APPENDIX

Appendix A MITIGATION MONITORING AND REPORTING PROGRAM

Appendix A of this FEIR is the Mitigation Monitoring and Reporting Program (MMRP). It is designed to be a stand-alone document that can be excerpted from this FEIR for use by the City and contractors to facilitate and verify compliance with the Project mitigation measures. The MMRP, including a title page, Project overview and mitigation table detailing the reporting process, is included as follows.

McKinley Water Vault Project

Mitigation Monitoring and Reporting Program

September 2018

Prepared for:

The City of Sacramento

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Abbreviations

ADMP	Asbestos Dust Mitigation Plan
ATCM	Asbestos Airborne Toxic Control Measure
BCI	Bat Conservation International
BMPs	Best Management Practices
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
City	The City of Sacramento
DEIR	Draft Environmental Impact Report
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program
MPH	Miles Per Hour
NAHC	Native American Heritage Commission
PRC	Public Resources Code
SCADA	Supervisory Control and Data Acquisition
SFD	Sacramento Fire Department
SMAQMD	Sacramento Metropolitan Air Quality Management District
SPD	Sacramento Police Department

1.0 MITIGATION MONITORING AND REPORTING PROGRAM

1.1 INTRODUCTION

The City of Sacramento (City) completed a Draft Environmental Impact Report (DEIR) for the proposed McKinley Water Vault Project (proposed Project) on April 20, 2018. This Mitigation Monitoring and Reporting program (MMRP) was prepared pursuant to the California Environmental Quality Act (CEQA) Guidelines (Section 21081.6(a)(1)), which require a public agency to adopt a monitoring and/or reporting program to ensure compliance with mitigation measures during Project implementation. This MMRP identifies the measures from the DEIR that apply to the proposed Project as evaluated and documented in the DEIR. This MMRP identified the required mitigation and environmental compliance steps to be completed in accordance with CEQA regulations and the parties responsible for implementation and monitoring.

1.2 PROJECT DESCRIPTION

1.2.1 Project Summary

The proposed Project consists of construction and operation of the offline storage facility, inlet and outlet pipes, weir structure, flow control valves, odor control, electrical controls, and other necessary appurtenant facilities that would reduce flooding and outflows during 10-year storm events and would reduce flooding and outflows during larger storm events. The proposed Project components are shown on Figure 1.1-1 Project Footprint. The proposed Project component includes:

- A maximum constructed 300-feet wide by 350-feet long offline storage facility with a 700,000 to 1,000,000-cubic foot capacity to be operated during large storm events
- Inlet and outlet pipes connecting the offline storage facility to the existing combined sewer system that surrounds McKinley Park
- Below-ground fully-encased effluent pump station to facilitate operation of the offline storage facility
- Cabinets housing electrical and control equipment located adjacent to the offline storage facility near the baseball back stop
- A below-ground odor control facility to capture and treat odors associated with the offline storage facility
- Relocation of existing sanitary sewer and buried electrical lines traversing the storage site
- Park restoration and potential park enhancements

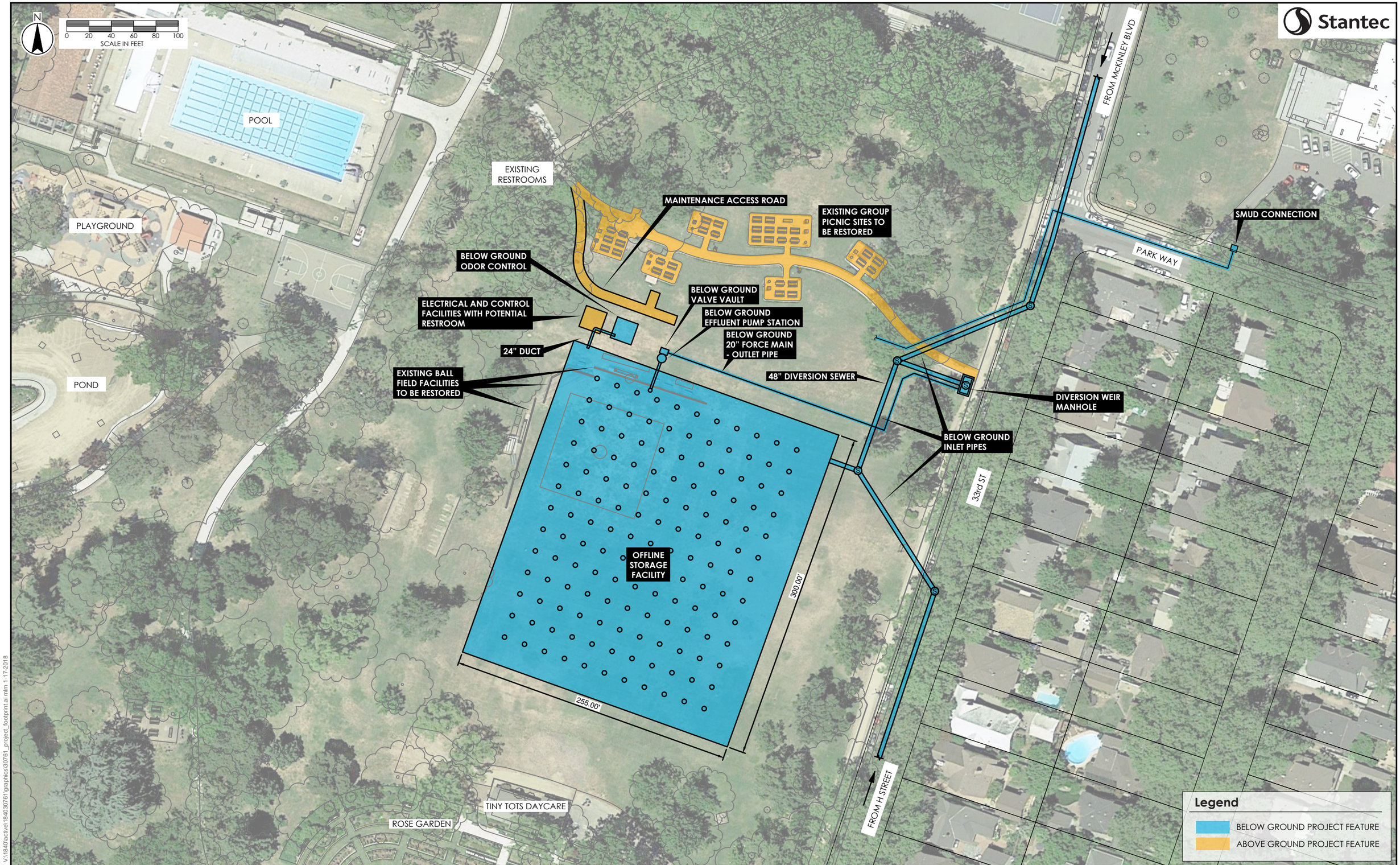

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Figure 1.1-1
Project Footprint

1.2.2 Project Location

The proposed Project area is located in the Sacramento region. Nearby regional features include Interstate Business 80 to the west and north; the American River to the north and east, the Sacramento River to the east, and Highway 50 to the South. The proposed Project is located in East Sacramento in McKinley Park (i.e. 38.575937°, -121.461068° and APN 003-0010-002) between Alhambra Boulevard, McKinley Boulevard, 33rd Street, and H Street. Utilities associated with the construction of the proposed Project may also require underground construction in 33rd Street and Park Way, which are adjacent to the Park.

1.2.3 Construction Activities and Estimated Construction Schedule

1.2.3.1 Construction Activities

Construction activities for the proposed Project would consist of the following:

Project Component	Specific Activity
Site Preparation	• On-Site Construction Access and Staging Areas • Vegetation and Potential Tree Removal • Park Recreation Access
Offline Storage Facility Construction	• Dewatering • Excavation • Installation • Site Rehabilitation

1.2.3.2 Construction Schedule

The preliminary Project schedule incorporates mobilization, construction, testing, and completion of the proposed Project within a two-year period. The work week is anticipated to occur Monday through Friday seven am to six pm. Weekend work or extended hours may be necessary due to weather limitations or certain construction activities. Work on Saturdays, if necessary, would occur seven am to six pm. Work on Sundays, if necessary, would be limited to the hours of nine am to six pm. Construction activities would occur simultaneously where feasible. The offline storage facility excavation and installation is the largest single activity and is estimated to occur over approximately 12 months.

1.3 PROCEDURES FOR MONITORING AND REPORTING

The City will be responsible for mitigation measure implementation oversight and compliance documentation. Under the oversight of the City staff, mitigation actions required prior to and during construction will be performed by the City's Consultants, the Construction Contractors, and/or the City Staff.

Monitoring and reporting procedures will conform to the following steps prior to and during Project construction and operations:

Step 1 Action: This step will be executed by the City, and may be designated by the City Project Manager to a Consultant and/or Contractor. All actions taken as part of this MMRP will be documented monthly and reported quarterly to the City, as described in Steps 2 and 3 below. The designee responsible for implementation of mitigation measures will:

- Review mitigation status reports and any other information generated during
- construction;
- Ensure that the mitigation measures in the MMRP are undertaken, either by Staff,
- Contractors, or Consultants; and
- Verify monthly that mitigation actions are properly undertaken.

