 | 0.0183 | 0.0000 | 62.9081 |
| **Maximum** | **0.0604** | **0.5734** | **0.4527** | **7.0000e-004** | **3.4700e-003** | **0.0351** | **0.0386** | **9.6000e-004** | **0.0325** | **0.0334** | **0.0000** | **62.4499** | **62.4499** | **0.0183** | **0.0000** | **62.9081** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| 1 | 4-14-2019 | 7-13-2019 | 0.3446 | 0.3446 |
| 2 | 7-14-2019 | 9-30-2019 | 0.2860 | 0.2860 |
| | | Highest | 0.3446 | 0.3446 |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 2.7800e-003 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Energy | 4.0000e-005 | 4.0000e-004 | 3.3000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 1.7521 | 1.7521 | 6.0000e-005 | 2.0000e-005 | 1.7594 |
| Mobile | 2.8600e-003 | 0.0161 | 0.0428 | 1.4000e-004 | 0.0112 | 1.6000e-004 | 0.0113 | 2.9900e-003 | 1.5000e-004 | 3.1400e-003 | 0.0000 | 12.9523 | 12.9523 | 6.8000e-004 | 0.0000 | 12.9692 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.1786 | 0.0000 | 0.1786 | 0.0106 | 0.0000 | 0.4426 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 7.1600e-003 | 0.2992 | 0.3064 | 7.5000e-004 | 2.0000e-005 | 0.3310 |
| **Total** | **5.6800e-003** | **0.0165** | **0.0431** | **1.4000e-004** | **0.0112** | **1.9000e-004** | **0.0114** | **2.9900e-003** | **1.8000e-004** | **3.1700e-003** | **0.1858** | **15.0036** | **15.1894** | **0.0121** | **4.0000e-005** | **15.5021** |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 2.7800e-003 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Energy | 4.0000e-005 | 4.0000e-004 | 3.3000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 1.7521 | 1.7521 | 6.0000e-005 | 2.0000e-005 | 1.7594 |
| Mobile | 2.8600e-003 | 0.0161 | 0.0428 | 1.4000e-004 | 0.0112 | 1.6000e-004 | 0.0113 | 2.9900e-003 | 1.5000e-004 | 3.1400e-003 | 0.0000 | 12.9523 | 12.9523 | 6.8000e-004 | 0.0000 | 12.9692 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.1786 | 0.0000 | 0.1786 | 0.0106 | 0.0000 | 0.4426 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 7.1600e-003 | 0.2992 | 0.3064 | 7.5000e-004 | 2.0000e-005 | 0.3310 |
| **Total** | **5.6800e-003** | **0.0165** | **0.0431** | **1.4000e-004** | **0.0112** | **1.9000e-004** | **0.0114** | **2.9900e-003** | **1.8000e-004** | **3.1700e-003** | **0.1858** | **15.0036** | **15.1894** | **0.0121** | **4.0000e-005** | **15.5021** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

Fullerton Union High School - Elevator Addition - South Coast Air Basin, Annual

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 4/14/2019 | 4/26/2019 | 5 | 10 | |
| 2 | Site Preparation | Site Preparation | 4/27/2019 | 4/29/2019 | 5 | 1 | |
| 3 | Grading | Grading | 4/30/2019 | 5/1/2019 | 5 | 2 | |
| 4 | Building Construction | Building Construction | 5/2/2019 | 9/18/2019 | 5 | 100 | |
| 5 | Paving | Paving | 9/19/2019 | 9/25/2019 | 5 | 5 | |
| 6 | Architectural Coating | Architectural Coating | 9/26/2019 | 10/2/2019 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 0.5**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,023; Non-Residential Outdoor: 341; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

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

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 10.00 | 0.00 | 11.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 2 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 5 | 0.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 7 | 18.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 0.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.1800e-003 | 0.0000 | 1.1800e-003 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.7700e-003 | 0.0430 | 0.0385 | 6.0000e-005 | | 2.6900e-003 | 2.6900e-003 | | 2.5600e-003 | 2.5600e-003 | 0.0000 | 5.2601 | 5.2601 | 1.0000e-003 | 0.0000 | 5.2852 |
| **Total** | **4.7700e-003** | **0.0430** | **0.0385** | **6.0000e-005** | **1.1800e-003** | **2.6900e-003** | **3.8700e-003** | **1.8000e-004** | **2.5600e-003** | **2.7400e-003** | **0.0000** | **5.2601** | **5.2601** | **1.0000e-003** | **0.0000** | **5.2852** |

## 3.2 Demolition - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 5.0000e-005 | 1.6900e-003 | 3.4000e-004 | 0.0000 | 9.0000e-005 | 1.0000e-005 | 1.0000e-004 | 3.0000e-005 | 1.0000e-005 | 3.0000e-005 | 0.0000 | 0.4216 | 0.4216 | 3.0000e-005 | 0.0000 | 0.4223 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.4000e-004 | 1.9000e-004 | 2.0900e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.5101 | 0.5101 | 2.0000e-005 | 0.0000 | 0.5105 |
| **Total** | **2.9000e-004** | **1.8800e-003** | **2.4300e-003** | **1.0000e-005** | **6.4000e-004** | **1.0000e-005** | **6.5000e-004** | **1.8000e-004** | **1.0000e-005** | **1.8000e-004** | **0.0000** | **0.9317** | **0.9317** | **5.0000e-005** | **0.0000** | **0.9329** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.1800e-003 | 0.0000 | 1.1800e-003 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.7700e-003 | 0.0430 | 0.0385 | 6.0000e-005 | | 2.6900e-003 | 2.6900e-003 | | 2.5600e-003 | 2.5600e-003 | 0.0000 | 5.2601 | 5.2601 | 1.0000e-003 | 0.0000 | 5.2852 |
| **Total** | **4.7700e-003** | **0.0430** | **0.0385** | **6.0000e-005** | **1.1800e-003** | **2.6900e-003** | **3.8700e-003** | **1.8000e-004** | **2.5600e-003** | **2.7400e-003** | **0.0000** | **5.2601** | **5.2601** | **1.0000e-003** | **0.0000** | **5.2852** |

## 3.2 Demolition - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 5.0000e-005 | 1.6900e-003 | 3.4000e-004 | 0.0000 | 9.0000e-005 | 1.0000e-005 | 1.0000e-004 | 3.0000e-005 | 1.0000e-005 | 3.0000e-005 | 0.0000 | 0.4216 | 0.4216 | 3.0000e-005 | 0.0000 | 0.4223 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.4000e-004 | 1.9000e-004 | 2.0900e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.5101 | 0.5101 | 2.0000e-005 | 0.0000 | 0.5105 |
| **Total** | **2.9000e-004** | **1.8800e-003** | **2.4300e-003** | **1.0000e-005** | **6.4000e-004** | **1.0000e-005** | **6.5000e-004** | **1.8000e-004** | **1.0000e-005** | **1.8000e-004** | **0.0000** | **0.9317** | **0.9317** | **5.0000e-005** | **0.0000** | **0.9329** |

## 3.3 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.7000e-004 | 0.0000 | 2.7000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.6000e-004 | 4.4600e-003 | 2.0700e-003 | 0.0000 | | 1.8000e-004 | 1.8000e-004 | | 1.7000e-004 | 1.7000e-004 | 0.0000 | 0.4378 | 0.4378 | 1.4000e-004 | 0.0000 | 0.4413 |
| **Total** | **3.6000e-004** | **4.4600e-003** | **2.0700e-003** | **0.0000** | **2.7000e-004** | **1.8000e-004** | **4.5000e-004** | **3.0000e-005** | **1.7000e-004** | **2.0000e-004** | **0.0000** | **0.4378** | **0.4378** | **1.4000e-004** | **0.0000** | **0.4413** |

## 3.3 Site Preparation - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 1.0000e-005 | 1.0000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0255 | 0.0255 | 0.0000 | 0.0000 | 0.0255 |
| **Total** | **1.0000e-005** | **1.0000e-005** | **1.0000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0255** | **0.0255** | **0.0000** | **0.0000** | **0.0255** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.7000e-004 | 0.0000 | 2.7000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.6000e-004 | 4.4600e-003 | 2.0700e-003 | 0.0000 | | 1.8000e-004 | 1.8000e-004 | | 1.7000e-004 | 1.7000e-004 | 0.0000 | 0.4378 | 0.4378 | 1.4000e-004 | 0.0000 | 0.4413 |
| **Total** | **3.6000e-004** | **4.4600e-003** | **2.0700e-003** | **0.0000** | **2.7000e-004** | **1.8000e-004** | **4.5000e-004** | **3.0000e-005** | **1.7000e-004** | **2.0000e-004** | **0.0000** | **0.4378** | **0.4378** | **1.4000e-004** | **0.0000** | **0.4413** |

## 3.3 Site Preparation - 2019

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 1.0000e-005 | 1.0000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0255 | 0.0255 | 0.0000 | 0.0000 | 0.0255 |
| **Total** | **1.0000e-005** | **1.0000e-005** | **1.0000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0255** | **0.0255** | **0.0000** | **0.0000** | **0.0255** |

## 3.4 Grading - 2019

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 7.5000e-004 | 0.0000 | 7.5000e-004 | 4.1000e-004 | 0.0000 | 4.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 9.5000e-004 | 8.6000e-003 | 7.6900e-003 | 1.0000e-005 | | 5.4000e-004 | 5.4000e-004 | | 5.1000e-004 | 5.1000e-004 | 0.0000 | 1.0520 | 1.0520 | 2.0000e-004 | 0.0000 | 1.0570 |
| **Total** | **9.5000e-004** | **8.6000e-003** | **7.6900e-003** | **1.0000e-005** | **7.5000e-004** | **5.4000e-004** | **1.2900e-003** | **4.1000e-004** | **5.1000e-004** | **9.2000e-004** | **0.0000** | **1.0520** | **1.0520** | **2.0000e-004** | **0.0000** | **1.0570** |

## 3.4 Grading - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 5.0000e-005 | 4.0000e-005 | 4.2000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.1020 | 0.1020 | 0.0000 | 0.0000 | 0.1021 |
| **Total** | **5.0000e-005** | **4.0000e-005** | **4.2000e-004** | **0.0000** | **1.1000e-004** | **0.0000** | **1.1000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **0.0000** | **0.1020** | **0.1020** | **0.0000** | **0.0000** | **0.1021** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 7.5000e-004 | 0.0000 | 7.5000e-004 | 4.1000e-004 | 0.0000 | 4.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 9.5000e-004 | 8.6000e-003 | 7.6900e-003 | 1.0000e-005 | | 5.4000e-004 | 5.4000e-004 | | 5.1000e-004 | 5.1000e-004 | 0.0000 | 1.0520 | 1.0520 | 2.0000e-004 | 0.0000 | 1.0570 |
| **Total** | **9.5000e-004** | **8.6000e-003** | **7.6900e-003** | **1.0000e-005** | **7.5000e-004** | **5.4000e-004** | **1.2900e-003** | **4.1000e-004** | **5.1000e-004** | **9.2000e-004** | **0.0000** | **1.0520** | **1.0520** | **2.0000e-004** | **0.0000** | **1.0570** |

## 3.4 Grading - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 5.0000e-005 | 4.0000e-005 | 4.2000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.1020 | 0.1020 | 0.0000 | 0.0000 | 0.1021 |
| **Total** | **5.0000e-005** | **4.0000e-005** | **4.2000e-004** | **0.0000** | **1.1000e-004** | **0.0000** | **1.1000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **0.0000** | **0.1020** | **0.1020** | **0.0000** | **0.0000** | **0.1021** |

## 3.5 Building Construction - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0479 | 0.4910 | 0.3772 | 5.7000e-004 | | 0.0303 | 0.0303 | | 0.0279 | 0.0279 | 0.0000 | 51.1502 | 51.1502 | 0.0162 | 0.0000 | 51.5548 |
| **Total** | **0.0479** | **0.4910** | **0.3772** | **5.7000e-004** | | **0.0303** | **0.0303** | | **0.0279** | **0.0279** | **0.0000** | **51.1502** | **51.1502** | **0.0162** | **0.0000** | **51.5548** |

## 3.5 Building Construction - 2019

### Unmitigated Construction Off-Site

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

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0479 | 0.4910 | 0.3772 | 5.7000e-004 | | 0.0303 | 0.0303 | | 0.0279 | 0.0279 | 0.0000 | 51.1502 | 51.1502 | 0.0162 | 0.0000 | 51.5548 |
| **Total** | **0.0479** | **0.4910** | **0.3772** | **5.7000e-004** | | **0.0303** | **0.0303** | | **0.0279** | **0.0279** | **0.0000** | **51.1502** | **51.1502** | **0.0162** | **0.0000** | **51.5548** |

## 3.5 Building Construction - 2019

**Mitigated Construction Off-Site**

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

## 3.6 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 2.0700e-003 | 0.0196 | 0.0179 | 3.0000e-005 | | 1.1100e-003 | 1.1100e-003 | | 1.0300e-003 | 1.0300e-003 | 0.0000 | 2.3931 | 2.3931 | 6.8000e-004 | 0.0000 | 2.4102 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **2.0700e-003** | **0.0196** | **0.0179** | **3.0000e-005** | | **1.1100e-003** | **1.1100e-003** | | **1.0300e-003** | **1.0300e-003** | **0.0000** | **2.3931** | **2.3931** | **6.8000e-004** | **0.0000** | **2.4102** |

## 3.6 Paving - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.2000e-004 | 1.7000e-004 | 1.8800e-003 | 1.0000e-005 | 4.9000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.4591 | 0.4591 | 1.0000e-005 | 0.0000 | 0.4595 |
| **Total** | **2.2000e-004** | **1.7000e-004** | **1.8800e-003** | **1.0000e-005** | **4.9000e-004** | **0.0000** | **5.0000e-004** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **0.4591** | **0.4591** | **1.0000e-005** | **0.0000** | **0.4595** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 2.0700e-003 | 0.0196 | 0.0179 | 3.0000e-005 | | 1.1100e-003 | 1.1100e-003 | | 1.0300e-003 | 1.0300e-003 | 0.0000 | 2.3931 | 2.3931 | 6.8000e-004 | 0.0000 | 2.4102 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **2.0700e-003** | **0.0196** | **0.0179** | **3.0000e-005** | | **1.1100e-003** | **1.1100e-003** | | **1.0300e-003** | **1.0300e-003** | **0.0000** | **2.3931** | **2.3931** | **6.8000e-004** | **0.0000** | **2.4102** |

## 3.6 Paving - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.2000e-004 | 1.7000e-004 | 1.8800e-003 | 1.0000e-005 | 4.9000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.4591 | 0.4591 | 1.0000e-005 | 0.0000 | 0.4595 |
| **Total** | **2.2000e-004** | **1.7000e-004** | **1.8800e-003** | **1.0000e-005** | **4.9000e-004** | **0.0000** | **5.0000e-004** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **0.4591** | **0.4591** | **1.0000e-005** | **0.0000** | **0.4595** |

## 3.7 Architectural Coating - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 3.1600e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.7000e-004 | 4.5900e-003 | 4.6000e-003 | 1.0000e-005 | | 3.2000e-004 | 3.2000e-004 | | 3.2000e-004 | 3.2000e-004 | 0.0000 | 0.6383 | 0.6383 | 5.0000e-005 | 0.0000 | 0.6397 |
| **Total** | **3.8300e-003** | **4.5900e-003** | **4.6000e-003** | **1.0000e-005** | | **3.2000e-004** | **3.2000e-004** | | **3.2000e-004** | **3.2000e-004** | **0.0000** | **0.6383** | **0.6383** | **5.0000e-005** | **0.0000** | **0.6397** |

## 3.7 Architectural Coating - 2019

### Unmitigated Construction Off-Site

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

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 3.1600e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.7000e-004 | 4.5900e-003 | 4.6000e-003 | 1.0000e-005 | | 3.2000e-004 | 3.2000e-004 | | 3.2000e-004 | 3.2000e-004 | 0.0000 | 0.6383 | 0.6383 | 5.0000e-005 | 0.0000 | 0.6397 |
| **Total** | **3.8300e-003** | **4.5900e-003** | **4.6000e-003** | **1.0000e-005** | | **3.2000e-004** | **3.2000e-004** | | **3.2000e-004** | **3.2000e-004** | **0.0000** | **0.6383** | **0.6383** | **5.0000e-005** | **0.0000** | **0.6397** |