Step 2 Monitoring: This step will be executed by the Monitor. The Monitor will be designated by the City Project Manager and may be a consultant to the City. The Monitor will investigate noncompliance allegations and identify, if appropriate, how the City staff or its designees should correct implementation of the measure. If a measure is under control of the Contractor, the Monitor will inform the Contractor of the Monitor's determination and request improved implementation, with appropriate notice to the City.

The Monitor will have the following responsibilities:

- Be knowledgeable in the mitigation that is to be monitored; and
- Verify implementation of mitigation by:
  - Verifying in the field that required implementation has been properly executed during and after construction; and
  - Contacting the Project Manager and requesting that the situation be remedied if mitigation is not being implemented or executed properly.

Step 3 Reporting: This step will be executed by the Monitor. The Monitor will have the following responsibilities:

- Compile all mitigation status reports into a Report of Compliance. Recommendations may include updating the frequency of monitoring, changing the type of monitoring, and suggesting better ways to implement mitigation;
- Assist the City Project Manager in reviewing Contractor's implementation of mitigation requirements, detailing corrective action and time of completion to resolve any issues that are raised; and
- Keep all completed report and statements on file at the City office.

1.4 CEQA MITIGATION MEASURES

Table 1-1 below describes the mitigation measures included in the proposed Project. For each mitigation measure the required action, responsible party, implementation timing, and reporting requirements are described.

Table 1-1 Summary of the McKinley Water Vault Project Mitigation Measures

Mitigation Measure	Responsible Party	Monitoring Timing	Monitoring and Reporting Program	Standards for Success
Aesthetics				
Mitigation Measure AES-1: Restoration or Enhancements of Disturbed Areas Post construction, roads, paths, and staging areas that are damaged by construction activities shall be restored to pre-construction conditions by the City of Sacramento or its contractor. Restoration may include repairing, repaving, re-graveling, or grading disturbed areas. Staging areas and other non-road areas would be revegetated following City Department of Youth, Parks, and Community Enrichment standards. The City shall follow compliance with the City's tree ordinance for removal of City trees.	The City shall document pre-construction Project area conditions to provide a basis for restoration by the City's contractor.	Prior to any ground disturbance, the City shall document Project acre conditions pre-construction to provide a basis for restoration. Post construction, the City's contractor shall restore the Project area to existing conditions as practically as possible. A post construction compliance report shall be completed post restoration.	The City shall monitor implementation of the mitigation measure prior to and after construction. Pre-construction and post-restoration memorandums including photographic documentation shall be prepared to document pre-construction conditions and post-construction success.	Restoration of Project area to pre-construction conditions as practically as possible and revegetation with native species.
Mitigation Measure AES-2: Select Colors and Finishes for Above Ground Elements Which Blend with their Existing Visual Environment The above ground facilities including the electrical control facility shall be designed to blend with the existing facilities such as the Clunie center within McKinley Park. Where improvements occur at existing facilities, the proposed Project shall be required to use colors and finishes which are the same as or complementary to the existing visual environment.	The City of Sacramento.	Prior to any ground disturbance and permits authorizing construction and prior to authorization of substantial completion of construction	The plans issued for construction shall be required to indicate material finishes and color selections and the City of Sacramento shall be required to verify that the selections have been made in conformance with this mitigation measure. Following construction, the City of Sacramento staff shall confirm the contractor has performed construction in conformance with the plans through visual verification.	Improvements blend with their existing visual environment and follow City architectural standards.
Mitigation Measure AES-3: Use of Best Management Practices to Minimize Lighting Impacts from Construction and Operation The following best management practices (BMPs) shall be implemented to ensure minimal adverse impacts to nighttime views for adjacent sensitive receptors. These BMPs shall apply to the construction activities and staging areas implemented by the contractor during construction. BMPs shall include, but are not limited to: • Identify when/where lighting is needed and confine/minimize lighting to the extent necessary to meet safety purposes. • Choose light fixtures that direct light downward and which shield direct lighting from sensitive receptor to the maximum extent feasible. • Select warm color temperature bulbs (less than 5000K). • Utilize "shut off" controls such as sensors, timers, and motion detectors, etc. where appropriate. • Limit the height of fixtures to minimize the amount of light crossing property lines and overall light levels. • Utilize temporary lighting shields during construction where construction lighting impacts to sensitive receptors cannot be avoided	The City of Sacramento.	All phases including design, construction, and operation.	The Project Electrical Engineer shall prepare the design plans in conformance with this mitigation measure.	Lighting impacts are reduced to a less than significant level for all sensitive receptors adjacent to the proposed Project.

Air Quality				
Mitigation Measure AIR-1: Prepare a Construction Emission and Dust Control Plan The City of Sacramento shall require that the selected contractor prepare and implement a project Construction Emission and Dust Control Plan prior to construction that complies with the Sacramento Metropolitan Air Quality Management District (SMAQMD) rules and policies as well as the goals and policies of the general plans associated with the propose Project. The Constriction Emissions and Dust Control Plan shall at a minimum include: • Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible track out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (MPH). • All roadways, driveways, sidewalks parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, section 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated. If asbestos containing materials are found to occur in the irrigation pipelines within the Project area, the appropriate state and local regulations would be followed in order to prevent airborne exposure to the public or the environment. Specifically, Rule 902, which is regulated and enforced by the Sacramento Metropolitan Air Quality Management District, would be followed to prevent dust emissions which may include asbestos. Additionally, the California Air Resources Board (CARB) Asbestos Airborne Toxic Control Measure (ATCM) shall be followed for any naturally occurring asbestos that could potentially be in the Project area. The ATCM requires that either an Asbestos Dust Mitigation Plan (ADMP) be developed for the Project or a Geologic Evaluation be conducted to test out of the ATCM requirements. These rules, in conjuncture with the other provisions in this mitigation measure, would effectively reduce the potential for airborne emissions of asbestos. Prior to approval of Grading or Improvement Plans (whichever occurs first), the City shall submit a Construction Emission and Dust Control Plan to the SMAQMD. If the SMAQMD does not respond within twenty (20) days of the plan being accepted as complete, the plan shall be considered approved. The City	The City of Sacramento would require that the Contractor prepare and implement a Construction Emissions and Dust Control Plan to mitigate equipment exhaust emissions during all phases of construction activities that generate dust.	An Emissions and Dust Control Program must be prepared and approved by the City of Sacramento and the SMAQMD prior to start of construction and implemented during all phases of construction activities that generate dust.	During construction, regular inspections shall be performed by a City of Sacramento representative and reports shall be kept on file by the City of Sacramento for inspection by the SMAQMD, or other interested parties.	Visible emissions and dust (Specifically NO_x, Ozone, and PM) are kept to the lowest practicable level. The goal is to minimize dust and emissions during construction and to the extent feasible, complaints from the public.

shall not break ground prior to receiving SMAQMD approval, of the Construction Emission and Dust Control Plan, and delivering that approval to the City.				
Biological Resources				
Mitigation Measure BIO-1: Avoid and Protect Maternal and Roosting Bats Prior to tree removal or demolition activities, a qualified wildlife biologist appointed by the City shall conduct a focused survey for roosting hoary bats and potential roosting sites within the proposed Project area. The surveys can be conducted by visual identification and/or can be identified using echo location instruments, as needed. • If no roosting bats are found, no further mitigation is required. • If roosting hoary bats are found, then the following mitigation measures shall be implemented: – If bats are found roosting outside of nursery season (approximately May 1 through September 30), then they shall be excluded. Exclusion of bats shall be conducted using bat exclusion techniques, developed by Bat Conservation International (BCI) and in consultation with appropriate regulatory agency. – If bats are found roosting during the nursery season, then they shall be monitored to determine if the roost site is a maternal roost. This could occur by either visual inspection of the roost for bat pups, if possible, or monitoring the roost after the adults leave for the night to listen for bat pups. – If the roost is determined to be a maternal roost, then eviction cannot occur during the nursery season. A 250-foot exclusion buffer zone (or buffer as determined by the appropriate regulatory agency and/or qualified wildlife biologist) shall be established around the roosting site within which no construction or tree removal shall occur. – If the roost is determined to not be a maternal roost, then the bats shall be excluded as described above. – If any roosts are lost due to proposed Project activities, further mitigation shall be initiated and completed by the City in consultation with a qualified wildlife biologist and/or the appropriate regulatory/ conservation agency to ensure the loss is compensated and no further loss occurs.	The City shall ensure that a qualified wildlife biologist conducts a pre-construction focused roosting bat survey.	If construction begins during nursery season (approximately May 1 through September 30) one survey shall be conducted within one week of initiating the proposed Project.	The survey shall be conducted by a qualified wildlife biologist and a brief file-copy memo documenting survey results shall be kept on-file with the City. If roosting bats are identified, mitigation and monitoring shall follow the appropriate regulatory agency requirements.	The hoary bat shall not be negatively impacted or disturbed during nursery season due to the proposed Project activities.
Mitigation Measure BIO-2: Avoid Disturbance of Nesting Special-Status and Non-Special Status Migratory Birds and Raptors The City will implement one of the following measures, depending on the specific construction timeframe, to avoid disturbing both nesting special-status and non-special-status migratory birds and/or raptors. • If construction activities are scheduled to occur during the nesting season for these species (generally between February 15 and August 31), a qualified wildlife biologist will be retained to conduct the following focused nesting survey within the proposed Project area: – Nesting surveys will be conducted within the proposed Project area, and all potential nesting habitat, within 250 feet of this area; or – The surveys should be conducted within one week before initiation of construction activities, at any time between February 15 and August 31. If no active nests are detected, then no additional mitigation is required; – If surveys indicate that migratory bird nests are found in any areas that would be directly affected by construction activities, a no-disturbance	The City will ensure that a qualified wildlife biologist conducts pre-construction nesting surveys.	One nesting survey will be conducted within one week of initiating the proposed Project, should the proposed Project occur between February 15 and August 31.	The survey will be conducted by a qualified wildlife biologist and a brief survey file-copy memo documenting results will be kept on file with the City.	Special-status species and migratory bird nests will not be disturbed during proposed Project activities.