### 3.7 Architectural Coating - 2019

**Mitigated Construction Off-Site**

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

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 2.8600e-003 | 0.0161 | 0.0428 | 1.4000e-004 | 0.0112 | 1.6000e-004 | 0.0113 | 2.9900e-003 | 1.5000e-004 | 3.1400e-003 | 0.0000 | 12.9523 | 12.9523 | 6.8000e-004 | 0.0000 | 12.9692 |
| Unmitigated | 2.8600e-003 | 0.0161 | 0.0428 | 1.4000e-004 | 0.0112 | 1.6000e-004 | 0.0113 | 2.9900e-003 | 1.5000e-004 | 3.1400e-003 | 0.0000 | 12.9523 | 12.9523 | 6.8000e-004 | 0.0000 | 12.9692 |

### 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| High School | 8.79 | 2.98 | 1.22 | 29,381 | 29,381 |
| Total | 8.79 | 2.98 | 1.22 | 29,381 | 29,381 |

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| High School | 16.60 | 8.40 | 6.90 | 77.80 | 17.20 | 5.00 | 75 | 19 | 6 |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High School | 0.548893 | 0.044275 | 0.199565 | 0.124385 | 0.017503 | 0.005874 | 0.020174 | 0.028962 | 0.001990 | 0.002015 | 0.004673 | 0.000702 | 0.000989 |

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.3212 | 1.3212 | 5.0000e-005 | 1.0000e-005 | 1.3259 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.3212 | 1.3212 | 5.0000e-005 | 1.0000e-005 | 1.3259 |
| NaturalGas Mitigated | 4.0000e-005 | 4.0000e-004 | 3.3000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 0.4309 | 0.4309 | 1.0000e-005 | 1.0000e-005 | 0.4335 |
| NaturalGas Unmitigated | 4.0000e-005 | 4.0000e-004 | 3.3000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 0.4309 | 0.4309 | 1.0000e-005 | 1.0000e-005 | 0.4335 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| High School | 8074.88 | 4.0000e-005 | 4.0000e-004 | 3.3000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 0.4309 | 0.4309 | 1.0000e-005 | 1.0000e-005 | 0.4335 |
| **Total** | | **4.0000e-005** | **4.0000e-004** | **3.3000e-004** | **0.0000** | | **3.0000e-005** | **3.0000e-005** | | **3.0000e-005** | **3.0000e-005** | **0.0000** | **0.4309** | **0.4309** | **1.0000e-005** | **1.0000e-005** | **0.4335** |

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| High School | 8074.88 | 4.0000e-005 | 4.0000e-004 | 3.3000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 0.4309 | 0.4309 | 1.0000e-005 | 1.0000e-005 | 0.4335 |
| **Total** | | **4.0000e-005** | **4.0000e-004** | **3.3000e-004** | **0.0000** | | **3.0000e-005** | **3.0000e-005** | | **3.0000e-005** | **3.0000e-005** | **0.0000** | **0.4309** | **0.4309** | **1.0000e-005** | **1.0000e-005** | **0.4335** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| High School | 4146.56 | 1.3212 | 5.0000e-005 | 1.0000e-005 | 1.3259 |
| **Total** | | **1.3212** | **5.0000e-005** | **1.0000e-005** | **1.3259** |

### 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| High School | 4146.56 | 1.3212 | 5.0000e-005 | 1.0000e-005 | 1.3259 |
| **Total** | | **1.3212** | **5.0000e-005** | **1.0000e-005** | **1.3259** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 2.7800e-003 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Unmitigated | 2.7800e-003 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 3.2000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 2.4600e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| **Total** | **2.7800e-003** | **0.0000** | **1.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0000** | **2.0000e-005** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 3.2000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 2.4600e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| **Total** | **2.7800e-003** | **0.0000** | **1.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0000** | **2.0000e-005** |

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 0.3064 | 7.5000e-004 | 2.0000e-005 | 0.3310 |
| Unmitigated | 0.3064 | 7.5000e-004 | 2.0000e-005 | 0.3310 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| High School | 0.0225792 / 0.0580607 | 0.3064 | 7.5000e-004 | 2.0000e-005 | 0.3310 |
| **Total** | | **0.3064** | **7.5000e-004** | **2.0000e-005** | **0.3310** |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| High School | 0.0225792 / 0.0580607 | 0.3064 | 7.5000e-004 | 2.0000e-005 | 0.3310 |
| **Total** | | **0.3064** | **7.5000e-004** | **2.0000e-005** | **0.3310** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 0.1786 | 0.0106 | 0.0000 | 0.4426 |
| Unmitigated | 0.1786 | 0.0106 | 0.0000 | 0.4426 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| High School | 0.88 | 0.1786 | 0.0106 | 0.0000 | 0.4426 |
| **Total** | | **0.1786** | **0.0106** | **0.0000** | **0.4426** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| High School | 0.88 | 0.1786 | 0.0106 | 0.0000 | 0.4426 |
| **Total** | | **0.1786** | **0.0106** | **0.0000** | **0.4426** |

## 9.0 Operational Offroad

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

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

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

### Boilers

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

### User Defined Equipment

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

## 11.0 Vegetation

# Appendix D
# Cultural Resources - Project Signage and Procedures

# Project Signage and Procedures for Cultural Resources

*Archaeological Signage*

In accordance with guidelines section 15064.5, the Fullerton Joint Union High School District will ensure that the following language is included in all construction contracts and permits:

> "If archaeological resources or human remains are accidentally discovered during construction, work will be halted within 50 feet of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures will be formulated and implemented."

*Communication of Archaeological Site Deposit Indicators*

All construction personnel involved in site clearing, subsequent grading, and trenching will be informed of the potential for subsurface cultural resource unearthing. Indicators of archaeological site deposits include, but are not limited to the following:

> Soil that is darker than the surrounding soils, evidence of fire (ash, fire altered rock and earth, carbon flecks, concentrations of stone, bone and shellfish, artifacts of these materials and animal or human burials

*In the Event of Cultural Resources Discovered*

If cultural resources are encountered during Site grading, or construction activities, all work shall be halted within 50 feet of the discovery and FJUHSD shall engage a qualified archaeologist to asses and protect the discovery as appropriate. No further soil disturbance shall occur within the 50-foot buffer until the preceding assessment has been completed and the resource has been recovered.

Implementation of *Communication of Archaeological Site Deposit Indicators* and *In the Event of Cultural Resources Discovered* would reduce potential impacts to archaeological and cultural resources to a less than significant level by providing procedures specifically designed to ensure limited disturbance and proper handling in the event of unanticipated or accidental discovery.

*Paleontological Construction Contracts and Permits Language*

Due to the possibility that significant buried paleontological resources may be found during construction activities, the Fullerton Joint Union High School District will ensure that the following language is included in all construction contracts and permits:

> "If paleontological resources are encountered during subsurface construction activities, all work within 50 feet of the discovery will be redirected until a qualified paleontologist

can evaluate the finds and make recommendations. If the paleontological resources are found to be significant, they will be avoided by project construction activities and recovered by a qualified paleontologist. Upon completion of the recovery, a paleontological assessment will be conducted by a qualified paleontologist to determine if further monitoring for paleontological resources is required. The assessment will include:

I) The results of any geotechnical investigation prepared for the project site;
2) Specific details of the construction plans for the project site;
3) Background research; and
4) Limited subsurface investigation within the project site.

If a high potential to encounter paleontological resources is confirmed, a monitoring plan of further project subsurface construction will be prepared in conjunction with this assessment. After project subsurface construction has ended, a report documenting monitoring, methods, findings, and further recommendations regarding paleontological resources will be prepared."

*Policies and Procedures for Inadvertently Discovered Human Remains*

Because site disturbance may adversely impact undocumented human remains or unintentionally discover significant historic or archaeological materials, the following policies and procedures for treatment and disposition of inadvertently discovered human remains or archaeological materials will apply. If human remains are discovered, it is probable they are the remains of Native Americans.

a) If human remains are encountered, they will be treated with dignity and respect as due to them. Discovery of Native American remains is a very sensitive issue and serious concern. Information about such a discovery will be held in confidence by all project personnel on a need to know basis. The rights of Native Americans to practice ceremonial observances on sites, in labs and around artifacts will be upheld. Remains should not be held by human hands. Surgical gloves should be worn if remains need to be handled. Surgical mask should also be worn to prevent exposure to pathogens that may be associated with the remains.
b) In the event that known or suspected Native American remains are encountered, or significant historic or archaeological materials are discovered, ground-disturbing activities will be immediately stopped. Examples of significant historic or archaeological materials include, but are not limited to, concentrations of historic artifacts (e.g., bottles, ceramics) or prehistoric artifacts (chipped chert or obsidian, arrow points, ground stone mortars and pestles), culturally altered ash-stained midden soils associated with pre-contact Native American habitation sites, concentrations of fire-altered rock and/or

burned or charred organic materials, and historic structure remains such as stone-lined building foundations, wells or privy pits. Ground-disturbing project activities may continue in other areas that are outside the discovery locale.

c) An "exclusion zone" where unauthorized equipment and personnel are not permitted will be established (e.g., taped off) around the discovery area plus a reasonable buffer zone by the Contractor Foreman or authorized representative, or party who made the discovery and initiated these protocols, or if on-site at the time or discovery, by the Monitoring Archaeologist (typically 25-50ft for single burial or archaeological find).

d) The discovery locale will be secured (e.g., 24-hour surveillance) as directed by the District if considered prudent to avoid further disturbances.

e) The Contractor, Foreman, authorized representative, or party who made the discovery and initiated these protocols will be responsible for immediately contacting by telephone the parties listed below to report the find and initiate the consultation process for treatment and disposition:
   • Todd Butcher, Director of Facilities and Construction
   (714) 870-2818
   • The Contractor's Point(s) of Contact
   • The Coroner of the County of Orange County (if human remains found)
   (714) 647-7400
   • The Native American Heritage Commission (NAHC) in Sacramento
   (916) 373-3710

f) The Coroner has two working days to examine the remains after being notified of the discovery. If the remains are Native American, the Coroner has 24 hours to notify the NAHC.

g) The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD). (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.)

h) After notification by the NAHC, the MLD will be granted permission to inspect the discovery site if they so choose.

i) After notification by the NAHC, the MLD may recommend to the Administrator of District Support Services the recommended means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The MLD has 48 hours after accessing the Site to make recommendations to the property owner as specified in Public Resources Code section 5097.98 (a). The recommendation may include the scientific removal and nondestructive or destructive analysis of human remains and items associated with Native American burials.

j) If the MLD recommendation is rejected by the School District the parties will attempt to mediate the disagreement with the NAHC. If mediation fails, then the remains and all associated grave offerings will be reburied with appropriate dignity on the property in a location not subject to further subsurface disturbance.

# Appendix E
# Geotechnical Evaluation

# Geotechnical Evaluation

## Buildings C & D Elevator Additions
## Fullerton Union High School
## 201 East Chapman Avenue
## Fullerton, California

## Fullerton Joint Union High School District

1051 West Bastanchury Road | Fullerton, California 92833

April 30, 2018 | Project No. 209730002





Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

# Geotechnical Evaluation

## Buildings C & D Elevator Additions
## Fullerton Union High School
## 201 East Chapman Avenue
## Fullerton, California

Mr. Dale McCurry
Fullerton Joint Union High School District
1051 West Bastanchury Road | Fullerton, California 92833

April 30, 2018 | Project No. 209730002


**Jennifer R. Schmidt, PG, CEG**
Senior Project Geologist


**Ronald Hallum, PG, CEG**
Principal Geologist


**Soumitra Guha, PhD, PE, GE**
Principal Engineer

GM/JRS/RDH/SG/sc

Distribution: (1) Addressee (via e-mail)

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## TABLES



## FIGURES



## APPENDICES

# 1 INTRODUCTION

In accordance with your request and authorization, we have performed a geotechnical evaluation for the proposed elevator improvements at Fullerton Union High School at 201 East Chapman Avenue in Fullerton, California (Figure 1). Our geotechnical evaluation addresses the proposed elevator additions on the eastern sides of Buildings C and D in the southwest portion of the high school campus. The purpose of our study was to evaluate the soil and geologic conditions at the site and provide design and construction recommendations pertaining to the geotechnical aspects of the project. This report presents our findings, conclusions, and recommendations for design and construction of the proposed new elevators.

# 2 SCOPE OF SERVICES

The scope of services for this evaluation included the following:

- Project planning and coordination with representatives of Fullerton Joint Union High School District personnel to perform the work.
- Review of readily available background material, including pertinent published geologic maps, seismic hazard maps, topographic maps, regional fault maps, and groundwater data.
- Site reconnaissance to observe the site conditions and to locate the exploratory borings for coordination with Underground Service Alert.
- Subsurface exploration consisting of the drilling, sampling, and logging of two hollow-stem auger borings to depths ranging from approximately 31½ to 61½ feet below the ground surface. The borings were logged by a representative of this firm, and bulk and relatively undisturbed samples were obtained at selected intervals for laboratory testing.
- Laboratory testing of selected soil samples, including tests to evaluate in-situ moisture and dry density, percentage of particles finer than the No. 200 sieve, direct shear strength, and soil corrosivity.
- Compilation and geotechnical engineering analysis of the information obtained from our background review, subsurface exploration, and laboratory testing.
- Preparation of this report presenting our findings, conclusions, and recommendations pertaining to the geotechnical aspects of the design and construction of the proposed improvements.

# 3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The proposed project will be located on the Fullerton Union High School campus at 201 East Chapman Avenue in the city of Fullerton, California (Figure 1). The high school campus is bordered by East Chapman Avenue along the south, North Pomona Avenue on the west, North Lemon Street on the east, and North Berkley Avenue to the north. The project site is located near

the southwest corner of the campus on the eastern sides of Buildings C and D (Figure 2). Buildings C and D are two-story classroom buildings, currently with stairway access to the second floor. We understand that the proposed new elevators will be constructed immediately adjacent to the existing buildings, which are supported on 16-inch-diameter caissons approximately 42 feet deep. Topographically, the project site is relatively level at an elevation of approximately 170 feet above mean sea level (MSL) (United States Geological Survey [USGS], 2015).

Landscape and hardscape improvements on the east side of the buildings in the vicinity of the proposed new elevator additions consist of a Portland Cement Concrete (PCC) pathway, a lawn area, mature trees, and planters. Based on our site reconnaissance and utility line markings provided by Underground Service Alert, gas, water, and electrical utility lines are located within the footprint of the proposed elevator shafts. Detailed project plans were not available at the time of our evaluation. However, we understand that the project consists of two new modular elevator shafts that will provide access to the second floor of each building.

# 4 SUBSURFACE EXPLORATION AND LABORATORY TESTING

Our subsurface exploration was conducted on March 30, 2018, and consisted of drilling, logging, and sampling of two small-diameter exploratory borings to depths ranging from approximately 31½ to 61½ feet below the ground surface. The borings were logged by a representative from our firm and bulk and relatively undisturbed soil samples were obtained at selected depth intervals for laboratory testing. The approximate locations of the exploratory borings are presented on Figure 2. The logs of the exploratory boring are presented in Appendix A.

Laboratory testing of representative soil samples was performed to evaluate in-situ moisture and dry density, percentage of particles finer than the No. 200 sieve, direct shear strength, and soil corrosivity. The results of our in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory testing results are presented in Appendix B.

# 5 GEOLOGIC AND SUBSURFACE CONDITIONS

## 5.1 Regional Geologic Setting

The project site is situated within the central block of the Los Angeles Basin in the Peninsular Ranges Geomorphic Province of California. The Los Angeles Basin has been divided into four structural blocks, which are generally bounded by prominent fault systems: The Northwestern Block, the Southwestern Block, the Central Block, and the Northeastern Block (Norris and Webb, 1990). The Central Block is bordered by the Whittier fault to the northeast, the Newport-Inglewood fault to the southwest, and the Santa Monica Mountains to the northwest. The Central

block's main portion is occupied by the Downey Plain, a broad synclinal sag about 12 to 14 miles wide with deep alluvial deposits, approximately 1,600 to 2,200 feet thick in the vicinity of the project site (Sprotte, et al., 1980). The general site area includes a broad alluvial plain located south of the Coyote Hills. These hilly areas are underlain by thick sequences of tectonically uplifted and tilted, Miocene-age to Pliocene-age marine sedimentary rocks predominantly of the La Habra and San Pedro Formations (Dibblee and Ehrenspeck, 2001, and Morton, 2006).

## 5.2 Site Geology

The project site is situated on a broad alluvial fan at the base of the south side of the Coyote Hills (Figure 3). Regional geologic mapping indicates that the alluvial fan deposits generally consist of Holocene and late Pleistocene-age, unconsolidated to moderately consolidated silt, sand, cobbles, and boulders (Morton and Miller, 2006). The alluvial soils underlying the site are expected to be relatively thick and underlain at depth by older sedimentary rocks.

The materials encountered in our borings generally consisted of fill soils overlying alluvial deposits to the depths explored of approximately 61½ feet. The fill soils were encountered to a depth of approximately 2½ feet and generally consisted of medium dense, silty sand with trace gravel. The underlying alluvial soils generally consisted of loose to medium dense, sand, silty sand, clayey sand, and stiff to hard clay and sandy clay. More detailed descriptions of the subsurface conditions are presented on the boring logs in Appendix A.

## 5.3 Groundwater

Groundwater was not encountered in our borings to the total depth explored of approximately 61½ feet. Regional maps indicate that the historic high groundwater at the site is at a depth of approximately 40 feet below the ground surface (California Geological Survey [CGS], 2001). Groundwater monitoring well data from the State of California Water Resources Control Board's GeoTracker website (2018) indicates that the depth to groundwater at monitoring wells located approximately 0.3 mile and 0.9 mile south and east of the site is as shallow as approximately 85 and 100 feet below the ground surface, respectively. It should be noted that fluctuations in the level of groundwater may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

## 5.4 Flood Hazards

Based on our review of flood insurance rate maps for the project area (Federal Emergency Management Agency [FEMA], 2009), the project site is not located in the 100-year Flood Hazard

Zone, A99. Zone A99 includes areas to be protected from a 100-year flood by the Federal Flood Protection System under construction at the time of publication of the FEMA map. The proposed new elevator additions are located within FEMA's designated Other Areas - Zone X, which includes areas assigned to be outside the 500-year floodplain. The western half of Buildings C and D are located within the Zone X Flood Area that includes areas of 500-year floods and areas of 100-year floods with average depths of less than one foot.

Based on our review of the County of Orange General Plan (2005), the site is not located within an area considered susceptible to flood or inundation hazards resulting from failures of upgradient reservoirs or dams.

# 6 FAULTING, SEISMICITY, AND GEOLOGIC HAZARDS

The site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone). However, the site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed structure. The numerous faults in southern California include active, potentially active, and inactive faults. As defined by the CGS, active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years) but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years. The approximate locations of major faults in the site vicinity and their geographic relationship to the site are shown on Figure 4. Historical earthquakes with a magnitude of 6.5 or more, or earthquakes that have caused significant loss of life and property within approximately 62 miles (100 kilometers) of the subject site were obtained from the CGS Regional Geologic Hazards and Mapping Program website (CGS, 2015) and are presented in Table 1.

**Table 1 – Historical Earthquakes**

| Date | Name, Location, or Region Affected | Approximate Earthquake Epicenter to Site Distance in miles (km) | Earthquake Magnitude |
|---|---|---|---|
| March 11, 1933 | Long Beach | 12.9 (20.7) | 6.4 |
| October 1, 1987 | Whittier Narrows | 16.3 (26.2) | 6.0 |
| July 22, 1899 | Wrightwood | 38.0 (61.2) | 6.4 |
| December 8, 1812 | Wrightwood | 37.6 (60.5) | 7.3 |
| January 17, 1994 | Northridge | 42.3 (68.1) | 6.7 |
| February 9, 1971 | San Fernando | 46.0 (74.1) | 6.6 |
| December 25, 1899 | San Jacinto and Hemet | 53.1 (85.5) | 6.7 |
| April 21, 1918 | San Jacinto | 53.6 (86.2) | 6.8 |

Table 2 lists principal known active faults that may affect the subject site, the approximate fault-to-site distances, and the maximum moment magnitudes ($M_{max}$). The approximate fault-to-site distances and $M_{max}$ were calculated using the USGS web-based program (USGS, 2008).

In addition to the mapped faults shown on Figure 4, the Coyote Hills segment of the Puente Hills blind thrust fault is located approximately 0.2 mile south of the site, the Santa Fe Springs segment of the Puente Hills blind thrust fault is located approximately 4.9 miles northwest of the site, the San Joaquin Hills blind thrust fault is located approximately 12.4 miles south of the site, the Los Angeles segment of the Puente Hills blind thrust fault is located approximately 13.6 miles northwest of the site, and the Upper Elysian Park blind thrust fault is located approximately 16.9 miles northwest of the site (USGS, 2008). Blind thrust faults are low-angle faults at depths that do not break the surface and are, therefore, not shown on Figure 4. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 2.

**Table 2 – Principal Active Faults**

| Fault | Approximate Fault-to-Site Distance miles (kilometers) | Maximum Moment Magnitude ($M_{max}$) |
|---|---|---|
| Puente Hills Blind Thrust (Coyote Hills) | 0.2 (0.3) | 6.9 |
| Elsinore | 4.9 (7.9) | 7.9 |
| Puente Hills Blind Thrust (Santa Fe Springs) | 6.8 (11.0) | 6.7 |
| San Jose | 11.6 (18.7) | 6.7 |
| San Joaquin Hills Blind Thrust | 12.4 (19.9) | 7.1 |
| Newport-Inglewood (LA Basin) | 13.1 (21.1) | 7.5 |
| Puente Hills Blind Thrust (LA) | 13.6 (21.8) | 7.0 |
| Chino | 13.5 (21.7) | 6.8 |
| Upper Elysian Park Blind Thrust | 16.9 (27.2) | 6.7 |
| Sierra Madre | 18.7 (30.1) | 7.3 |
| Newport Inglewood (Offshore) | 19.5 (31.4) | 7.0 |
| Raymond | 19.8 (31.9) | 6.8 |
| San Andreas | 36.8 (59.2) | 8.2 |

In general, seismic hazards that could impact the project include ground surface rupture, ground motion, liquefaction, dynamic settlement, landsliding, and tsunami, and seiches. These potential hazards are discussed in the following sections.

## 6.1 Ground Surface Rupture

Based on our review of the referenced literature and our site reconnaissance, no active surface faults are known to cross the project site. Therefore, the potential for ground surface rupture due to faulting at the site is considered low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

## 6.2 Ground Motion

The 2016 California Building Code (CBC) specifies that the Risk-Targeted, Maximum Considered Earthquake ($MCE_R$) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. The $MCE_R$ ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits for near-source effects. The horizontal peak ground acceleration (PGA) that corresponds to the $MCE_R$ for the site was calculated as 0.71g using the USGS (USGS, 2018) seismic design tool (web-based). Spectral response acceleration parameters, consistent with the 2016 CBC, are also provided in the Recommendations Section of this report for the evaluation of seismic loads on buildings and other structures.

The 2016 CBC specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the mapped Maximum Considered Earthquake Geometric Mean ($MCE_G$) PGA with adjustment for site class effects in accordance with the American Society of Civil Engineers (ASCE) 7-10 Standard. The $MCE_G$ PGA is based on the geometric mean PGA ($PGA_M$) with a 2 percent probability of exceedance in 50 years. The mapped $MCE_G$ PGA with adjustment for site class effects ($PGA_M$) was calculated as 0.66g using the USGS (USGS, 2018) seismic design tool.

## 6.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and cohesionless fine-grained soils located below the water table undergo rapid loss of shear strength due to excess pore pressure generation when subjected to strong earthquake-induced ground shaking. Sufficient ground shaking duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure. This causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The State of California Seismic Hazard Zones Map (Figure 5) indicates the project area is located within an area mapped as subject to seismically induced liquefaction hazards. Accordingly, liquefaction potential of subsurface soils was evaluated using the soil sample blow counts recorded at various depths in exploratory boring B-2 and our laboratory test results. The liquefaction analysis was based on the National Center for Earthquake Engineering Research (NCEER) procedure (Youd, et al., 2001) developed from the methods originally recommended by

Seed and Idriss (1982) using the computer program LiquefyPro (CivilTech, 2008). A design earthquake moment magnitude of 7.7 and an associated ground acceleration of 0.66g were used in the analysis. A depth to groundwater of 40 feet was used in our analysis based on the reported historic high groundwater depth (CGS, 2001). Our liquefaction analysis indicates that liquefaction induced settlement is on the order of ½ inch. The results of our analysis are presented in Appendix C.

## 6.4 Dynamic Compaction of Dry Soils

Relatively dry soils (e.g., soils above the groundwater table) with low density or softer consistency tend to undergo dynamic compaction during a seismic event. Earthquake shaking often induces significant cyclic shear strain in a soil mass, which responds to the vibration by undergoing volumetric changes. Volumetric changes in dry soils take place primarily through changes in the void ratio (usually contraction in loose or normally consolidated, soft soils and dilation in dense or overconsolidated, stiff soils) and secondarily through particle reorientation. Such volumetric changes are generally non-recoverable.

To estimate the amount of post-earthquake settlement caused by the dry soils, the method proposed by Tokimatsu and Seed (1987) was used in which the seismically induced cyclic stress ratios and corrected N-values based on correlations are related to the volumetric strain of the soil. The amount of soil settlement during a strong seismic event depends on the thickness and the density and/or consistency of the soils. A design PGA of 0.47g was used in our analysis for a design earthquake magnitude of 7.7.

Under the current conditions, a post-earthquake total settlement due to vibration of dry soils of approximately ¾ inch is calculated for the site. Based on the guidelines presented in CGS Special Publication 117A (CGS, 2008) and assuming relatively uniform subsurface stratigraphy across the site, we estimate differential settlement on the order of $^{3}/_{8}$ inch over a horizontal distance of 40 feet. The results of our analysis are presented in Appendix C.

## 6.5 Landsliding

The site is located in an area of relatively flat terrain. Based on our site reconnaissance and review of published seismic hazard maps (CGS, 1998), geologic maps, and stereoscopic aerial photographs, landslides or indications of deep-seated slope instability are not considered potential hazards at the site.

## 6.6 Tsunamis and Seiches

Tsunamis are long wavelength seismic, sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. Seiches are waves generated in a large enclosed body of water. The project area is not mapped within an area considered susceptible to tsunamis or seiche inundation. Therefore, damage due to tsunamis or seiches is not a design consideration for this project.

# 7 CONCLUSIONS

Based on our review of the referenced background data, subsurface evaluation, and laboratory testing, it is our opinion that the proposed improvements are feasible from a geotechnical standpoint provided that the recommendations presented in this report are incorporated into the design and construction of the project. In general, the following findings and conclusions were made:

- Based on our exploratory borings, the site is underlain by fill soils and alluvial deposits. The fill soils were encountered in our borings to a depth of approximately 2½ feet and consisted of medium dense, silty sand. Alluvium was encountered below the fill to the total depth explored of approximately 61½ feet. The alluvium consisted of loose to medium dense, poorly graded sand, silty sand, and clayey sand, and stiff to hard, clay and sandy clay.
- Excavations during site grading should be feasible with heavy-duty earthmoving equipment in good working order. We anticipate that the on-site soil should be generally suitable for re-use as compacted fill provided it is free of oversize materials, trash, rubble, roots, or other deleterious materials.
- On-site soils should be considered as Type C soils in accordance with Occupational Safety and Health Administration (OSHA) soil classifications. Temporary shoring should be provided in accordance with OSHA regulations. The granular soils encountered at the site have little cohesion and may be subject to caving.
- Groundwater was not encountered in our exploratory borings. The historic high groundwater level is reported at a depth of approximately 40 feet below the ground surface. Accordingly, groundwater is not expected to impact the design of the improvements. However, some groundwater seepage may be encountered during construction and should be anticipated.
- The subject site is not located within a State of California Earthquake Fault Zone. Based on our review of published geologic maps and aerial photographs, no known active or potentially active faults transect the site. The potential for surface fault rupture at the site is considered low.
- The site is located in a State of California Seismic Hazard Zone for liquefaction. Based on our subsurface evaluation, the soils below the historic high groundwater table are susceptible to liquefaction during the design seismic event. Our analysis indicates that liquefaction-induced dynamic settlement of up to approximately ½ inch may occur at the location of the proposed new elevators.
- Dynamic earthquake-induced ground settlement in dry soils (above the historic high groundwater table) is estimated to be approximately ¾ inch.
- The site is not located in an area considered susceptible to landsliding, tsunamis, or seiches.

- Based on the results of our limited laboratory corrosion testing and California Department of Transportation corrosion guidelines (Caltrans, 2018), the site soils can be classified as corrosive.

# 8 RECOMMENDATIONS

The following sections include our geotechnical recommendations for the design and construction of the proposed new elevator improvements. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the planned construction. The proposed site improvements should be constructed in accordance with the requirements of the Division of the State Architect (DSA) for school facilities and other applicable governing agencies.

## 8.1 Earthwork

Earthwork at the site is anticipated to consist of site clearing, demolition of existing hardscapes, removal and re-compaction of the loose fill and alluvial soils below the proposed elevator additions, and excavation for foundations. Earthwork should be performed in accordance with the requirements of applicable governing agencies and the recommendations presented in the following sections.

### 8.1.1 Construction Plan Review and Pre-Construction Conference

We recommend that the grading and foundation plans be submitted to Ninyo & Moore for review to evaluate conformance to the geotechnical recommendations provided in this report. We further recommend that a pre-construction conference be held in order to discuss the grading recommendations presented in this report. The owner and/or their representative, the governing agencies' representatives, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan, project schedule, and earthwork requirements.

### 8.1.2 Site Preparation

Prior to excavation and fill placement, the site should be cleared of existing site improvements, surface obstructions, other deleterious materials, and abandoned utilities, and stripped of rubble, debris, and vegetation, as well as surface soils containing organic materials. Existing utilities to remain in place should be located and protected from damage by construction activities. Obstructions that extend below the finished grade, if any, should be removed and the resulting holes filled with compacted soil. The materials generated from the clearing operations should be removed from the site and disposed of at a legal dump site.

### 8.1.3 Temporary Excavations

We anticipate that excavations in the fill and alluvium should be feasible with heavy-duty earthmoving equipment in good working order. The subsurface soils encountered in the exploratory borings are comprised predominantly of interbedded loose to medium dense, poorly graded sand, silty sand, and clayey sand, and stiff to hard, clay and sandy clay. In our opinion, temporary slopes should generally be stable at inclinations up to approximately ¾:1 (horizontal to vertical). Some surficial sloughing may occur, and temporary excavations should be evaluated in the field in accordance with OSHA guidelines. The surficial soils should be considered as OSHA Soil Type C, and temporary excavations should conform with OSHA regulations.

Excavations should be planned in a manner so as not to impair the bearing capacity or cause settlement or undermining of existing improvements. As a guideline, excavations adjacent to and subparallel to the existing foundations should not extend below an imaginary 1:1 (horizontal to vertical) plane extending outward and downward from the bottom outer edge of the building foundations. However, we understand that the project elevator additions will be constructed adjacent to the existing Buildings C and D. To alleviate the partial loss of capacity of the existing building caissons, the building wall/grade beam adjacent to the elevator pit will need to be underpinned prior to excavation of the pit. In our opinion, the underpinning elements should be permanent in nature and should be designed to compensate for loss of capacity of the existing caissons in the vicinity of the elevator pit. The underpinning elements may consist of pipe piles, soldier piles (i.e., I-beams in drilled holes), or cast-in-drilled-hole (CIDH) piles with rebar. The underpinning elements should be conservatively designed for at least half the design capacity of the existing caissons and should be extended beyond the bottom of the over-excavation zone for the elevator pit.

### 8.1.4 Shoring

Where temporary slopes are not possible, shoring will be appropriate. The design of the shoring system should consider the excavation characteristics of the onsite soil, temporary excavation stability, and the impact of construction on existing structures.

Shoring systems will be constructed through fill and alluvial deposits. Braced and cantilevered shoring systems should be designed using the lateral earth pressure values presented on Figures 6 and 7, respectively. The recommended design pressures are based on the assumptions that the shoring system is constructed without raising the ground surface elevation behind the shoring system, that there are no surcharge loads, such as soil stockpiles and construction materials, and that no loads act above a 1:1 (horizontal to vertical)

plane extending up and back from the base of the shoring system. For shoring systems subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on the lateral pressures against the shoring system.