buffer will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a wildlife biologist determines that the young have fledged (i.e., usually late June to mid-July). The extent of these buffers will be determined by a wildlife biologist and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors shall be analyzed to make an appropriate decision on buffer distances. • If construction activities begin before the breeding season (i.e., begin between August 31 and February 14) (pre-existing construction), then construction can proceed until it is determined that an active migratory bird nest would be subject to abandonment because of construction activities. If any bird nest is in the proposed Project vicinity under pre-existing construction conditions, then it is assumed that they are habituated (or will habituate) to the construction activities. Under this scenario, the pre-construction survey described previously should still be conducted on or after February 15 to identify any active nests in the vicinity. Active sites should be monitored by a wildlife biologist periodically until after the breeding season or after the young have fledged (i.e., usually late June to mid-July). If active nests are identified on or immediately adjacent to the proposed Project site, then all nonessential construction activities (e.g., equipment storage and meetings) should be avoided in the immediate vicinity of the nest site, but the remainder of construction activities may proceed.				
Mitigation Measure BIO-3: Avoid and Minimize Impacts to Tree Species The City adopts regulations to protect and minimize impacts to tree species (e.g., oaks, city trees, heritage trees). To avoid and minimize impacts to tree species in the proposed Project area, the following mitigation is required: • The proposed Project design shall be done to avoid and minimize impacts to trees to the maximum extent feasible. The location of all trees to be retained shall be shown on all site plans (e.g., site grading, drainage, and utility plans). • Prior to the commencement of any construction activities associated with the proposed Project (i.e., removal, trimming, work within the tree protection zone), a City Tree Permit shall be obtained as needed. Pursuant to City Ordinance, a tree permit shall be obtained before regulated work is performed on City trees or private protected trees. • To protect and minimize impacts to trees prior to, during, and after construction, the following standard BMPs are recommended within the proposed Project area: – Retain a qualified arborist for the proposed Project, as needed and/or as specified by the City; – Ensure that tree protection measures, as specified by the City and the proposed Project arborist, are written into construction specifications; – Following final design and approval, trees that have the potential to be impacted should be tagged with the corresponding identification numbers documented prior to construction; – Limit access routes to the proposed project when feasible; – Erect fencing and signage around trees to be preserved (i.e., typically one foot per inch diameter, although to the dripline standard);	The City ensure avoid and minimization of tree species within the proposed Project area, including in access and staging areas.	Prior to and during construction.	The City Tree Permit shall be obtained prior to proposed Project activities. Monitoring and reporting requirements with the City Tree Permit shall be completed by the City.	Obtain and adhere to a City Tree Permit.

– During construction, avoid damage to tree trunk and crown. Manage soil by avoiding excessive soil compaction and additional fill dirt, unless permitted; – Have the proposed Project arborist on site during tree removal, trenching, digging, etc. to prevent root loss, root damage, structural damage, and to maintain tree and soil health; and – Photograph and collect relative information corresponding with trees within the proposed Project area during each proposed Project stage as a measure for monitoring, or as instructed by the City.				
Cultural and Tribal Resources				
Mitigation Measure CUL-1: Proper Handling of Inadvertent Discovery of Cultural and Paleontological Resources If archaeological resources and/or human remains are encountered during construction, compliance with federal and State regulations and guidelines regarding the treatment of cultural resources and/or human remains shall be required. 1. If prehistoric or historic-period archaeological resources are encountered during project implementation, all construction activities within 100-feet shall halt and the City shall be notified. 2. A qualified archaeologist, defined as one meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, shall inspect the findings within 24-hours of discovery and report the results of the inspection to the City. 3. If the identified archaeological resource is determined to be prehistoric, the City and qualified archaeologist shall coordinate with and solicit input from the appropriate Native American Tribal Representatives regarding significance and treatment of the resource as a Tribal Cultural Resource. Any Tribal Cultural Resources discovered during project work shall be treated in consultation with the tribe, with the goal of preserving in place with proper treatment. 4. If the City determines that the resource qualifies as a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines) and that the project has potential to damage or destroy the resource, mitigation shall be implemented in accordance with PRC Section 21083.2 and CEQA Guidelines Section 15126.4. Consistent with CEQA Guidelines Section 15126.4(b)(3), mitigation shall be accomplished through either preservation in place or, if preservation in place is not feasible, data recovery through excavation. 5. If preservation in place is feasible, this may be accomplished through one of the following means: (1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource before building appropriate facilities on the resource site; or (4) deeding resource site into a permanent conservation easement. 6. If avoidance or preservation in place is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan to recover the scientifically consequential information from and about the resource, which shall be reviewed and approved by the City prior to any excavation at the resource site. 7. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2, including creation of a treatment plan. Treatment for most resources would consist of (but would not be not	The City would ensure the appropriate treatment for any discovery of cultural, tribal, or paleontological resources during construction.	During all ground disturbing activities.	If any find is determined to be significant, representatives of the City and a qualified archaeologist or paleontologist (if a paleontological resource is discovered) would meet to determine the appropriate avoidance measures or other appropriate mitigation.	The proper recoding, evaluation, and treatment of any newly identified cultural or paleontological resources.

limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals. 8. In the event of discovery or recognition of any human remains during Project implementation, Project construction activities within 100-feet of the find shall cease until the Sacramento County Coroner has been contacted to determine that no investigation of the cause of death is required. If the County Coroner determines the remains are of Native American origin, they shall contact the Native American Heritage Commission (NAHC) to identify the MLD. The MLD shall be asked to make a recommendation to the landowner for treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resources Code Section 5097.98. The City shall comply with requirements identified by the NAHC for the appropriate means of treating the human remains and any associated funerary objects (CEQA Guidelines Section 15064.5[d]). 9. If discovery is made of items of paleontological interest, the contractor shall immediately cease all work activities in the vicinity (within approximately 100-feet) of the discovery. After cessation of excavation the contractor shall immediately contact the City. The contractor shall not resume work until authorization is received from the City. Any inadvertent discovery of paleontological resources during construction shall be evaluated by a qualified paleontologist. If it is determined that the project could damage a unique paleontological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If avoidance is not feasible, the paleontologist shall develop a treatment plan in consultation with the City.				
Mitigation Measure CUL-2: Worker Awareness Training A preconstruction training session conducted by a qualified archaeologist and paleontologist shall be held for all construction personnel and staff performing excavation activities on the Project site. Training materials shall address procedures to be followed and appropriate conduct to be adhered to if unanticipated archaeological materials are encountered during the Project work. All construction personnel involved in earth moving activities shall attend preconstruction training in person prior to the start of construction. Training shall include: the purpose of archaeological monitoring; how to identify archaeological resources (including Tribal Cultural Resources); how to respond to the discovery of a potential resource; and how to maintain proper discovery records and adhere to professional protocols during construction.	The City, in conjunction with a qualified archaeologist, shall ensure that all construction staff have received the appropriate training prior to any ground disturbing activities.	Prior to construction.	Presentation of training, which may include a packet, flier, or formal PowerPoint presentation.	Completion of appropriate cultural resources training prior to construction activities.
Mitigation Measure CUL-3: Proper Handling of Inadvertent Discovery of Human Remains If human remains are encountered, work shall halt in the vicinity and the County Coroner shall be notified immediately pursuant to PRC Section 7050.5. At the same time, an archaeologist shall be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of this identification. The NAHC shall identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American. The MLD shall have an opportunity to make a	The City and County Coroner would ensure the appropriate treatment for any discovery of any human remains during construction.	During all ground disturbing activities.	The recording and evaluation of any newly identified human remains shall be conducted by qualified professional archaeologists and a report shall be kept on file at the City office.	The proper recording, evaluation, and treatment of any newly identified human remains.