We anticipate that settlement of the ground surface will occur behind the shoring wall during excavation. The amount of settlement depends heavily on the type of shoring system, the contractor's workmanship, and the soil conditions. To reduce the potential for distress to adjacent structures, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less. Possible causes of settlement that should be addressed include settlement during installation of the shoring, excavation for the construction of the planned below-grade structures, construction vibrations, dewatering, and removal of the shoring system. Should sheet piles be selected as the shoring system, the vibrations from the driving of sheet piles may result in settlement of soils to a significant distance from the site, and may affect the adjacent structures. This adverse condition should be evaluated carefully by the contractor prior to selection of the shoring system.

The contractor should retain a licensed, qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are minimum requirements, and the contractor should evaluate the adequacy of these parameters and make the required modifications for their design. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed.

### 8.1.5 Subgrade Preparation

We recommend that the new elevator footprints be overexcavated and recompacted to a depth that provides 24 inches, or more, of newly compacted fill beneath the bottom of the proposed elevator foundations. The overexcavation should remove existing undocumented fill and should expose relatively dense or stiff native alluvial deposits. The limits of the excavation should extend laterally so that the bottom of the excavation on the three sides of the elevator pit not adjacent to the existing building is approximately 5 feet beyond the outside edge of the elevator's footprint, or a distance corresponding to the depth of the overexcavation, whichever is more. As described in Section 8.1.3, the existing building wall/grade beam adjacent to the elevator pit will need to be underpinned prior to the excavation of the elevator pit. The excavation bottom should be evaluated by our representative during the excavation work. Additional overexcavation of loose, soft, and/or wet areas may be appropriate, depending on our observations during construction. Prior to placing newly compacted fill, the exposed bottom should be scarified, moisture-conditioned, and recompacted to a depth of approximately 8 inches.

### 8.1.6 Fill Material

In general, the on-site soils should be suitable for re-use as fill. On-site soils to be placed as fill should be free of trash, debris, roots, vegetation, contaminated material, or deleterious materials. Fill should generally be free of rocks or hard lumps of material larger than approximately 4 inches in diameter. Rocks or hard lumps larger than about 4 inches in diameter should be broken into smaller pieces or should be removed from the site. Fill used should be comprised of granular, non-expansive soil that conforms to the latest edition of "Greenbook" Standard Specifications for Public Works Construction (Greenbook) for structural backfill. "Non-expansive" is defined as soil having an EI of 20 or less in accordance with ASTM International (ASTM) D 4829 (CBC, 2016).

### 8.1.7 Fill Placement and Compaction

Fill soils placed should be compacted in horizontal lifts to a relative compaction of 90 percent as evaluated by ASTM D 1557. The lift thickness for fill soils will vary depending on the type of compaction equipment used but should generally be placed in horizontal lifts not exceeding 8 inches in loose thickness. Fill soils should be placed at slightly above the optimum moisture content as evaluated by ASTM D 1557.

## 8.2 Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 3 presents the seismic design parameters for the sites in accordance with CBC (2016) guidelines and adjusted $MCE_R$ spectral response acceleration parameters (USGS, 2018).

**Table 3 – 2016 California Building Code Seismic Design Criteria**

| Site Coefficients and Spectral Response Acceleration Parameters | Values |
|---|---|
| Site Class | D |
| Site Coefficient, $F_a$ | 1.0 |
| Site Coefficient, $F_v$ | 1.5 |
| Mapped Spectral Response Acceleration at 0.2-second Period, $S_s$ | 1.769g |
| Mapped Spectral Response Acceleration at 1.0-second Period, $S_1$ | 0.642g |
| Spectral Response Acceleration at 0.2-second Period Adjusted for Site Class, $SM_S$ | 1.769g |
| Spectral Response Acceleration at 1.0-second Period Adjusted for Site Class, $SM_1$ | 0.963g |
| Design Spectral Response Acceleration at 0.2-second Period, $SD_S$ | 1.179g |
| Design Spectral Response Acceleration at 1.0-second Period, $SD_1$ | 0.642g |

## 8.3 Foundations

The proposed elevator additions may be supported on mat foundations bearing on engineered fill material compacted in accordance with the recommendations presented in the Earthwork section of this report. Mat foundations placed at a depth of 4 feet or more below the finished grade may

be designed using a net allowable bearing capacity of 4,000 psf. The total and differential settlement corresponding to this allowable bearing load are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 40 feet, respectively. Mat foundations typically experience some deflection due to loads placed on the mat and the reaction of the soils directly underlying the mat. A design modulus of subgrade reaction (K) of 150 tons per cubic foot (tcf) may be used for the subgrade soils in evaluating such deflections. This value is based on a unit square foot area and should be adjusted for large mats. Adjusted values of the modulus of subgrade reaction, K, can be obtained from the following equation for mats of various widths:

$$K = 150 \left( \frac{B+1}{2B} \right)^2$$ ; where B is the width of the mat measured in feet

## 8.4 Retaining Walls

Retaining walls may be supported by foundations designed in accordance with the recommendations presented in the previous section of this report. Lateral earth pressures recommended for the design of yielding and restrained retaining walls are provided on Figures 8 and 9, respectively. Passive pressures may be increased by one-third when considering loads of short duration, including wind and seismic loads. Further, for sliding resistance, a friction coefficient of 0.40 may be used for the concrete and soil interface. The allowable resistance may be taken as the sum of the frictional and passive resistance, provided that the passive portion does not exceed one-half of the total allowable resistance.

Retaining walls should be backfilled with free-draining, granular, imported soil with non-expansive material (CBC Expansion Index 20 or less). Measures should be taken to reduce the potential for build-up of moisture behind the retaining walls. Drainage design should include free-draining backfill materials and subsurface drainage provisions as shown on Figure 10.

## 8.5 Sidewalks and Flatwork

We recommend that new exterior concrete sidewalks and flatwork have a thickness of 4 inches and be reinforced with No. 3 steel reinforcing bars placed 24 inches on-center (each way) near the mid-height of the slab. The hardscape should be underlain by 4 inches of clean sand and installed with crack-control joints at an appropriate spacing as designed by the structural engineer to reduce the potential for shrinkage cracking. Positive drainage should be established and maintained adjacent to flatwork.

## 8.6 Corrosion

The corrosion potential of the site soils was evaluated using the results of a selected, representative sample obtained from the exploratory boring. Laboratory testing was performed to

evaluate pH, minimum electrical resistivity, soluble sulfate, and chloride content. Soluble sulfate content is addressed in the following section of this report. The soil pH and minimum resistivity tests were performed in accordance with California Test Method (CT) 643. The test for chloride content of the soils was performed using CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix B.

The results of the corrosivity testing indicated an electrical resistivity of approximately 975 ohm-cm, a soil pH of approximately 7.6, a chloride content of approximately 105 parts per million (ppm), and a sulfate content of approximately 0.093 percent (i.e., 930 ppm). According to Caltrans (2018) corrosion criteria, a site is considered corrosive if one or more of the following conditions exist for the representative soil samples retrieved from the site: chloride concentration of 500 ppm or more, soluble sulfate concentration of 1,500 ppm or more, electrical resistivity of 1,100 ohm-centimeters or less, and a pH of 5.5 or less. Due to the presence of soils with an electrical resistivity of less than 1,100 ohm-centimeters, the site soils are considered corrosive. We recommend that a corrosion engineer be consulted for further evaluation and recommendations.

## 8.7 Concrete

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. Based on the CBC (2016), the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight, moderate for water-soluble sulfate contents ranging from 0.10 to 0.20 percent by weight, severe for water-soluble sulfate contents ranging from 0.20 to 2.00 percent by weight, and very severe for water-soluble sulfate contents over 2.00 percent by weight. The soil sample tested for this evaluation, using CT 417, indicates a water-soluble sulfate content of approximately 0.093 percent by weight (i.e., 930 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. However, due to the potential variability of the on-site soils, consideration should be given to using Type II/V cement for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed improvements be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We further recommend that concrete cover over reinforcing steel for foundations be provided in accordance with CBC (2016). The structural engineer should be consulted for additional concrete specifications.

## 8.8 Drainage

Good surface drainage is imperative for satisfactory site performance. Positive drainage should be provided and maintained to channel surface water away from foundations and off-site. Positive drainage is defined as a slope of 2 percent or more for a distance of 5 feet or more away from foundations and tops of slopes. Runoff should then be transported by the use of swales or pipes into a collective drainage system. Surface waters should not be allowed to pond adjacent to footings or on pavements. We recommend that the structures have roof drains and downspouts installed to collect runoff. Area drains for landscaped and paved areas are recommended.

# 9 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and on our evaluation of the data collected based on subsurface conditions observed in our exploratory borings. It is imperative that the interpolated subsurface conditions be checked by our representative during construction. We further recommend that the project plans and specifications be reviewed by this office prior to construction. If conditions are found to vary from those described in this report, Ninyo & Moore should be notified and additional recommendations will be provided upon request.

During construction, we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing clearing, grubbing, and removals.
- Observing excavation bottoms and the placement and compaction of fill.
- Performing field tests to evaluate fill compaction.
- Observing foundation excavations for bearing materials and cleaning prior to placement of reinforcing steel or concrete.
- Performing material testing services including concrete compressive strength and steel tensile strength tests and inspections.

The recommendations provided in this report assume that Ninyo & Moore will be retained as the geotechnical consultant during the construction phase of this project. If another geotechnical consultant is selected, we request that the selected consultant indicate to owner and to our firm in writing that our recommendations are understood and that they are in full agreement with our recommendations.

# 10 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analysis presented in this report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

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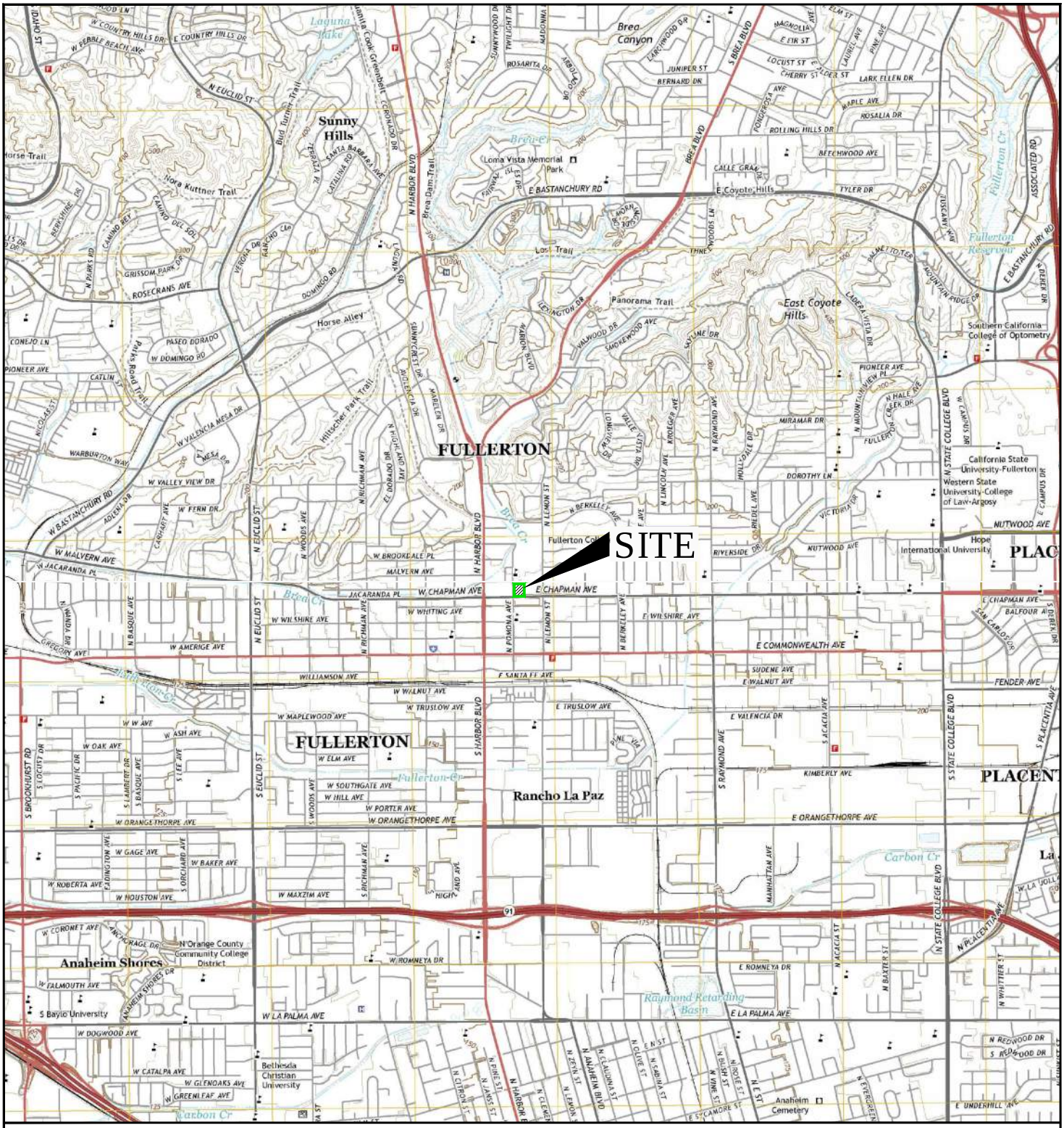
# FIGURES




NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2015.

N

FEET

0 2,000 4,000

209730002_SL.dwg 04/11/2018 JP

**FIGURE 1**

## SITE LOCATION

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18

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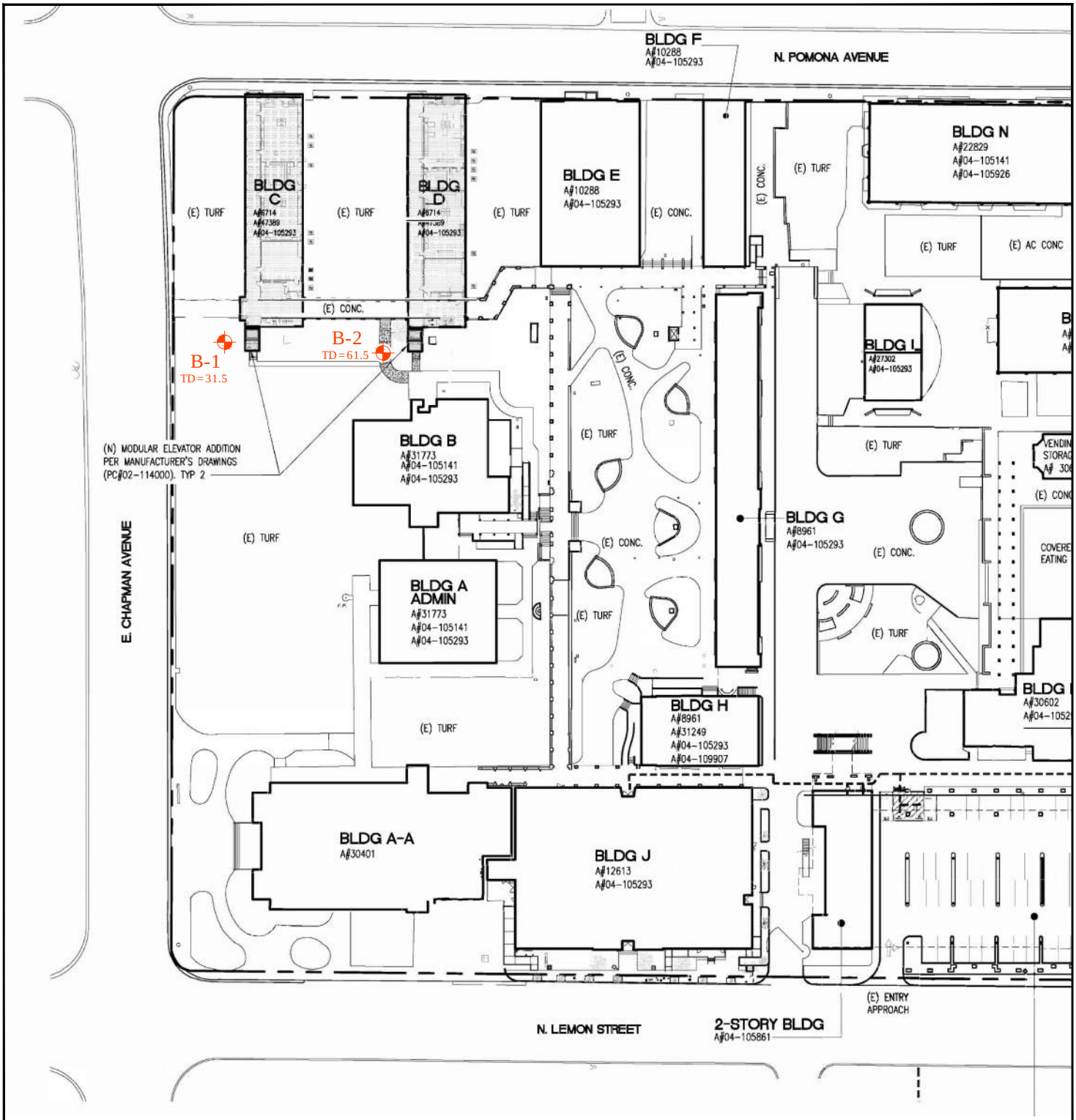
Geotechnical & Environmental Sciences Consultants




LEGEND

B-2
TD = 61.5
BORING;
TD = TOTAL DEPTH IN FEET

REFERENCE: GHATAODE BANNON ARCHITECTS, LLP, 2018.
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

N

FEET
0 100 200

209730002_BL.dwg 04/11/2018 JP

**FIGURE 2**

## BORING LOCATIONS

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18

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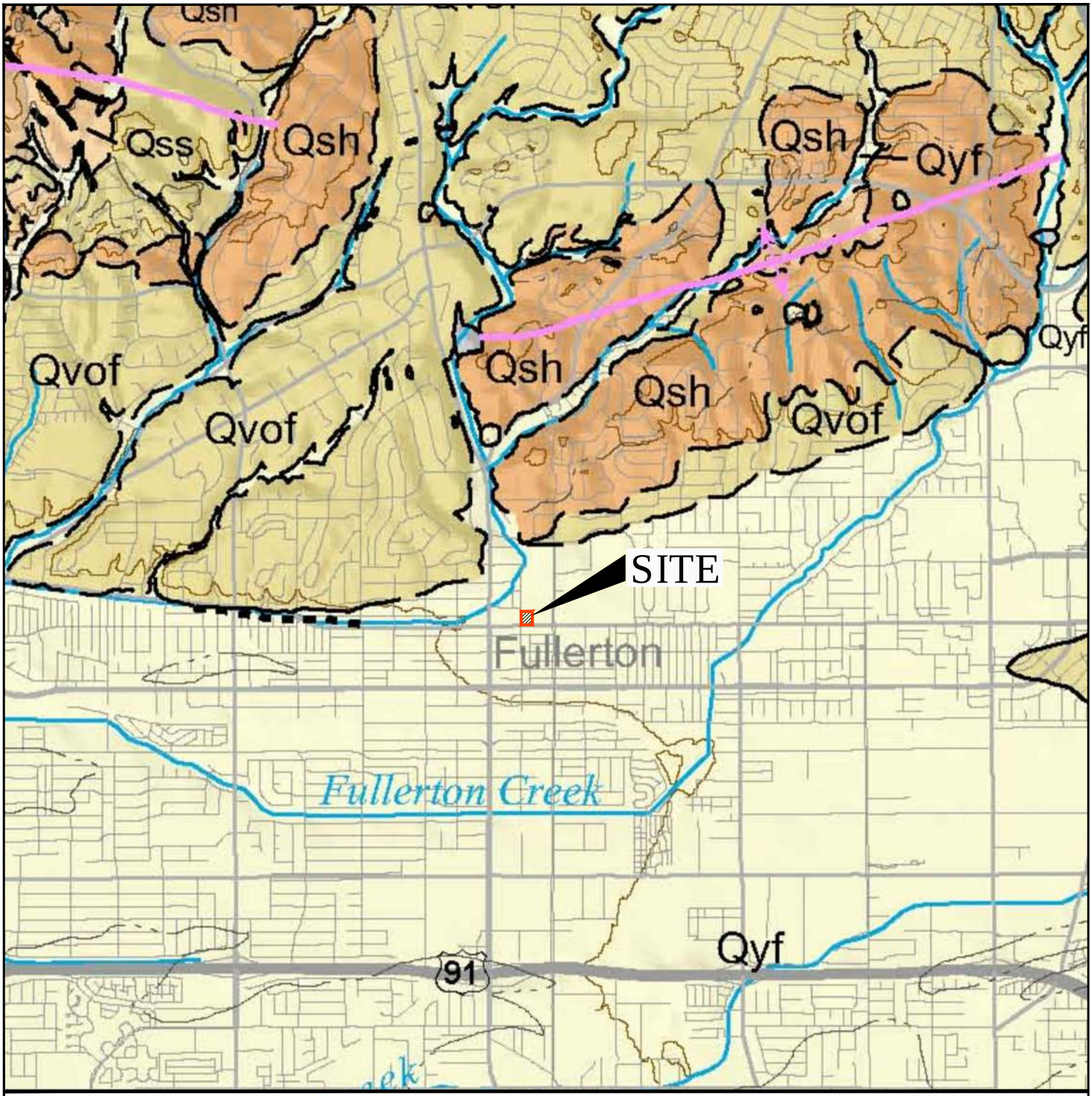


LEGEND

| | | | |
|---|---|---|---|
| Qyf | YOUNG ALLUVIUM | Qsh | FINE GRAINED FORMATIONS (LA HABRA) |
| Qvof | VERY OLD ALLUVIUM | | GEOLOGIC CONTACT |
| Qss | COARSE GRAINED FORMATIONS (SAN PEDRO) | | |

REFERENCE: BEDROSIAN, T.L., ET AL., 2012.
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

N

FEET
0 3,000 6,000

209730002_RG.dwg 04/11/2018 JP

**FIGURE 3**

**REGIONAL GEOLOGY**

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18

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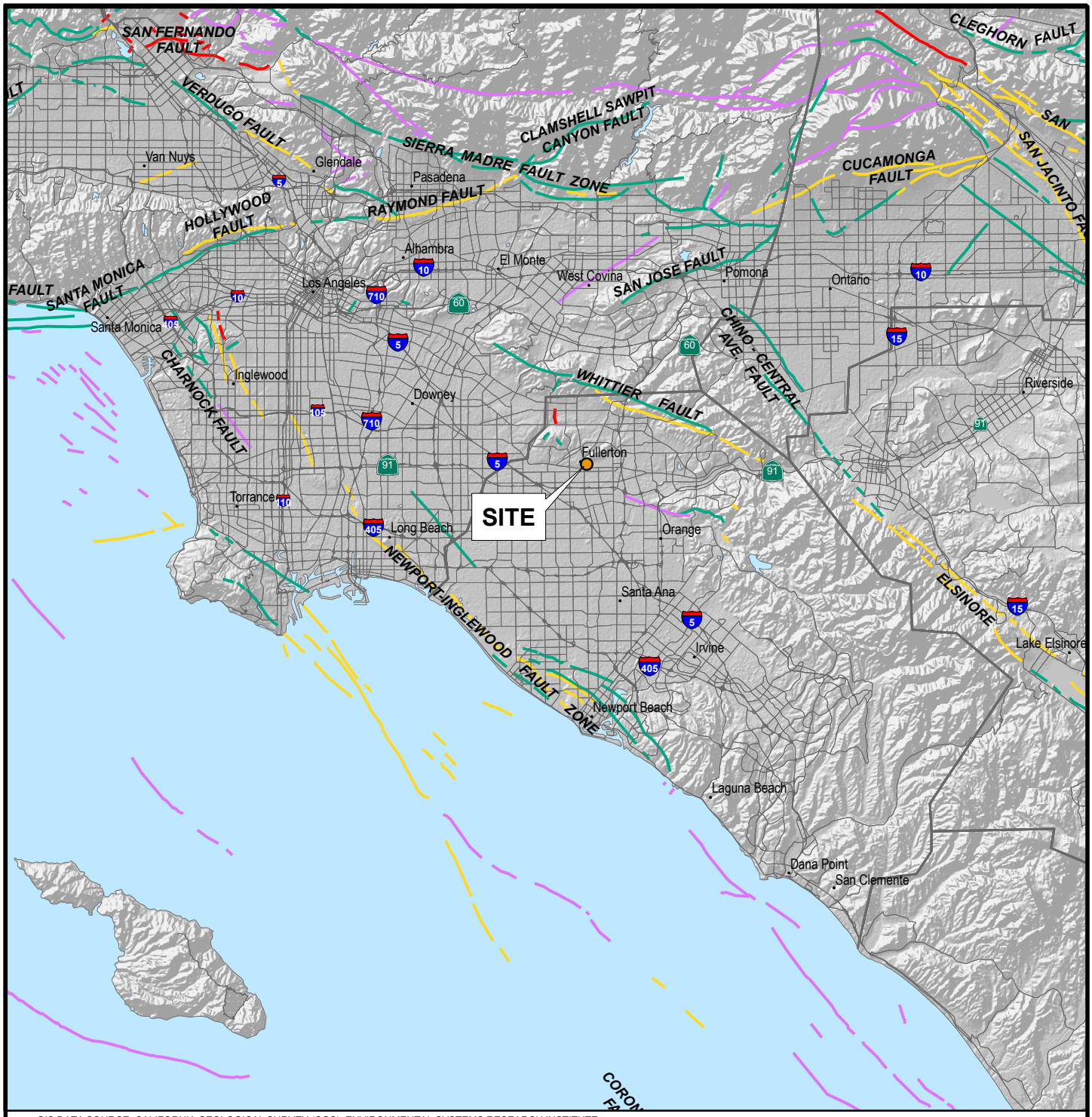



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE. (ESRI) REFERENCE: JENNINGS, 2010.

**LEGEND**

**FAULT ACTIVITY:**

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- COUNTY BOUNDARIES
- LATE QUATERNARY
- QUATERNARY

N

MILES

0 5 10 20

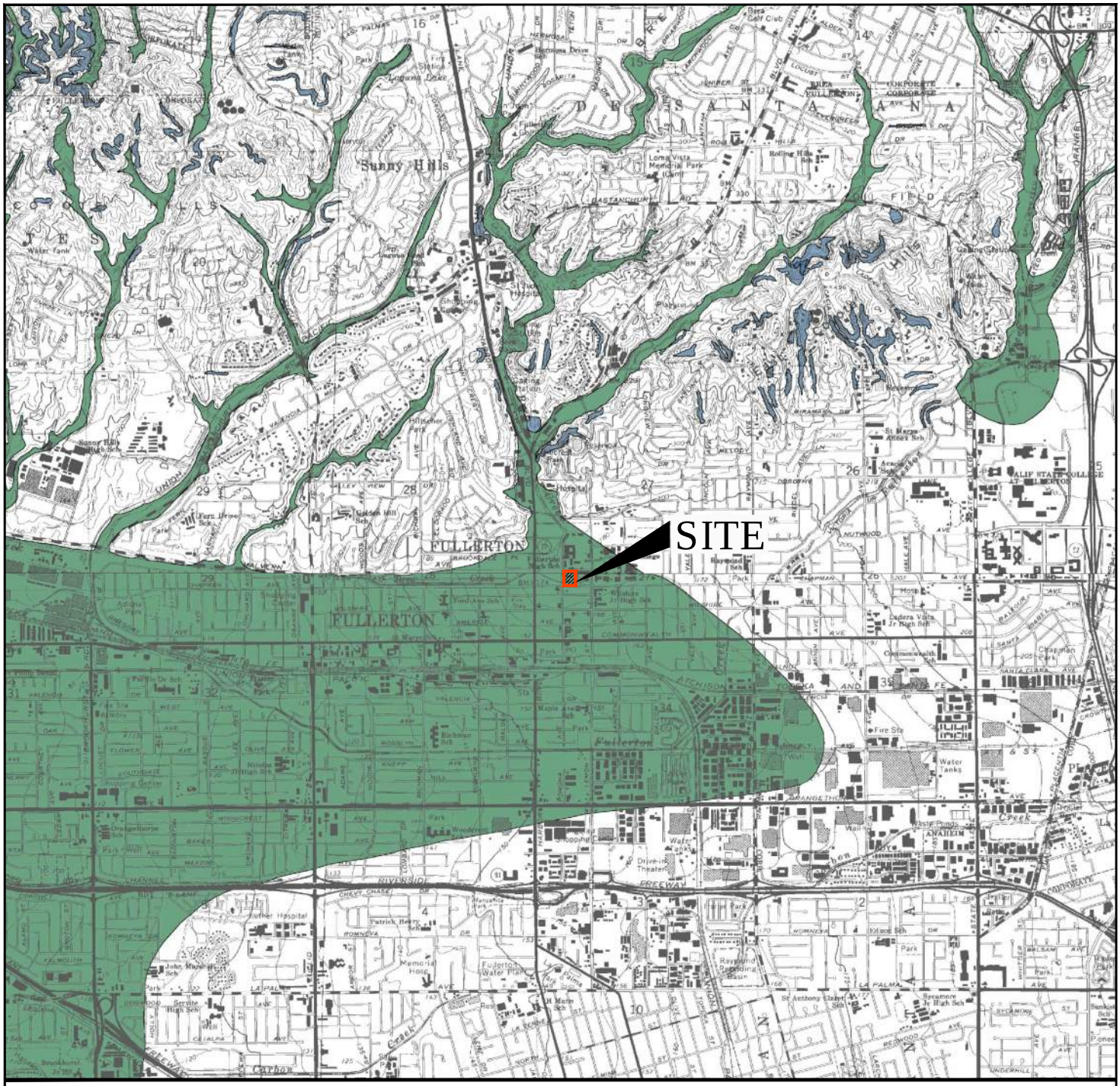
209730002_FL 04/11/2018 JP

**FIGURE 4**

**FAULT LOCATIONS**

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA
209730002 I 4/18

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants




LEGEND

EARTHQUAKE-INDUCED LANDSLIDES

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

LIQUEFACTION:

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: CGS, 1998.

N

FEET

0 2,000 4,000

209730002_SHZ.dwg 04/11/2018 JP

**FIGURE 5**

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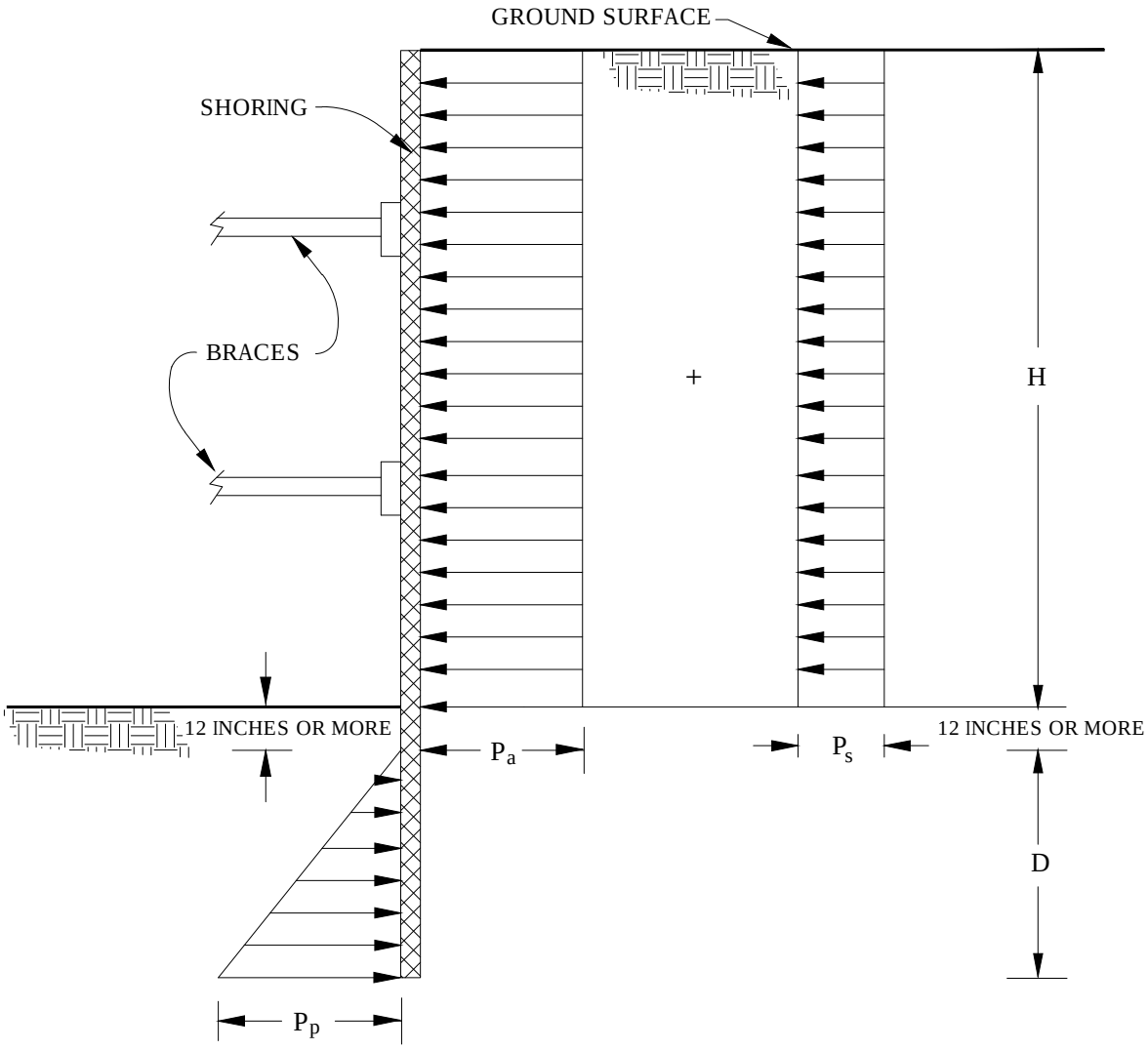
## SEISMIC HAZARD ZONES