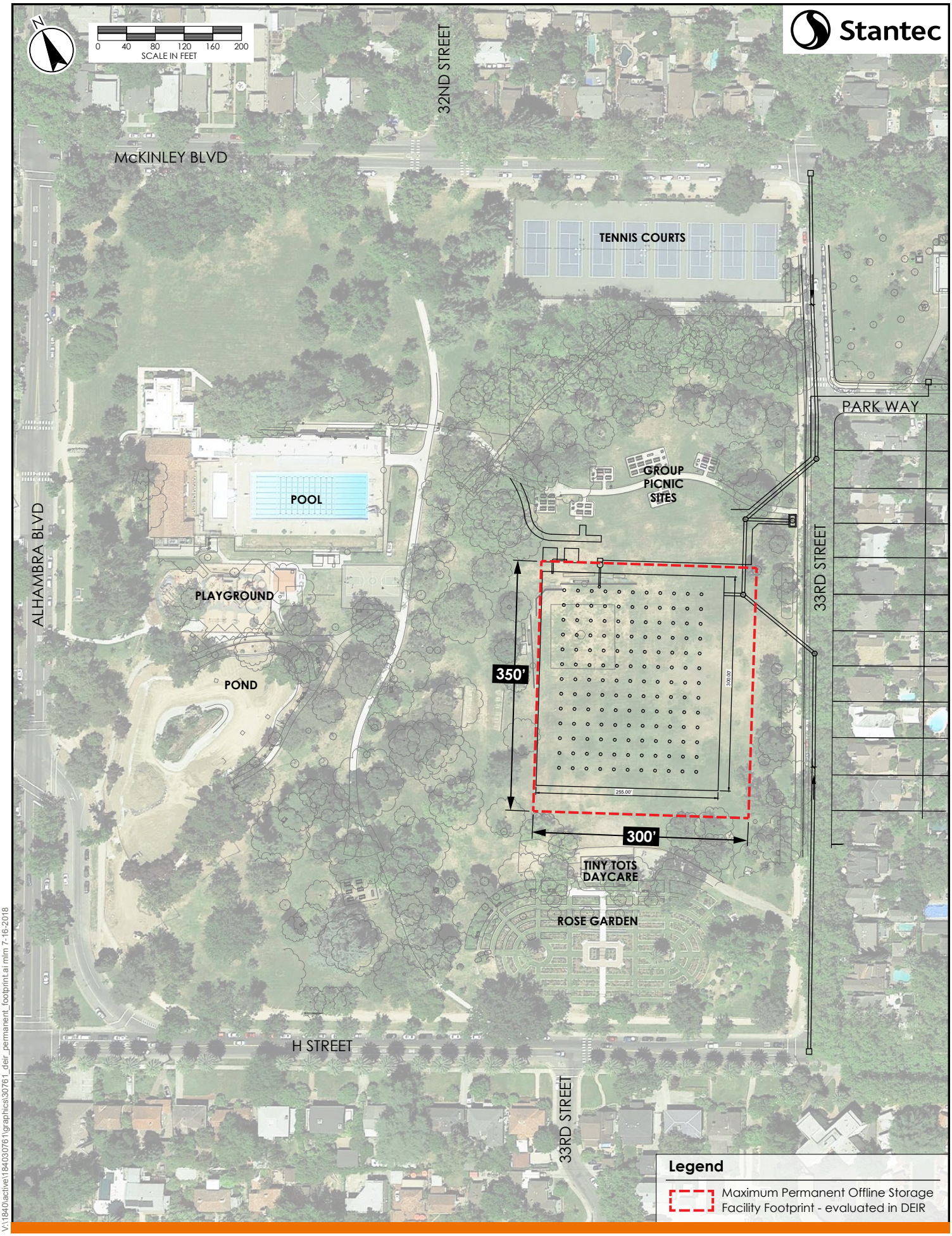
recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98.				
Geology and Soils				
Mitigation Measure GEO-1: Prepare an Erosion Control Prevention Plan in Accordance with City Standards The construction contractor shall be required to comply with the City of Sacramento's Administrative and Technical Procedures Manual for Grading and Erosion and Sediment Control and develop and Erosion Control Plan to reduce the risk of substantial soil erosion or loss of topsoil. The Erosion Control Plan shall identify appropriate BMPs to prevent erosion or soil loss from the proposed Project site. These measures shall include the implementation of construction staging in a manner that minimizes the amount of area disturbed at any one time; secondary containment for storage of fuel and oil; and the management of stockpiles and disturbed areas by means of earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate. The Plan shall also meet post-construction performance standards to ensure the post construction site is stabilized appropriately.	The City of Sacramento required the Contractor prepare and implement the Erosion Control and Prevention Plan in accordance with City standards.	During and post-construction.	Evaluation of the Erosion Control and Prevention Plan shall be conducted by the City both during and post-construction.	Adherence to all applicable conditions and no substantial erosion or topsoil loss during or post-construction.
Mitigation Measure GEO-2: Conduct a Site-Specific Geotechnical Investigation Before construction begins, a geotechnical investigation shall take place of the Project site soils in order to determine the feasibility of constructability of the proposed Project. The geotechnical investigation shall include at a minimum the characteristics of the Project site soils including: • Subsurface soil and groundwater conditions; • Limitations of the investigation; and • Summarization or any laboratory results, water level measurements, or other factual data.	The City of Sacramento.	Prior to construction.	A site-specific Geotechnical Report of the site shall be conducted prior to construction.	Completion of the Geotechnical Report determining appropriate design requirements to limit risk of structural failure.
Hazards and Hazardous Materials				
Mitigation Measure HAZ-1: Proper Handling and Disposal of Asbestos Containing Materials If asbestos containing materials are found within the Project area, the City shall require that the selected contractor follow the applicable procedures outlined in the Sacramento Metropolitan Air Quality Management District Rule 902 relating to the proper handling and disposal of asbestos. Additionally, the City shall require the selected contractor follow the provisions in the California Code of Regulations, Title 8, which is enforced by the Division of Occupational Safety and Health, for worker safety when handling asbestos.	The City shall require that the contractor follow the applicable State and federal regulations regarding asbestos containing building materials. The City shall be responsible for ensuring that all applicable rules and procedures are implemented if asbestos is found.	The appropriate procedures shall be followed during construction if asbestos is found to occur within the Project area.	During construction, regular inspections shall be performed by a City representative and reports shall be kept on file by the City for inspection by the Sacramento Metropolitan Air Quality Management District or other interested parties.	Reduced exposure potential of construction workers and the public to asbestos.
Hydrology and Water Quality				
Mitigation Measure HYD-1: Spill Prevention and Contingency Plan Prior to construction, the contractor shall develop a Spill Prevention and Contingency Plan in compliance with the City's Erosion and Sediment Control ordinances and with the City's Design Manual for the Project to avoid or minimize potential impacts from construction material release. The plan shall include, but would not be limited to, the following:	The City shall require the construction contractor develop the Spill Prevention and Contingency Plan for all activities in the vicinity of drainages. This mitigation measure shall be referenced in	The Plan shall be implemented prior to and during all phases of construction.	Evaluation of the Spill Prevention and Contingency Plan shall be conducted by the City. Reports of spills shall be documented and kept on file at the project site and the City office.	Prevention of construction material spills in drainages near the Project area.

• Containment and cleanup equipment (e.g., absorbent pads, mats, socks, granules, drip pans, shovels, and lined clean drums) shall be at the staging areas and construction site for use, as needed; • Construction equipment shall be maintained and kept in good operating condition to reduce the likelihood of line breaks or leakage; • No refueling or servicing shall be done without absorbent material (e.g. absorbent pads, mats, socks, pillows, and granules) or drip pans underneath to contain spilled material. If these activities result in an accumulation of materials on the soil, the soil shall be removed and properly disposed of as hazardous waste; • If a spill is detected, construction activity shall cease immediately, and the procedures described in the Spill Prevention and Contingency Plan shall be immediately enacted to safely contain and remove spilled materials; • Spill areas shall be restored to pre-spill conditions, as practicable; and • Spills shall be documented and reported to the City and appropriate resource agency personnel.	the plans and specifications bid for the proposed Project.			
Transportation and Traffic				
Mitigation Measure TRANS-1: Prepare and Implement a Traffic Control Plan The selected construction contractor and/or the City of Sacramento shall prepare and implement a traffic control plan to the satisfaction of City Traffic Engineer. The plan shall ensure that acceptable operating conditions on local roadways, freeway facilities, and bicycle and pedestrian facilities are maintained. At a minimum, the plan shall include: • Description of trucks including: number and size of trucks per day, expected arrival/departure times, truck circulation patterns. • Description of staging area including: location, maximum number of trucks simultaneously permitted in staging area, use of traffic control personnel, specific signage. • Description of street closures and/or bicycle and pedestrian facility closures including: duration, advance warning and posted signage, safe and efficient access routes for emergency vehicles, and use of manual traffic control. • Description of driveway access plan including: provisions for safe vehicular, pedestrian, and bicycle travel, minimum distance from any open trench, special signage, and maintained residential vehicle accesses. • The traffic control plan shall contain detailed measures to ensure acceptable levels of traffic flow. Close coordination with the City through the Traffic Control Plan process shall reduce the significance levels to less than significant.	The City of Sacramento shall ensure the selected contractor appropriately prepares and implements the traffic control plan in accordance with all applicable guidelines and the requirements of this mitigation measure.	Prior to and during construction.	The City of Sacramento shall monitor and coordinate with the contractor at least monthly to ensure that the traffic control plan is implemented successfully, and the traffic control plan shall remain on file at the City of Sacramento Office.	Traffic flow remains at acceptable levels, emergency access remains reasonably possible at all times, and the Project area remains in compliance with all applicable transportation goals, policies, and requirements.
Mitigation Measure TRANS-2: Inform the Public and Emergency Service Agencies of Lane Closures and Detours The City shall inform the public, neighboring schools, and emergency services agencies such as the Sacramento Fire Department (SFD) and the Sacramento Police Department (SPD) of scheduled lane closures and/or detours through public outreach such as public meetings and postings in the local newspapers. Proper signage shall be used to direct traffic as identified through the traffic control plan. Unanticipated lane closures and detours may also occur as a result of the proposed Project. These closures shall be minimized to the maximum extent feasible and both the public and the emergency services agencies shall be informed as soon as possible.	The City of Sacramento.	Prior to and during construction.	The City shall monitor implementation of the mitigation measure during construction.	Safe, efficient travel in the project vicinity with minimal traffic delays and minimal to no public complaints.