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18




NOTES:

1. APPARENT LATERAL EARTH PRESSURE, $P_a$
   $P_a$ = 25H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, $P_s$
   $P_s$ = 120 psf
3. PASSIVE LATERAL EARTH PRESSURE, $P_p$
   $P_p$ = 310D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H AND D ARE IN FEET

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

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**FIGURE 6**

## LATERAL EARTH PRESSURES FOR BRACED EXCAVATION

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201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

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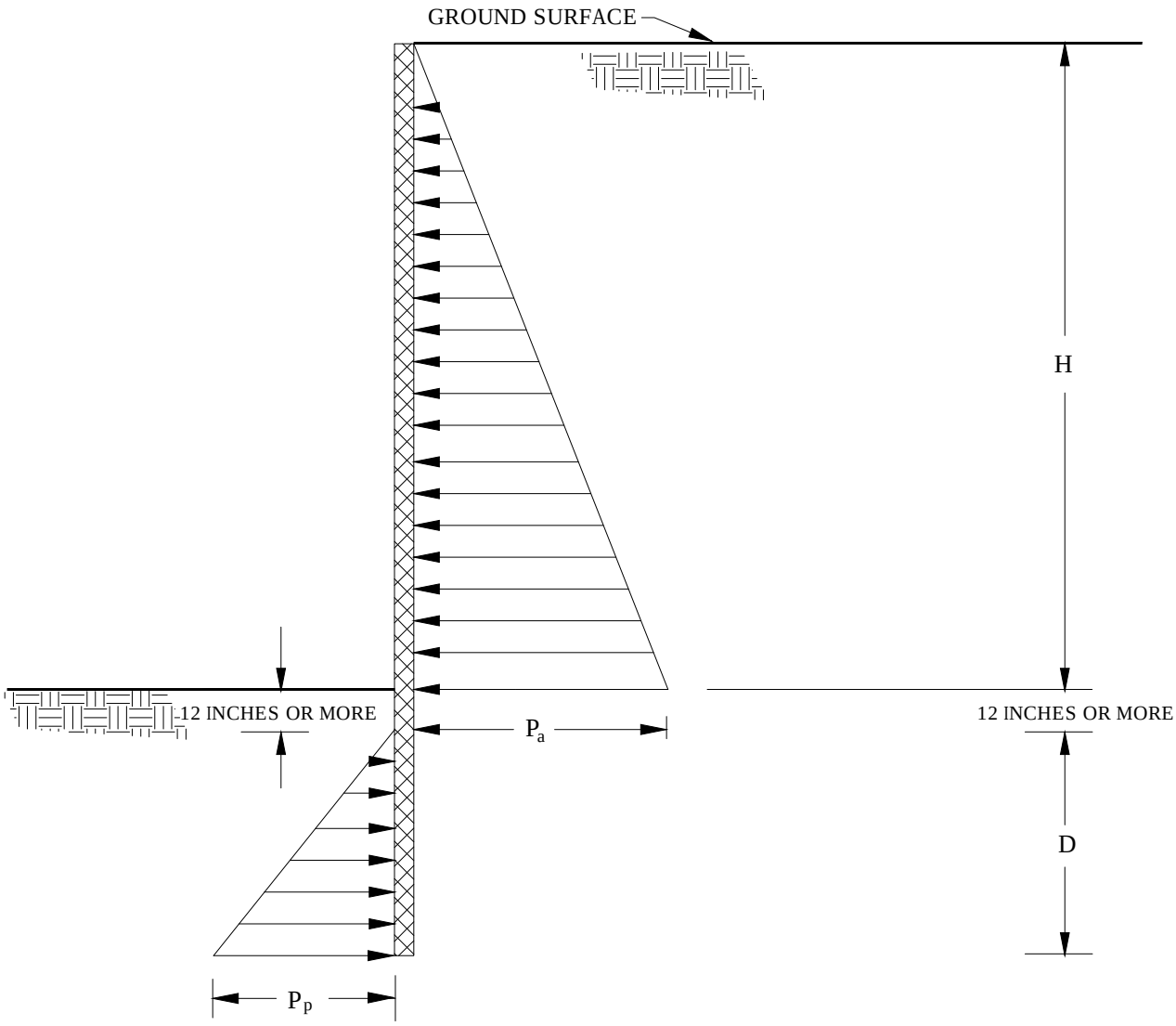


NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, $P_a$
   $P_a$ = 37 H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, $P_s$
   $P_s$ = 120 psf
3. PASSIVE LATERAL EARTH PRESSURE, $P_p$
   $P_p$ = 310 D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. H AND D ARE IN FEET

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.



**FIGURE 7**

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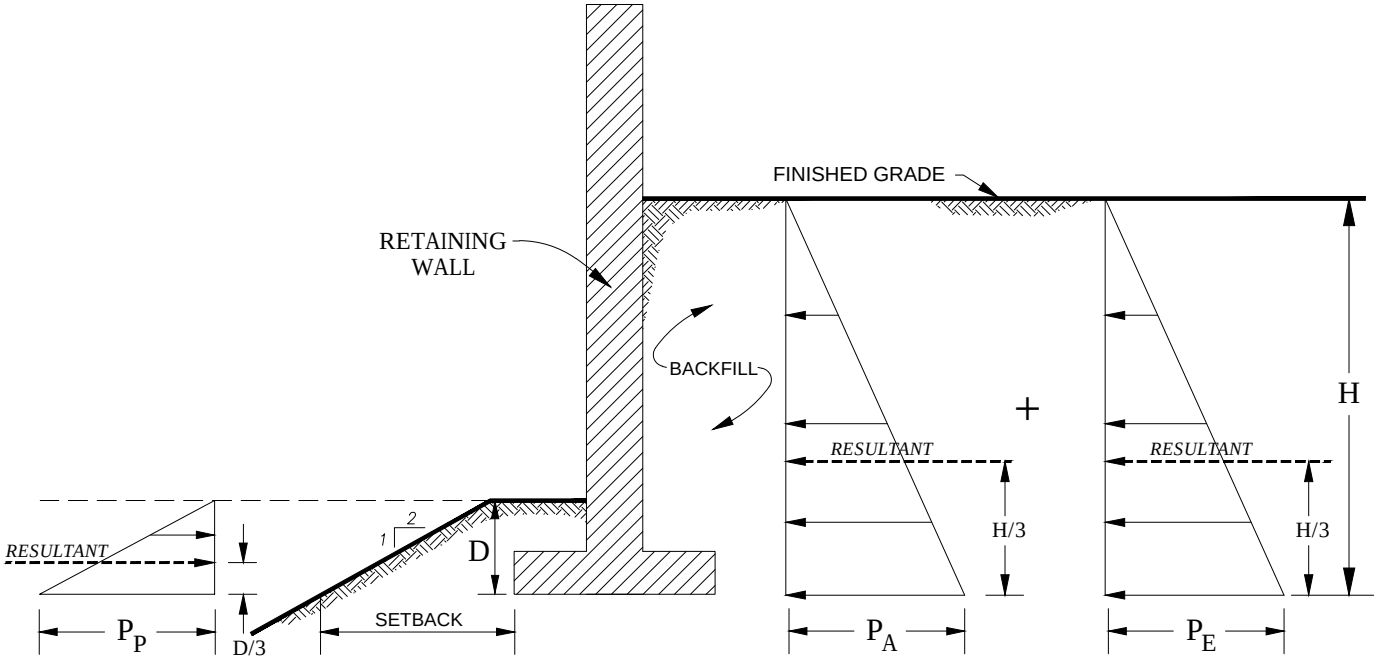
# LATERAL EARTH PRESSURES FOR TEMPORARY CANTILEVERED SHORING

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18




NOTES:

1. ASSUMES NO HYDROSTATIC PRESSURE BUILD-UP BEHIND THE RETAINING WALL
2. STRUCTURAL, GRANULAR BACKFILL MATERIALS AS SPECIFIED IN GREENBOOK SHOULD BE USED FOR RETAINING WALL BACKFILL
3. DRAINS AS RECOMMENDED IN THE RETAINING WALL DRAINAGE DETAIL SHOULD BE INSTALLED BEHIND THE RETAINING WALL
4. DYNAMIC LATERAL EARTH PRESSURE IS BASED ON A PEAK GROUND ACCELERATION OF 0.47g
5. $P_E$ IS CALCULATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF MONONOBE AND MATSUO (1929), AND ATIK AND SITAR (2010).
6. SURCHARGE PRESSURES CAUSED BY VEHICLES OR NEARBY STRUCTURES ARE NOT INCLUDED
7. H AND D ARE IN FEET
8. SETBACK SHOULD BE IN ACCORDANCE WITH FIGURE 1808.7.1 OF THE CBC (2016)

RECOMMENDED GEOTECHNICAL DESIGN PARAMETERS

| Lateral Earth Pressure | Equivalent Fluid Pressure ($lb/ft^2/ft$)(1) | |
|---|---|---|
| $P_A$ | Level Backfill with Granular Soils(2) | 2H:1V Sloping Backfill with Granular Soils (2) |
| | 37 H | 57 H |
| $P_E$ | 19 H | 19 H |
| $P_P$ | Level Ground | 2H:1V Descending Ground |
| | 310 D | 110 D |

NOT TO SCALE

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**FIGURE 8**

## LATERAL EARTH PRESSURES FOR YIELDING RETAINING WALLS

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201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

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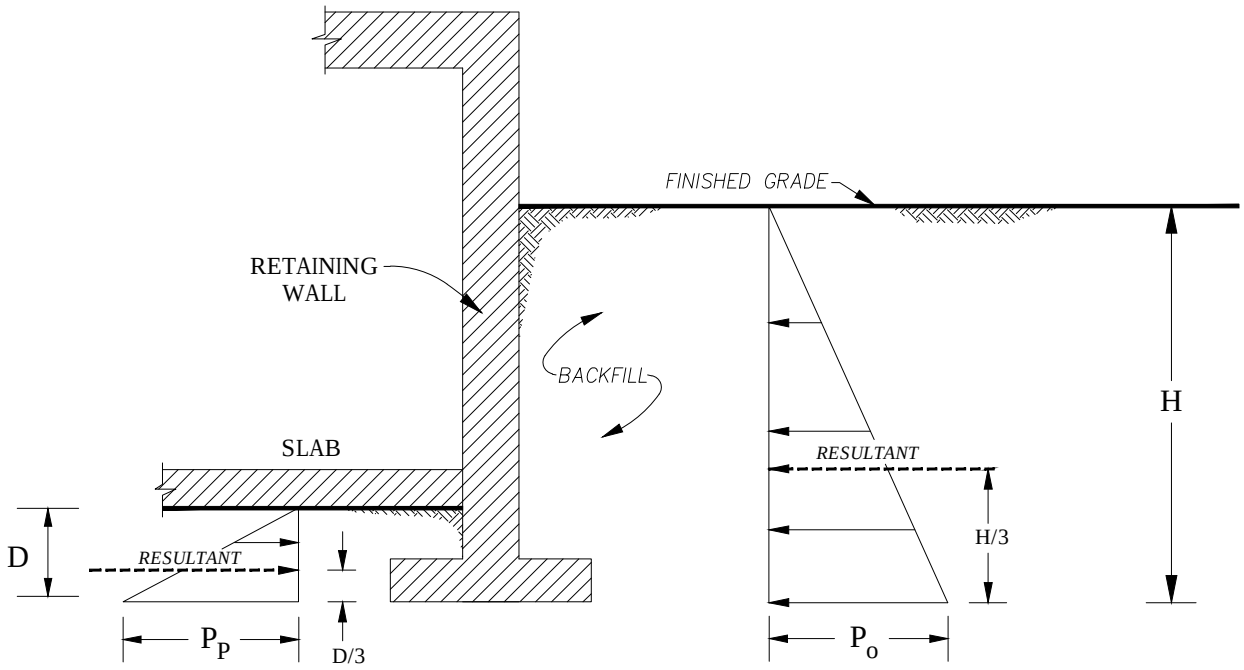


NOTES:

1. ASSUMES NO HYDROSTATIC PRESSURE BUILD-UP BEHIND THE RETAINING WALL
2. STRUCTURAL, GRANULAR BACKFILL MATERIALS AS SPECIFIED IN GREENBOOK SHOULD BE USED FOR RETAINING WALL BACKFILL
3. DRAINS AS RECOMMENDED IN THE RETAINING WALL DRAINAGE DETAIL SHOULD BE INSTALLED BEHIND THE RETAINING WALL
4. SURCHARGE PRESSURES CAUSED BY VEHICLES OR NEARBY STRUCTURES ARE NOT INCLUDED
5. H AND D ARE IN FEET
6. SETBACK SHOULD BE IN ACCORDANCE WITH FIGURE 1808.71 OF THE CBC (2016)

RECOMMENDED GEOTECHNICAL DESIGN PARAMETERS

| Lateral Earth Pressure | Equivalent Fluid Pressure ($lb/ft^2/ft$)[1] | |
|---|---|---|
| $P_O$ | Level Backfill with Granular Soils[2] | 2H:1V Sloping Backfill with Granular Soils[2] |
| | 57 H | 82 H |
| $P_P$ | Level Ground | 2H:1V Descending Ground |
| | 310 D | 110 D |

NOT TO SCALE

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**FIGURE 9**

## LATERAL EARTH PRESSURES FOR RESTRAINED RETAINING WALLS

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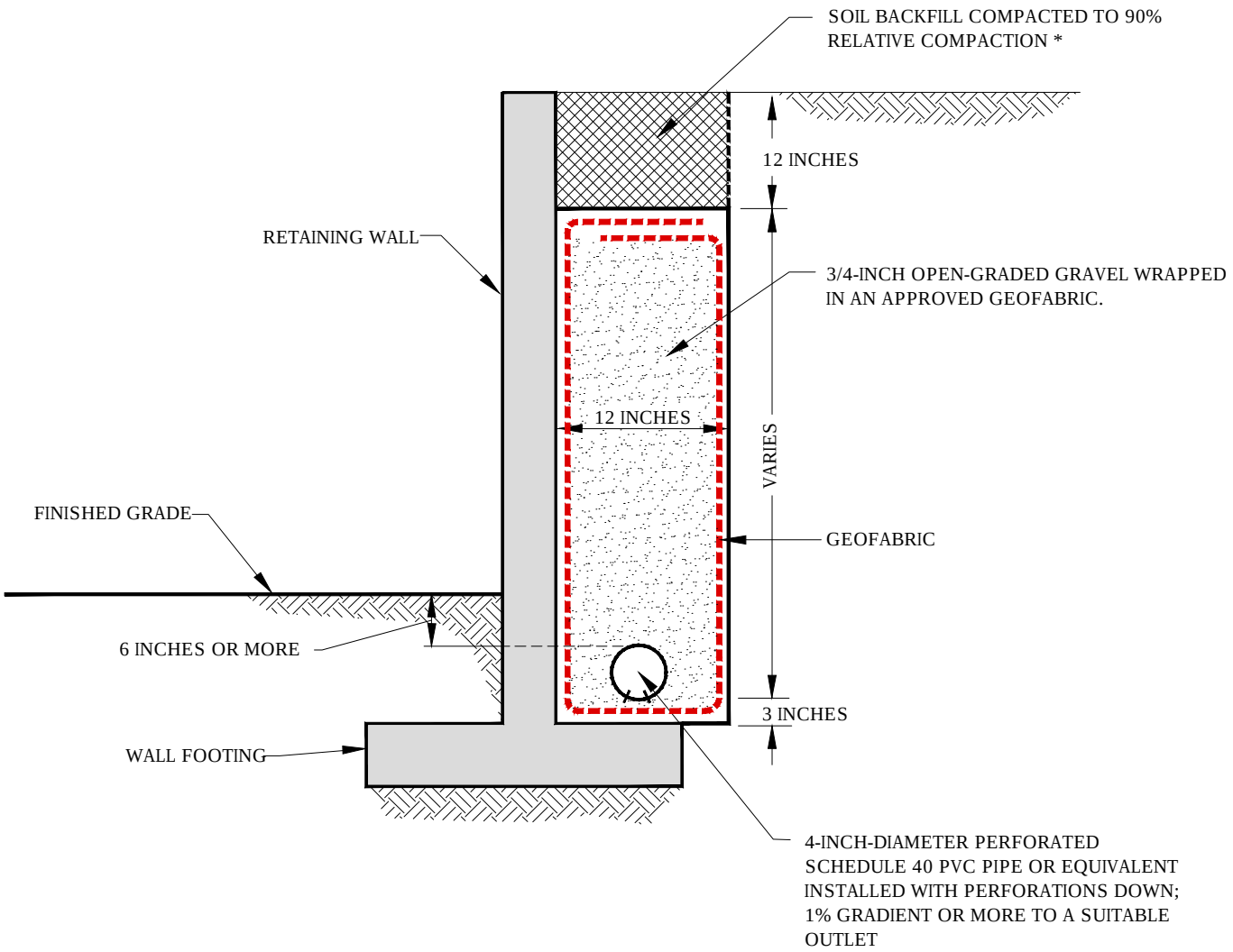
201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18




*BASED ON ASTM D1557

NOT TO SCALE

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FIGURE 10

# RETAINING WALL DRAINAGE DETAIL

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201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 I 4/18

# APPENDIX A

Boring Logs

# APPENDIX A

## BORING LOG

**Field Procedure for the Collection of Disturbed Samples**
Disturbed soil samples were obtained in the field using the following methods.

**Bulk Samples**
Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

**The Standard Penetration Test (SPT) Sampler**
Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-⅜ inches. The sampler was driven into the ground 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

**Field Procedure for the Collection of Relatively Undisturbed Samples**
Relatively undisturbed soil samples were obtained in the field using the following method.

**The Modified Split-Barrel Drive Sampler**
The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a 140-pound hammer, in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

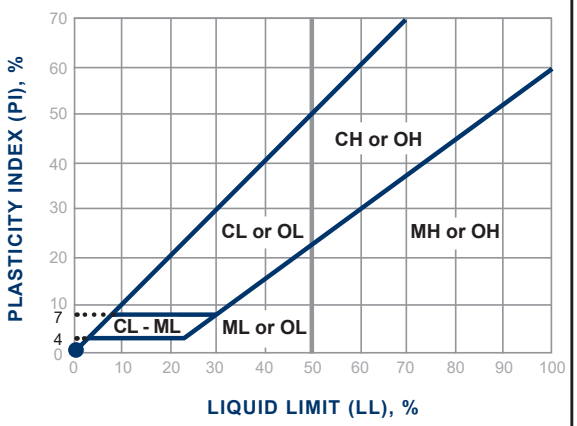
## Soil Classification Chart Per ASTM D 2488

| Primary Divisions | | | Secondary Divisions | |
|---|---|---|---|---|
| | | | Group Symbol | Group Name |
| **COARSE-GRAINED SOILS** more than 50% retained on No. 200 sieve | **GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve | CLEAN GRAVEL less than 5% fines | GW | well-graded GRAVEL |
| | | | GP | poorly graded GRAVEL |
| | | GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines | GW-GM | well-graded GRAVEL with silt |
| | | | GP-GM | poorly graded GRAVEL with silt |
| | | | GW-GC | well-graded GRAVEL with clay |
| | | | GP-GC | poorly graded GRAVEL with |
| | | GRAVEL with FINES more than 12% fines | GM | silty GRAVEL |
| | | | GC | clayey GRAVEL |
| | | | GC-GM | silty, clayey GRAVEL |
| | **SAND** 50% or more of coarse fraction passes No. 4 sieve | CLEAN SAND less than 5% fines | SW | well-graded SAND |
| | | | SP | poorly graded SAND |
| | | SAND with DUAL CLASSIFICATIONS 5% to 12% fines | SW-SM | well-graded SAND with silt |
| | | | SP-SM | poorly graded SAND with silt |
| | | | SW-SC | well-graded SAND with clay |
| | | | SP-SC | poorly graded SAND with clay |
| | | SAND with FINES more than 12% fines | SM | silty SAND |
| | | | SC | clayey SAND |
| | | | SC-SM | silty, clayey SAND |
| **FINE-GRAINED SOILS** 50% or more passes No. 200 sieve | **SILT and CLAY** liquid limit less than 50% | INORGANIC | CL | lean CLAY |
| | | | ML | SILT |
| | | | CL-ML | silty CLAY |
| | | ORGANIC | OL (PI > 4) | organic CLAY |
| | | | OL (PI < 4) | organic SILT |
| | **SILT and CLAY** liquid limit 50% or more | INORGANIC | CH | fat CLAY |
| | | | MH | elastic SILT |
| | | ORGANIC | OH (plots on or above "A"-line) | organic CLAY |
| | | | OH (plots below "A"-line) | organic SILT |
| | Highly Organic Soils | | PT | Peat |

## Grain Size

| Description | | Sieve Size | Grain Size | Approximate Size |
|---|---|---|---|---|
| Boulders | | > 12" | > 12" | Larger than basketball-sized |
| Cobbles | | 3 - 12" | 3 - 12" | Fist-sized to basketball-sized |
| Gravel | Coarse | 3/4 - 3" | 3/4 - 3" | Thumb-sized to fist-sized |
| | Fine | #4 - 3/4" | 0.19 - 0.75" | Pea-sized to thumb-sized |
| Sand | Coarse | #10 - #4 | 0.079 - 0.19" | Rock-salt-sized to pea-sized |
| | Medium | #40 - #10 | 0.017 - 0.079" | Sugar-sized to rock-salt-sized |
| | Fine | #200 - #40 | 0.0029 - 0.017" | Flour-sized to sugar-sized |
| Fines | | Passing #200 | < 0.0029" | Flour-sized and smaller |

## Plasticity Chart




## Apparent Density - Coarse-Grained Soil

| Apparent Density | Spooling Cable or Cathead | | Automatic Trip Hammer | |
|---|---|---|---|---|
| | SPT (blows/foot) | Modified Split Barrel (blows/foot) | SPT (blows/foot) | Modified Split Barrel (blows/foot) |
| Very Loose | ≤ 4 | ≤ 8 | ≤ 3 | ≤ 5 |
| Loose | 5 - 10 | 9 - 21 | 4 - 7 | 6 - 14 |
| Medium Dense | 11 - 30 | 22 - 63 | 8 - 20 | 15 - 42 |
| Dense | 31 - 50 | 64 - 105 | 21 - 33 | 43 - 70 |
| Very Dense | > 50 | > 105 | > 33 | > 70 |

## Consistency - Fine-Grained Soil

| Consis-tency | Spooling Cable or Cathead | | Automatic Trip Hammer | |
|---|---|---|---|---|
| | SPT (blows/foot) | Modified Split Barrel (blows/foot) | SPT (blows/foot) | Modified Split Barrel (blows/foot) |
| Very Soft | < 2 | < 3 | < 1 | < 2 |
| Soft | 2 - 4 | 3 - 5 | 1 - 3 | 2 - 3 |
| Firm | 5 - 8 | 6 - 10 | 4 - 5 | 4 - 6 |
| Stiff | 9 - 15 | 11 - 20 | 6 - 10 | 7 - 13 |
| Very Stiff | 16 - 30 | 21 - 39 | 11 - 20 | 14 - 26 |
| Hard | > 30 | > 39 | > 20 | > 26 |

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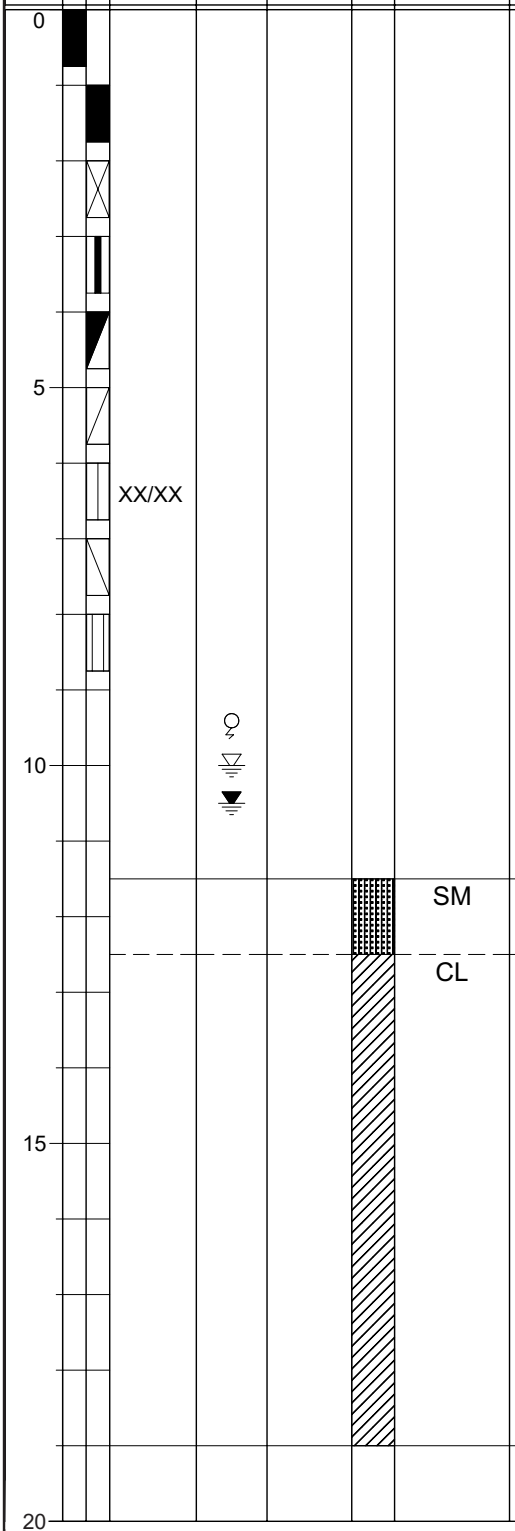
**USCS METHOD OF SOIL CLASSIFICATION**

# BORING LOG EXPLANATION SHEET




Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

MAJOR MATERIAL TYPE (SOIL):

Solid line denotes unit change.

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

DATE DRILLED 3/30/18 BORING NO. B-1

GROUND ELEVATION 175' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (ABC Liovin Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS

| DEPTH (feet) | SAMPLES Bulk | SAMPLES Driven | BLOWS/FOOT | MOISTURE (%) | DRY DENSITY (PCF) | SYMBOL | CLASSIFICATION U.S.C.S. | DESCRIPTION/INTERPRETATION |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | SM | FILL: Reddish brown, moist, medium dense, silty SAND; trace fine gravel; trace clay pockets. |
| | | | | | | | SM | ALLUVIUM: Reddish brown, moist, medium dense, silty SAND; yellowish brown mottling; trace fine gravel; trace rootlets. |
| | | | 17 | 9.0 | 100.4 | | CL | Dark grayish brown, moist, very stiff, sandy CLAY. |
| | | | | | | | SP-SM | Yellowish brown, moist, medium dense, poorly graded SAND with silt. |
| 10 | | | 16 | 5.6 | 95.7 | | | Reddish brown. |
| | | | 17 | 3.9 | 99.5 | | SP | Yellowish brown, moist, medium dense, poorly graded SAND. |
| | | | | | | | SM | Reddish brown, moist, medium dense, silty SAND. |
| 20 | | | 18 | | | | | Increasing silt content. |
| | | | | | | | CL | Reddish brown, moist, very stiff, sandy CLAY; trace gypsum. |
| | | | 11 | | | | | |
| 30 | | | 20 | | | | | Decreasing sand content. |
| 40 | | | | | | | | Total Depth = 31.5 Feet.<br>Groundwater not encountered during drilling.<br>Backfilled with on-site soil on 3/30/18.<br><br>Notes:<br>Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.<br><br>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |

**FIGURE A- 1**

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**201 EAST CHAPMAN AVENUE**
**FULLERTON, CALIFORNIA**

**209730002 | 4/18**

DATE DRILLED 3/30/18 BORING NO. B-2

GROUND ELEVATION 175' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (ABC Liovin Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS

| DEPTH (feet) | SAMPLES Bulk | SAMPLES Driven | BLOWS/FOOT | MOISTURE (%) | DRY DENSITY (PCF) | SYMBOL | CLASSIFICATION U.S.C.S. | DESCRIPTION/INTERPRETATION |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | SM | FILL: Dark grayish brown, moist, medium dense, silty SAND; trace clay pockets; trace rootlets. |
| | | | | | | | SM | ALLUVIUM: Dark grayish brown, moist, medium dense, silty SAND; trace clay pockets; trace rootlets. |
| | | | 15 | 10.5 | 98.6 | | | Reddish brown. |
| 10 | | | 15 | 4.7 | 94.9 | | SP-SM | Reddish brown, moist, medium dense, poorly graded SAND with silt. |
| | | | 17 | 4.0 | 94.7 | | SP | Reddish brown, moist, medium dense, poorly graded SAND. |
| 20 | | | 6 | | | | SM | Reddish brown, moist, loose, silty SAND; trace gravel. |
| | | | 9 | | | | CL | Reddish brown, moist, stiff, sandy CLAY. |
| | | | | | | | | Thin bed of clayey sand. |
| 30 | | | 13 | | | | | Very stiff. |
| | | | 23 | | | | | Hard. |
| 40 | | | | | | | | |

FIGURE A- 2

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Geotechnical & Environmental Sciences Consultants

201 EAST CHAPMAN AVENUE
FULLERTON, CALIFORNIA

209730002 | 4/18

DATE DRILLED 3/30/18 BORING NO. B-2

GROUND ELEVATION 175' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (ABC Liovin Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY JRS

| DEPTH (feet) | SAMPLES Bulk | SAMPLES Driven | BLOWS/FOOT | MOISTURE (%) | DRY DENSITY (PCF) | SYMBOL | CLASSIFICATION U.S.C.S. | DESCRIPTION/INTERPRETATION |
|---|---|---|---|---|---|---|---|---|
| 40 | | | 15 | | | | CL | ALLUVIUM: (Continued)<br>Reddish brown, moist, very stiff, sandy CLAY. |
| | | | 16 | | | | SM | Reddish brown, moist, medium dense, silty SAND. |
| 50 | | | 26 | | | | CH | Brown, moist, hard, CLAY; grayish brown mottling. |
| | | | 27 | | | | | Sandy clay. |
| 60 | | | 22 | | | | | |
| | | | | | | | | Total Depth = 61.5 Feet.<br>Groundwater not encountered during drilling.<br>Backfilled with on-site soils on 3/30/18.<br><br>Notes:<br>Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.<br><br>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 70 | | | | | | | | |
| 80 | | | | | | | | |

**FIGURE A- 3**

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# APPENDIX B

## Laboratory Testing

# APPENDIX B

## LABORATORY TESTING

**Classification**
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

**In-Place Moisture and Density Tests**
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

**200 Wash**
An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of these tests are presented on Figure B-1.

**Direct Shear Test**
Direct shear testing was performed on a relatively undisturbed sample in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected material. The sample was inundated during shearing to represent adverse field conditions. The results are shown on Figure B-2.