Appendix B DEIR PERMANENT FOOTPRINT FIGURE AND 90 PERCENT DESIGN DRAWINGS

B.1 DEIR Permanent Footprint Figure
B.2 90 Percent Design Drawings Approximate Tree Removal Locations

B.1 DEIR PERMANENT FOOTPRINT FIGURE

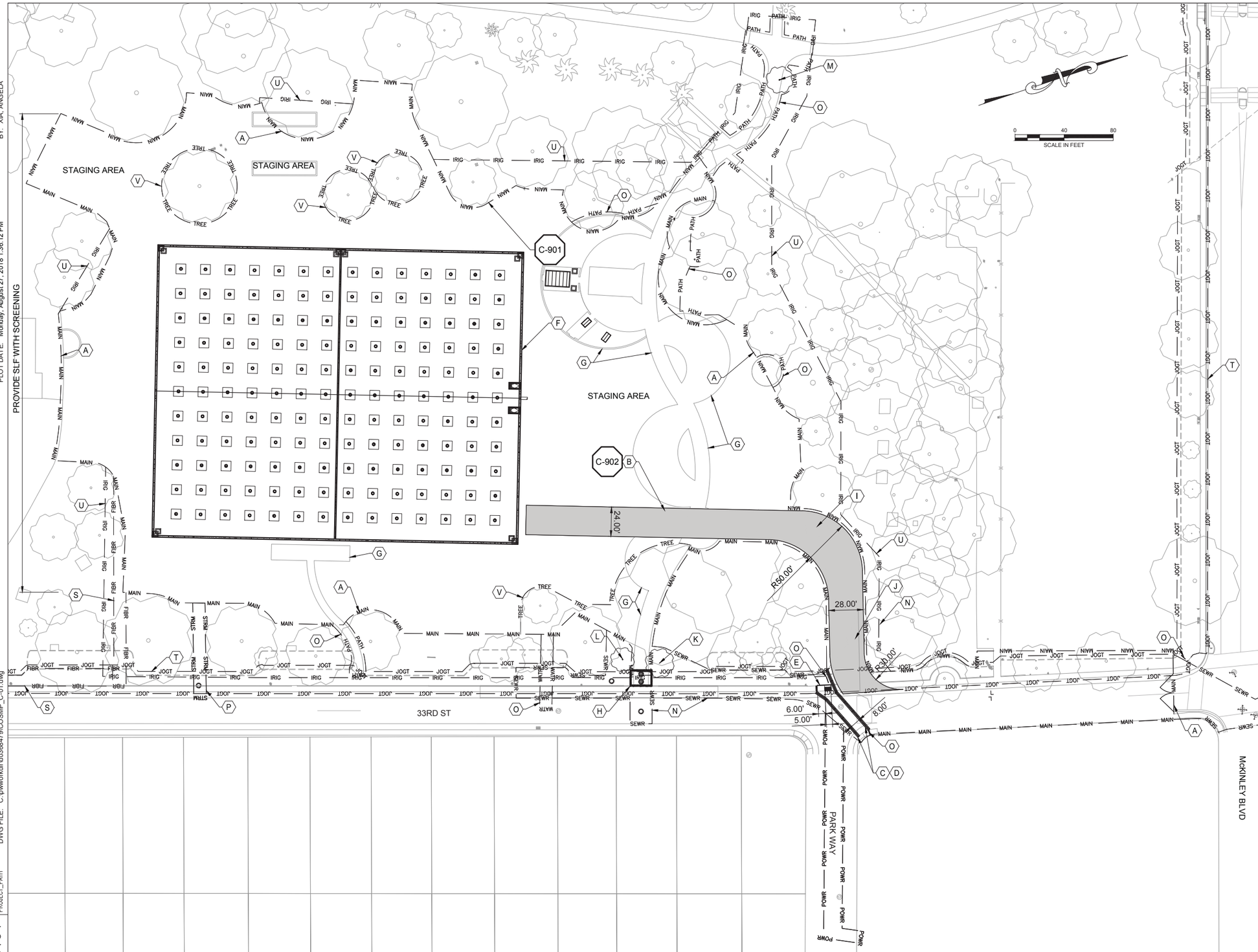


V:\1840\active\184030761\graphics\30761_deir_permanent_footprint.ai mlm 7-16-2018

Appendix B

DEIR Permanent Footprint

B.2 90 PERCENT DESIGN DRAWINGS APPROXIMATE TREE REMOVAL LOCATIONS



GENERAL SHEET NOTES

1. SITE ACCESS SHALL BE FROM 33RD ST AT THE INTERSECTION OF 33RD ST AND PARK WAY.
2. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A PLAN FOR PROTECTING EXISTING TREE ROOTS. ANY/ALL CONSTRUCTION ACTIVITIES OCCURRING BENEATH AN EXISTING TREE'S DRIPLINE REQUIRES CONSULTATION WITH CITY URBAN FORESTRY DEPARTMENT PRIOR TO COMMENCEMENT OF ANY WORK.
3. FOR TEMPORARY FENCE DRIVE LINE POSTS 2' INTO THE GROUND, MINIMUM. INSTALL CONCRETE EMBEDDED POSTS AT CORNERS AND GATES.
4. INSTALL FABRIC AT SOUTH END OF SITE ONLY.

SHEET KEYNOTES

A. PRIMARY CONSTRUCTION FENCELINE, PER C-101, C-102 AND C-103. LINETYPE (MAIN), TYP.
B. TEMPORARY CONSTRUCTION ACCESS ROAD PER C-902.
C. TEMPORARY TRAFFIC BARRIER.
D. CONTRACTOR SHALL PROVIDE A PEDESTRIAN WALKWAY SEPARATED FROM TRAFFIC TO REROUTE THE EXISTING JOGGING PATH AROUND CONSTRUCTION AREA.
E. CONTRACTOR SHALL PROVIDE TEMPORARY HANDICAP RAMP SIMILAR TO CITY STANDARD DETAILS T-71 AND T-78, ADAPTED FOR STRAIGHT RUN CONDITION.
F. OFF-LINE STORAGE STRUCTURE, SEE STRUCTURAL DRAWINGS.
G. WALKWAYS THROUGH RESTROOM AND PICNIC AREA.
H. 33RD STREET DIVERSION STRUCTURE.
I. REMOVE TREE NO. 83, LONDON PLANE TREE. SEE ARBORIST REPORT.
J. REMOVE TREE NO. 74, CRAPE MYRTLE. SEE ARBORIST REPORT.
K. REMOVE TREE NO. 71, SAWLEAF ZELKOVA. SEE ARBORIST REPORT. NO REMOVAL UNTIL DIVERSION CONSTRUCTION.
L. REMOVE TREE NO. 115, SAWLEAF ZELKOVA. SEE ARBORIST REPORT NO REMOVAL UNTIL DIVERSION CONSTRUCTION.
M. REMOVE TREE NO. 17, CALIFORNIA COAST REDWOOD. SEE ARBORIST REPORT. NO REMOVAL UNTIL PATH CONSTRUCTION.
N. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR CONCRETE PATHWAY AND THE DIVERSION STRUCTURE. LINETYPE (SEWR), TYP.
O. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR WATER LINE CONNECTION. LINETYPE (WATR), TYP.
P. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR STORM WATER CONNECTION. LINETYPE (STRM), TYP.
Q. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR SMUD POWER SERVICE. LINETYPE (POWR), TYP.
R. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR DEMOLITION AND/OR CONSTRUCTION OF SITE CONCRETE PATHWAYS. LINETYPE (PATH), TYP.
S. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR CONSTRUCTION OF FIBER CONNECTION. LINETYPE (FIBR), TYP.
T. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR CONSTRUCTION OF JOGGING TRAIL. LINETYPE (JOGT), TYP.
U. SECONDARY CONSTRUCTION FENCING AS NEEDED FOR CONSTRUCTION OF IRRIGATION. LINETYPE (IRIG), TYP. SEE IRRIGATION PLANS.
V. TREE PROTECTION FENCING. SEE DETAIL AND TREE PROTECTION NOTES. LINETYPE (TREE), TYP.