**Soil Corrosivity Tests**
Soil pH and resistivity tests were performed on a representative sample in general accordance with California Test (CT) 643. The soluble sulfate and chloride content of the selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure B-3.

| SAMPLE LOCATION | SAMPLE DEPTH (ft) | DESCRIPTION | PERCENT PASSING NO. 4 | PERCENT PASSING NO. 200 | USCS (TOTAL SAMPLE) |
|---|---|---|---|---|---|
| B-1 | 10.0-11.5 | POORLY GRADED SAND WITH SILT | 100 | 9 | SP-SM |
| B-1 | 15.0-16.5 | POORLY GRADED SAND | 96 | 3 | SP |
| B-2 | 10.0-11.5 | POORLY GRADED SAND WITH SILT | 100 | 6 | SP-SM |
| B-2 | 20.0-21.5 | SILTY SAND | 100 | 40 | SM |
| B-2 | 40.0-41.5 | SANDY CLAY | 100 | 67 | CL |
| B-2 | 45.0-46.5 | SILTY SAND | 98 | 44 | SM |
| B-2 | 50.0-51.5 | CLAY | 100 | 76 | CH |
| B-2 | 60.0-61.5 | CLAY | 100 | 97 | CH |

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

**FIGURE B-1**

**NO. 200 SIEVE ANALYSIS TEST RESULTS**

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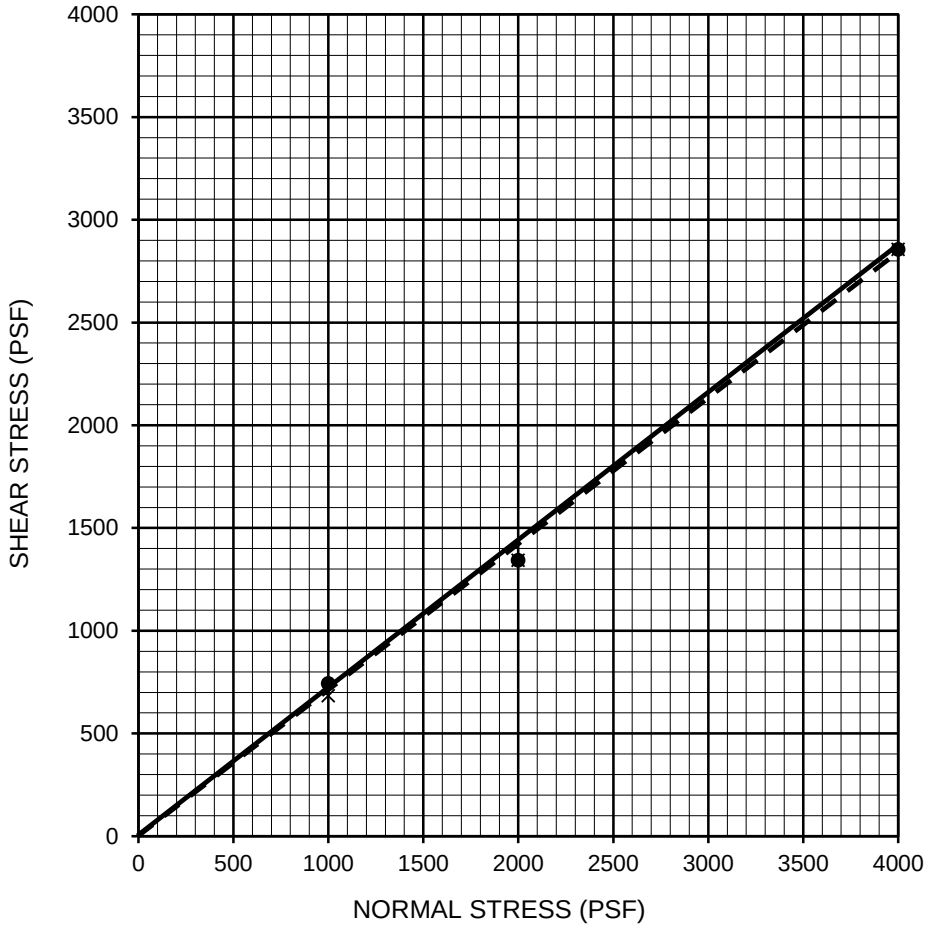


| Description | Symbol | Sample Location | Depth (ft) | Shear Strength | Cohesion (psf) | Friction Angle (degrees) | Soil Type |
|---|---|---|---|---|---|---|---|
| SILTY SAND | ●—— | B-2 | 5.0-6.5 | Peak | 0 | 35 | SM |
| SILTY SAND | – – X – – | B-2 | 5.0-6.5 | Ultimate | 0 | 36 | SM |

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

**FIGURE B-2**

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**DIRECT SHEAR TEST RESULTS**

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| SAMPLE LOCATION | SAMPLE DEPTH (ft) | pH [1] | RESISTIVITY [1] (ohm-cm) | SULFATE CONTENT [2] | | CHLORIDE CONTENT [3] (ppm) |
|---|---|---|---|---|---|---|
| | | | | (ppm) | (%) | |
| B-2 | 0.0-5.0 | 7.6 | 975 | 930 | 0.093 | 105 |

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

**FIGURE B-3**

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**CORROSIVITY TEST RESULTS**

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# APPENDIX C

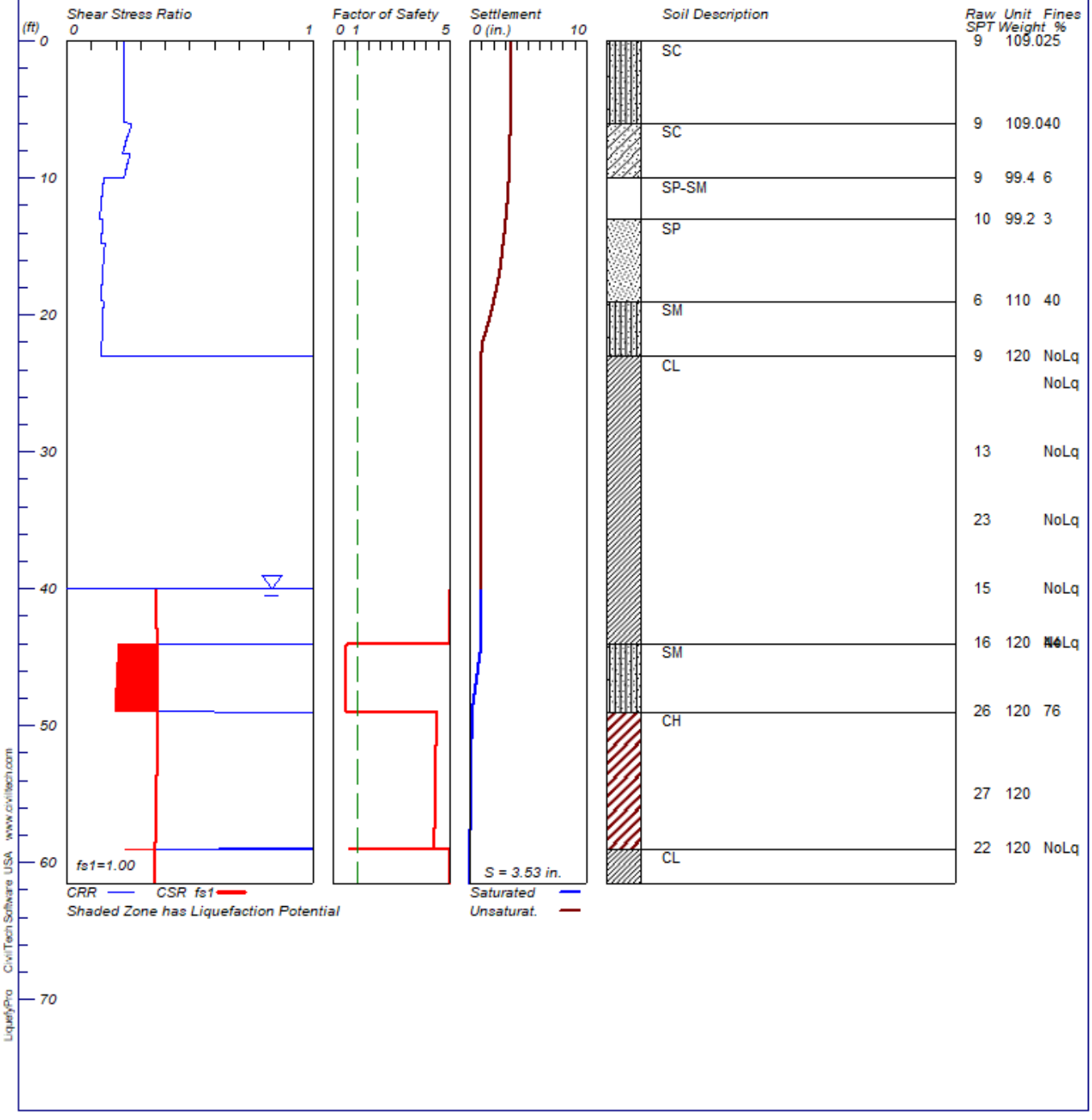
## Liquefaction Analysis

# LIQUEFACTION ANALYSIS

## 201 East Chapman

***Hole No.=B-2  Water Depth=40 ft  Surface Elev.=175***

***Magnitude=7.73***
***Acceleration=0.66g***

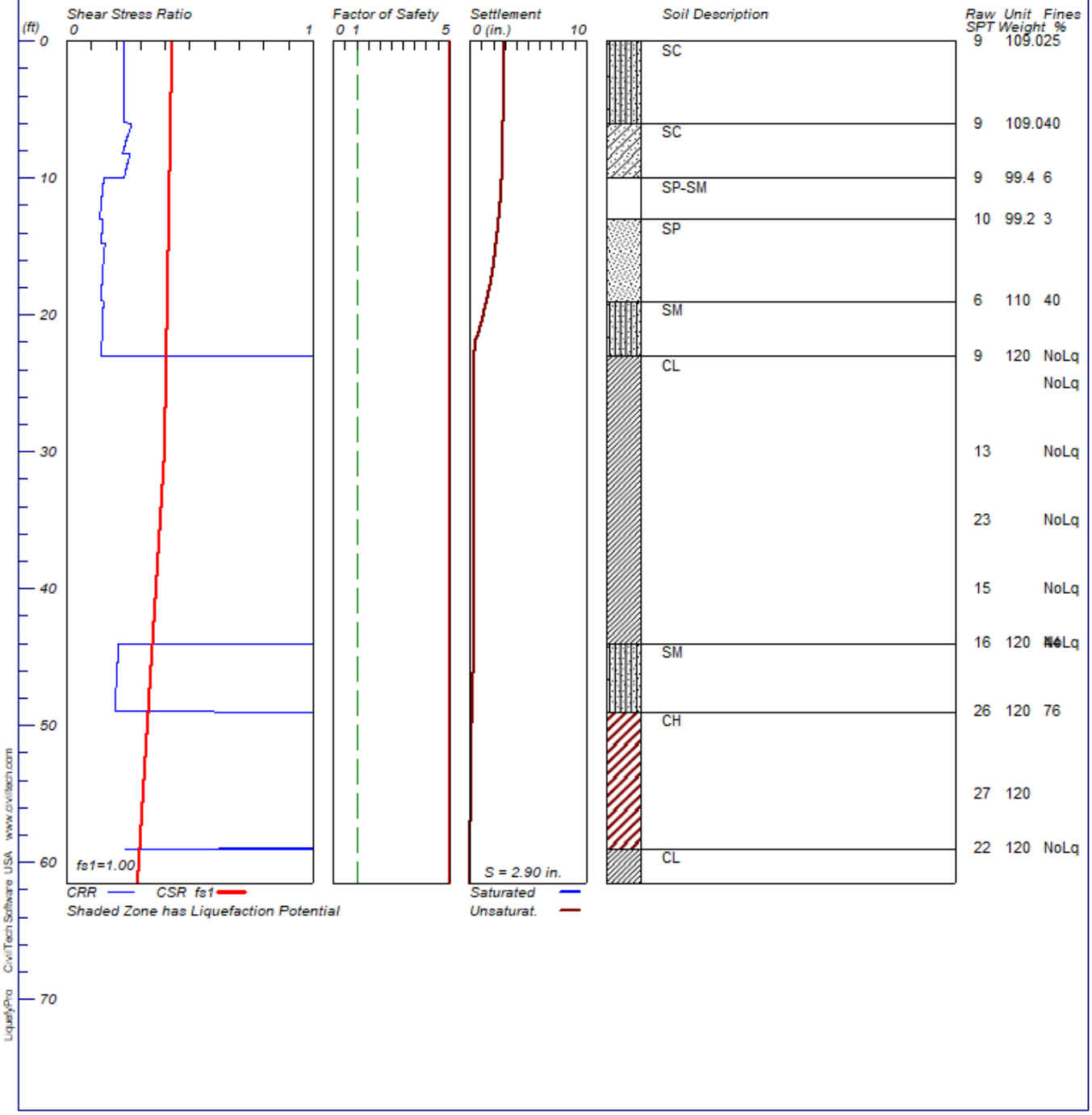


# LIQUEFACTION ANALYSIS

## 201 East Chapman

***Hole No.=B-2  Water Depth=100 ft  Surface Elev.=175***

***Magnitude=7.73***
***Acceleration=0.66g***

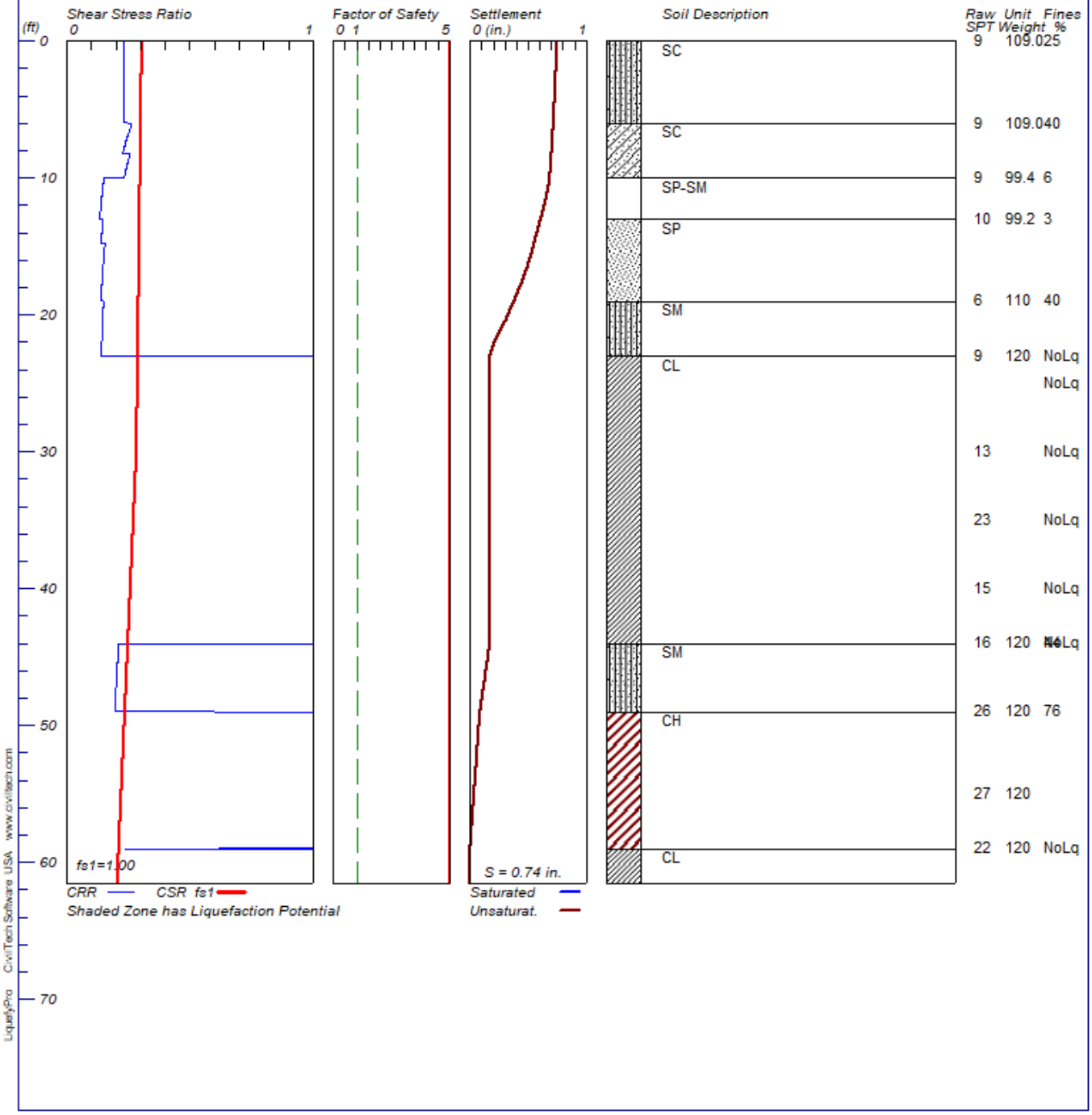


# LIQUEFACTION ANALYSIS

## 201 East Chapman

***Hole No.=B-2  Water Depth=100 ft  Surface Elev.=175***

***Magnitude=7.73***
***Acceleration=0.47g***



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