BY: XIA, ANGELA
PLOT DATE: Monday, August 27, 2018 1:36:12 PM
DWG FILE: C:\pwworkdir\d0368479\COSMP_C-01.dwg
PROJECT NAME
PROJECT_PATH

PN: X14010104

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ELEV:
DESCRIPTION: BENCH_MARK#

FIELD BOOK

SCALE:
H: 1" = 40'
V: NO SCALE

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: A. XIA
DATE: AUG 2018
DESIGNED BY: R. RUCKER
R.C.E. NO. _____ DATE: AUG 2018
CHECKED BY: G. TRIEBEL
R.C.E. NO. _____ DATE: AUG 2018

Stantec

90% DESIGN
NOT FOR CONSTRUCTION

IMPROVEMENT PLANS FOR: McKINLEY WATER VAULT

CIVIL
PARK ACCESS AND PROTECTION PLAN

WATER DRAWING NO. S-1-???
GIS GRID NO. DD17
PN: X14010104
DWG. NO. C-1
SHEET 18 OF 122

Appendix C UPDATED CALEEMOD RESULTS

C.1 CalEEMod results with the same inputs as the DEIR with updated version 2016.3.2
C.2 CalEEMod results based on updated design parameters and updated version 2016.3.2

C.1 CALEEMOD RESULTS WITH THE SAME INPUTS AS THE DEIR WITH UPDATED VERSION 2016.3.2

McKinley_2016.3.2

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	217.80	1000sqft	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Non-default based on PD

Off-road Equipment - Non-default based on PD

Off-road Equipment -

Off-road Equipment - Non-default based on PD

Off-road Equipment -

Grading - Non-default based on PD

Trips and VMT - Non-default based on PD

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	8.00	260.00
tblConstructionPhase	NumDays	8.00	110.00
tblConstructionPhase	NumDays	5.00	60.00
tblConstructionPhase	NumDays	230.00	65.00
tblConstructionPhase	PhaseEndDate	6/24/2019	3/27/2020
tblConstructionPhase	PhaseEndDate	8/6/2018	8/29/2020
tblConstructionPhase	PhaseEndDate	7/25/2018	3/29/2019
tblConstructionPhase	PhaseStartDate	8/7/2018	3/30/2019
tblConstructionPhase	PhaseStartDate	7/26/2018	3/30/2020
tblConstructionPhase	PhaseStartDate	7/19/2018	1/7/2019
tblGrading	AcresOfGrading	55.00	4.00
tblGrading	AcresOfGrading	130.00	0.00
tblGrading	MaterialExported	0.00	85,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	10,625.00	4,722.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	36.00	1.00
tblTripsAndVMT	WorkerTripNumber	10.00	18.00
tblTripsAndVMT	WorkerTripNumber	91.00	18.00

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	0.3606	4.2306	2.2002	5.2200e-003	1.0161	0.1849	1.2010	0.5402	0.1702	0.7103	0.0000	479.3904	479.3904	0.1117	0.0000	482.1823
2020	0.2906	3.0822	2.0274	4.0400e-003	0.5784	0.1472	0.7256	0.2999	0.1362	0.4361	0.0000	358.2178	358.2178	0.0943	0.0000	360.5739
Maximum	**0.3606**	**4.2306**	**2.2002**	**5.2200e-003**	**1.0161**	**0.1849**	**1.2010**	**0.5402**	**0.1702**	**0.7103**	**0.0000**	**479.3904**	**479.3904**	**0.1117**	**0.0000**	**482.1823**

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	0.3606	4.2306	2.2002	5.2200e-003	1.0161	0.1849	1.2010	0.5402	0.1702	0.7103	0.0000	479.3900	479.3900	0.1117	0.0000	482.1819
2020	0.2906	3.0822	2.0274	4.0400e-003	0.5784	0.1472	0.7256	0.2999	0.1362	0.4361	0.0000	358.2174	358.2174	0.0943	0.0000	360.5735
Maximum	**0.3606**	**4.2306**	**2.2002**	**5.2200e-003**	**1.0161**	**0.1849**	**1.2010**	**0.5402**	**0.1702**	**0.7103**	**0.0000**	**479.3900**	**479.3900**	**0.1117**	**0.0000**	**482.1819**

	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)
3	**12-21-2018**	**3-20-2019**	0.8263	0.8263
4	**3-21-2019**	**6-20-2019**	1.1918	1.1918
5	**6-21-2019**	**9-20-2019**	1.2079	1.2079
6	**9-21-2019**	**12-20-2019**	1.2019	1.2019
7	**12-21-2019**	**3-20-2020**	1.1288	1.1288
8	**3-21-2020**	**6-20-2020**	0.9431	0.9431
9	**6-21-2020**	**9-20-2020**	0.8844	0.8844
10	**9-21-2020**	**9-30-2020**	0.0769	0.0769
		Highest	1.2079	1.2079

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Energy	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	1,378.0193	1,378.0193	0.0515	0.0166	1,384.2613
Mobile	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479
Waste						0.0000	0.0000		0.0000	0.0000	54.8218	0.0000	54.8218	3.2399	0.0000	135.8186
Water						0.0000	0.0000		0.0000	0.0000	17.8197	73.0057	90.8253	0.0646	0.0394	104.1928
Total	**1.3654**	**2.0117**	**4.8613**	**0.0162**	**1.1828**	**0.0416**	**1.2244**	**0.3172**	**0.0408**	**0.3579**	**72.6414**	**2,733.0220**	**2,805.6634**	**3.4182**	**0.0561**	**2,907.8264**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Energy	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	1,378.0193	1,378.0193	0.0515	0.0166	1,384.2613
Mobile	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479
Waste						0.0000	0.0000		0.0000	0.0000	54.8218	0.0000	54.8218	3.2399	0.0000	135.8186
Water						0.0000	0.0000		0.0000	0.0000	17.8197	73.0057	90.8253	0.0646	0.0394	104.1928
Total	**1.3654**	**2.0117**	**4.8613**	**0.0162**	**1.1828**	**0.0416**	**1.2244**	**0.3172**	**0.0408**	**0.3579**	**72.6414**	**2,733.0220**	**2,805.6634**	**3.4182**	**0.0561**	**2,907.8264**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/7/2019	3/29/2019	5	60	
2	Grading	Grading	3/30/2020	8/29/2020	5	110	
3	Excavation	Grading	3/30/2019	3/27/2020	5	260	
4	Building Construction	Building Construction	8/31/2020	11/27/2020	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Excavation	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Building Construction	Generator Sets	1	8.00	84	0.74
Excavation	Graders	1	8.00	187	0.41
Excavation	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

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
Building Construction	9	18.00	1.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	6	15.00	1.00	4,722.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0820	0.8647	0.3952	7.0000e-004		0.0447	0.0447		0.0411	0.0411	0.0000	62.7574	62.7574	0.0199	0.0000	63.2538
Total	**0.0820**	**0.8647**	**0.3952**	**7.0000e-004**	**0.3613**	**0.0447**	**0.4060**	**0.1986**	**0.0411**	**0.2397**	**0.0000**	**62.7574**	**62.7574**	**0.0199**	**0.0000**	**63.2538**

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	2.1800e-003	1.5300e-003	0.0166	4.0000e-005	3.9700e-003	3.0000e-005	4.0000e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.6254	3.6254	1.1000e-004	0.0000	3.6282
Total	**2.1800e-003**	**1.5300e-003**	**0.0166**	**4.0000e-005**	**3.9700e-003**	**3.0000e-005**	**4.0000e-003**	**1.0500e-003**	**3.0000e-005**	**1.0800e-003**	**0.0000**	**3.6254**	**3.6254**	**1.1000e-004**	**0.0000**	**3.6282**

3.2 Site Preparation - 2019

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					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0820	0.8647	0.3952	7.0000e-004		0.0447	0.0447		0.0411	0.0411	0.0000	62.7574	62.7574	0.0199	0.0000	63.2538
Total	**0.0820**	**0.8647**	**0.3952**	**7.0000e-004**	**0.3613**	**0.0447**	**0.4060**	**0.1986**	**0.0411**	**0.2397**	**0.0000**	**62.7574**	**62.7574**	**0.0199**	**0.0000**	**63.2538**

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	2.1800e-003	1.5300e-003	0.0166	4.0000e-005	3.9700e-003	3.0000e-005	4.0000e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.6254	3.6254	1.1000e-004	0.0000	3.6282
Total	**2.1800e-003**	**1.5300e-003**	**0.0166**	**4.0000e-005**	**3.9700e-003**	**3.0000e-005**	**4.0000e-003**	**1.0500e-003**	**3.0000e-005**	**1.0800e-003**	**0.0000**	**3.6254**	**3.6254**	**1.1000e-004**	**0.0000**	**3.6282**

3.3 Grading - 2020

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					0.3333	0.0000	0.3333	0.1823	0.0000	0.1823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1336	1.4512	0.8829	1.6300e-003		0.0700	0.0700		0.0644	0.0644	0.0000	143.3231	143.3231	0.0464	0.0000	144.4820
Total	**0.1336**	**1.4512**	**0.8829**	**1.6300e-003**	**0.3333**	**0.0700**	**0.4034**	**0.1823**	**0.0644**	**0.2467**	**0.0000**	**143.3231**	**143.3231**	**0.0464**	**0.0000**	**144.4820**

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	3.0700e-003	2.0800e-003	0.0228	6.0000e-005	6.0600e-003	4.0000e-005	6.1000e-003	1.6100e-003	4.0000e-005	1.6500e-003	0.0000	5.3686	5.3686	1.5000e-004	0.0000	5.3724
Total	**3.0700e-003**	**2.0800e-003**	**0.0228**	**6.0000e-005**	**6.0600e-003**	**4.0000e-005**	**6.1000e-003**	**1.6100e-003**	**4.0000e-005**	**1.6500e-003**	**0.0000**	**5.3686**	**5.3686**	**1.5000e-004**	**0.0000**	**5.3724**

3.3 Grading - 2020

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					0.3333	0.0000	0.3333	0.1823	0.0000	0.1823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1336	1.4512	0.8829	1.6300e-003		0.0700	0.0700		0.0644	0.0644	0.0000	143.3229	143.3229	0.0464	0.0000	144.4818
Total	**0.1336**	**1.4512**	**0.8829**	**1.6300e-003**	**0.3333**	**0.0700**	**0.4034**	**0.1823**	**0.0644**	**0.2467**	**0.0000**	**143.3229**	**143.3229**	**0.0464**	**0.0000**	**144.4818**

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	3.0700e-003	2.0800e-003	0.0228	6.0000e-005	6.0600e-003	4.0000e-005	6.1000e-003	1.6100e-003	4.0000e-005	1.6500e-003	0.0000	5.3686	5.3686	1.5000e-004	0.0000	5.3724
Total	**3.0700e-003**	**2.0800e-003**	**0.0228**	**6.0000e-005**	**6.0600e-003**	**4.0000e-005**	**6.1000e-003**	**1.6100e-003**	**4.0000e-005**	**1.6500e-003**	**0.0000**	**5.3686**	**5.3686**	**1.5000e-004**	**0.0000**	**5.3724**

3.4 Excavation - 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					0.6020	0.0000	0.6020	0.3274	0.0000	0.3274	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2542	2.7923	1.6049	2.9200e-003		0.1376	0.1376		0.1266	0.1266	0.0000	262.4263	262.4263	0.0830	0.0000	264.5020
Total	**0.2542**	**2.7923**	**1.6049**	**2.9200e-003**	**0.6020**	**0.1376**	**0.7396**	**0.3274**	**0.1266**	**0.4540**	**0.0000**	**262.4263**	**262.4263**	**0.0830**	**0.0000**	**264.5020**

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	0.0158	0.5558	0.1345	1.4200e-003	0.0375	2.3400e-003	0.0398	0.0101	2.2400e-003	0.0123	0.0000	138.3165	138.3165	8.2200e-003	0.0000	138.5221
Vendor	4.7000e-004	0.0121	3.6900e-003	2.0000e-005	5.8000e-004	9.0000e-005	6.6000e-004	1.7000e-004	8.0000e-005	2.5000e-004	0.0000	2.3452	2.3452	1.5000e-004	0.0000	2.3489
Worker	5.9700e-003	4.2000e-003	0.0453	1.1000e-004	0.0109	8.0000e-005	0.0109	2.8900e-003	7.0000e-005	2.9600e-003	0.0000	9.9196	9.9196	3.1000e-004	0.0000	9.9273
Total	**0.0222**	**0.5721**	**0.1835**	**1.5500e-003**	**0.0489**	**2.5100e-003**	**0.0514**	**0.0131**	**2.3900e-003**	**0.0155**	**0.0000**	**150.5812**	**150.5812**	**8.6800e-003**	**0.0000**	**150.7982**

3.4 Excavation - 2019

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					0.6020	0.0000	0.6020	0.3274	0.0000	0.3274	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2542	2.7923	1.6049	2.9200e-003		0.1376	0.1376		0.1266	0.1266	0.0000	262.4260	262.4260	0.0830	0.0000	264.5017
Total	**0.2542**	**2.7923**	**1.6049**	**2.9200e-003**	**0.6020**	**0.1376**	**0.7396**	**0.3274**	**0.1266**	**0.4540**	**0.0000**	**262.4260**	**262.4260**	**0.0830**	**0.0000**	**264.5017**

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	0.0158	0.5558	0.1345	1.4200e-003	0.0375	2.3400e-003	0.0398	0.0101	2.2400e-003	0.0123	0.0000	138.3165	138.3165	8.2200e-003	0.0000	138.5221
Vendor	4.7000e-004	0.0121	3.6900e-003	2.0000e-005	5.8000e-004	9.0000e-005	6.6000e-004	1.7000e-004	8.0000e-005	2.5000e-004	0.0000	2.3452	2.3452	1.5000e-004	0.0000	2.3489
Worker	5.9700e-003	4.2000e-003	0.0453	1.1000e-004	0.0109	8.0000e-005	0.0109	2.8900e-003	7.0000e-005	2.9600e-003	0.0000	9.9196	9.9196	3.1000e-004	0.0000	9.9273
Total	**0.0222**	**0.5721**	**0.1835**	**1.5500e-003**	**0.0489**	**2.5100e-003**	**0.0514**	**0.0131**	**2.3900e-003**	**0.0155**	**0.0000**	**150.5812**	**150.5812**	**8.6800e-003**	**0.0000**	**150.7982**

3.4 Excavation - 2020

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					0.1985	0.0000	0.1985	0.1056	0.0000	0.1056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0765	0.8312	0.5057	9.3000e-004		0.0401	0.0401		0.0369	0.0369	0.0000	82.0851	82.0851	0.0266	0.0000	82.7488
Total	**0.0765**	**0.8312**	**0.5057**	**9.3000e-004**	**0.1985**	**0.0401**	**0.2386**	**0.1056**	**0.0369**	**0.1425**	**0.0000**	**82.0851**	**82.0851**	**0.0266**	**0.0000**	**82.7488**

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	4.4000e-003	0.1644	0.0371	4.5000e-004	0.0324	5.9000e-004	0.0330	8.2200e-003	5.6000e-004	8.7900e-003	0.0000	43.7719	43.7719	2.5400e-003	0.0000	43.8355
Vendor	1.2000e-004	3.5300e-003	9.9000e-004	1.0000e-005	1.8000e-004	2.0000e-005	2.0000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.7453	0.7453	4.0000e-005	0.0000	0.7464
Worker	1.7600e-003	1.1900e-003	0.0131	3.0000e-005	3.4700e-003	2.0000e-005	3.5000e-003	9.2000e-004	2.0000e-005	9.5000e-004	0.0000	3.0747	3.0747	9.0000e-005	0.0000	3.0769
Total	**6.2800e-003**	**0.1691**	**0.0512**	**4.9000e-004**	**0.0360**	**6.3000e-004**	**0.0367**	**9.1900e-003**	**6.0000e-004**	**9.8100e-003**	**0.0000**	**47.5920**	**47.5920**	**2.6700e-003**	**0.0000**	**47.6589**

3.4 Excavation - 2020

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					0.1985	0.0000	0.1985	0.1056	0.0000	0.1056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0765	0.8312	0.5057	9.3000e-004		0.0401	0.0401		0.0369	0.0369	0.0000	82.0850	82.0850	0.0266	0.0000	82.7487
Total	**0.0765**	**0.8312**	**0.5057**	**9.3000e-004**	**0.1985**	**0.0401**	**0.2386**	**0.1056**	**0.0369**	**0.1425**	**0.0000**	**82.0850**	**82.0850**	**0.0266**	**0.0000**	**82.7487**

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	4.4000e-003	0.1644	0.0371	4.5000e-004	0.0324	5.9000e-004	0.0330	8.2200e-003	5.6000e-004	8.7900e-003	0.0000	43.7719	43.7719	2.5400e-003	0.0000	43.8355
Vendor	1.2000e-004	3.5300e-003	9.9000e-004	1.0000e-005	1.8000e-004	2.0000e-005	2.0000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.7453	0.7453	4.0000e-005	0.0000	0.7464
Worker	1.7600e-003	1.1900e-003	0.0131	3.0000e-005	3.4700e-003	2.0000e-005	3.5000e-003	9.2000e-004	2.0000e-005	9.5000e-004	0.0000	3.0747	3.0747	9.0000e-005	0.0000	3.0769
Total	**6.2800e-003**	**0.1691**	**0.0512**	**4.9000e-004**	**0.0360**	**6.3000e-004**	**0.0367**	**9.1900e-003**	**6.0000e-004**	**9.8100e-003**	**0.0000**	**47.5920**	**47.5920**	**2.6700e-003**	**0.0000**	**47.6589**

3.5 Building Construction - 2020

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	0.0689	0.6236	0.5476	8.7000e-004		0.0363	0.0363		0.0341	0.0341	0.0000	75.2732	75.2732	0.0184	0.0000	75.7323
Total	**0.0689**	**0.6236**	**0.5476**	**8.7000e-004**		**0.0363**	**0.0363**		**0.0341**	**0.0341**	**0.0000**	**75.2732**	**75.2732**	**0.0184**	**0.0000**	**75.7323**

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	1.2000e-004	3.6400e-003	1.0200e-003	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.7690	0.7690	5.0000e-005	0.0000	0.7701
Worker	2.1800e-003	1.4800e-003	0.0162	4.0000e-005	4.3000e-003	3.0000e-005	4.3300e-003	1.1400e-003	3.0000e-005	1.1700e-003	0.0000	3.8068	3.8068	1.1000e-004	0.0000	3.8095
Total	**2.3000e-003**	**5.1200e-003**	**0.0172**	**5.0000e-005**	**4.4900e-003**	**5.0000e-005**	**4.5400e-003**	**1.1900e-003**	**5.0000e-005**	**1.2400e-003**	**0.0000**	**4.5758**	**4.5758**	**1.6000e-004**	**0.0000**	**4.5796**

3.5 Building Construction - 2020

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	0.0689	0.6236	0.5476	8.7000e-004		0.0363	0.0363		0.0341	0.0341	0.0000	75.2732	75.2732	0.0184	0.0000	75.7323
Total	**0.0689**	**0.6236**	**0.5476**	**8.7000e-004**		**0.0363**	**0.0363**		**0.0341**	**0.0341**	**0.0000**	**75.2732**	**75.2732**	**0.0184**	**0.0000**	**75.7323**

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	1.2000e-004	3.6400e-003	1.0200e-003	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.7690	0.7690	5.0000e-005	0.0000	0.7701
Worker	2.1800e-003	1.4800e-003	0.0162	4.0000e-005	4.3000e-003	3.0000e-005	4.3300e-003	1.1400e-003	3.0000e-005	1.1700e-003	0.0000	3.8068	3.8068	1.1000e-004	0.0000	3.8095
Total	**2.3000e-003**	**5.1200e-003**	**0.0172**	**5.0000e-005**	**4.4900e-003**	**5.0000e-005**	**4.5400e-003**	**1.1900e-003**	**5.0000e-005**	**1.2400e-003**	**0.0000**	**4.5758**	**4.5758**	**1.6000e-004**	**0.0000**	**4.5796**

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	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479
Unmitigated	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,518.07	287.50	148.10	3,171,102	3,171,102
Total	1,518.07	287.50	148.10	3,171,102	3,171,102

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
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

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	961.8127	961.8127	0.0435	9.0000e-003	965.5813
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	961.8127	961.8127	0.0435	9.0000e-003	965.5813
NaturalGas Mitigated	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800
NaturalGas Unmitigated	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800

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					
General Light Industry	7.79942e+006	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800
Total		**0.0421**	**0.3823**	**0.3212**	**2.2900e-003**		**0.0291**	**0.0291**		**0.0291**	**0.0291**	**0.0000**	**416.2067**	**416.2067**	**7.9800e-003**	**7.6300e-003**	**418.6800**

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					
General Light Industry	7.79942e+006	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800
Total		**0.0421**	**0.3823**	**0.3212**	**2.2900e-003**		**0.0291**	**0.0291**		**0.0291**	**0.0291**	**0.0000**	**416.2067**	**416.2067**	**7.9800e-003**	**7.6300e-003**	**418.6800**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	3.3062e+006	961.8127	0.0435	9.0000e-003	965.5813
Total		**961.8127**	**0.0435**	**9.0000e-003**	**965.5813**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	3.3062e+006	961.8127	0.0435	9.0000e-003	965.5813
Total		**961.8127**	**0.0435**	**9.0000e-003**	**965.5813**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Unmitigated	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003

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	0.1010					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8506					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Total	**0.9518**	**3.0000e-005**	**2.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.4100e-003**	**5.4100e-003**	**1.0000e-005**	**0.0000**	**5.7600e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1010					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8506					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Total	**0.9518**	**3.0000e-005**	**2.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.4100e-003**	**5.4100e-003**	**1.0000e-005**	**0.0000**	**5.7600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	90.8253	0.0646	0.0394	104.1928
Unmitigated	90.8253	0.0646	0.0394	104.1928

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	50.3663 / 0	90.8253	0.0646	0.0394	104.1928
Total		**90.8253**	**0.0646**	**0.0394**	**104.1928**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	50.3663 / 0	90.8253	0.0646	0.0394	104.1928
Total		**90.8253**	**0.0646**	**0.0394**	**104.1928**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	54.8218	3.2399	0.0000	135.8186
Unmitigated	54.8218	3.2399	0.0000	135.8186

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	270.07	54.8218	3.2399	0.0000	135.8186
Total		**54.8218**	**3.2399**	**0.0000**	**135.8186**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	270.07	54.8218	3.2399	0.0000	135.8186
Total		**54.8218**	**3.2399**	**0.0000**	**135.8186**

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

McKinley_2016.3.2

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	217.80	1000sqft	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Non-default based on PD

Off-road Equipment - Non-default based on PD

Off-road Equipment -

Off-road Equipment - Non-default based on PD

Off-road Equipment -

Grading - Non-default based on PD

Trips and VMT - Non-default based on PD

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	8.00	260.00
tblConstructionPhase	NumDays	8.00	110.00
tblConstructionPhase	NumDays	5.00	60.00
tblConstructionPhase	NumDays	230.00	65.00
tblConstructionPhase	PhaseEndDate	6/24/2019	3/27/2020
tblConstructionPhase	PhaseEndDate	8/6/2018	8/29/2020
tblConstructionPhase	PhaseEndDate	7/25/2018	3/29/2019
tblConstructionPhase	PhaseStartDate	8/7/2018	3/30/2019
tblConstructionPhase	PhaseStartDate	7/26/2018	3/30/2020
tblConstructionPhase	PhaseStartDate	7/19/2018	1/7/2019
tblGrading	AcresOfGrading	55.00	4.00
tblGrading	AcresOfGrading	130.00	0.00
tblGrading	MaterialExported	0.00	85,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	10,625.00	4,722.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	36.00	1.00
tblTripsAndVMT	WorkerTripNumber	10.00	18.00
tblTripsAndVMT	WorkerTripNumber	91.00	18.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8191	33.9485	18.2107	0.0457	12.1811	1.4905	13.6716	6.6568	1.3713	8.0281	0.0000	4,643.8558	4,643.8558	1.0250	0.0000	4,669.4809
2020	2.6352	31.5691	17.7226	0.0455	7.2766	1.2932	8.5698	3.6232	1.1905	4.8137	0.0000	4,559.5777	4,559.5777	1.0213	0.0000	4,585.1109
Maximum	**2.8191**	**33.9485**	**18.2107**	**0.0457**	**12.1811**	**1.4905**	**13.6716**	**6.6568**	**1.3713**	**8.0281**	**0.0000**	**4,643.8558**	**4,643.8558**	**1.0250**	**0.0000**	**4,669.4809**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8191	33.9485	18.2107	0.0457	12.1811	1.4905	13.6716	6.6568	1.3713	8.0281	0.0000	4,643.8558	4,643.8558	1.0250	0.0000	4,669.4809
2020	2.6352	31.5691	17.7226	0.0455	7.2766	1.2932	8.5698	3.6232	1.1905	4.8137	0.0000	4,559.5777	4,559.5777	1.0213	0.0000	4,585.1109
Maximum	**2.8191**	**33.9485**	**18.2107**	**0.0457**	**12.1811**	**1.4905**	**13.6716**	**6.6568**	**1.3713**	**8.0281**	**0.0000**	**4,643.8558**	**4,643.8558**	**1.0250**	**0.0000**	**4,669.4809**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228
Total	**8.8336**	**13.4360**	**39.0604**	**0.1226**	**8.9079**	**0.2497**	**9.1576**	**2.3817**	**0.2440**	**2.6257**		**13,639.8093**	**13,639.8093**	**0.5633**	**0.0461**	**13,667.6265**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228
Total	**8.8336**	**13.4360**	**39.0604**	**0.1226**	**8.9079**	**0.2497**	**9.1576**	**2.3817**	**0.2440**	**2.6257**		**13,639.8093**	**13,639.8093**	**0.5633**	**0.0461**	**13,667.6265**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/7/2019	3/29/2019	5	60	
2	Grading	Grading	3/30/2020	8/29/2020	5	110	
3	Excavation	Grading	3/30/2019	3/27/2020	5	260	
4	Building Construction	Building Construction	8/31/2020	11/27/2020	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Excavation	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Building Construction	Generator Sets	1	8.00	84	0.74
Excavation	Graders	1	8.00	187	0.41
Excavation	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

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
Building Construction	9	18.00	1.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	6	15.00	1.00	4,722.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704		2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**		**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.0463	0.6499	1.4800e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		147.3555	147.3555	4.6400e-003		147.4714
Total	**0.0843**	**0.0463**	**0.6499**	**1.4800e-003**	**0.1369**	**9.8000e-004**	**0.1379**	**0.0363**	**9.0000e-004**	**0.0372**		**147.3555**	**147.3555**	**4.6400e-003**		**147.4714**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704	0.0000	2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**	**0.0000**	**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.0463	0.6499	1.4800e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		147.3555	147.3555	4.6400e-003		147.4714
Total	**0.0843**	**0.0463**	**0.6499**	**1.4800e-003**	**0.1369**	**9.8000e-004**	**0.1379**	**0.0363**	**9.0000e-004**	**0.0372**		**147.3555**	**147.3555**	**4.6400e-003**		**147.4714**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0607	0.0000	6.0607	3.3144	0.0000	3.3144			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0607**	**1.2734**	**7.3341**	**3.3144**	**1.1716**	**4.4859**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	**0.0647**	**0.0343**	**0.4898**	**1.2000e-003**	**0.1141**	**7.9000e-004**	**0.1149**	**0.0303**	**7.3000e-004**	**0.0310**		**119.0269**	**119.0269**	**3.4100e-003**		**119.1122**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0607	0.0000	6.0607	3.3144	0.0000	3.3144			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0607**	**1.2734**	**7.3341**	**3.3144**	**1.1716**	**4.4859**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	**0.0647**	**0.0343**	**0.4898**	**1.2000e-003**	**0.1141**	**7.9000e-004**	**0.1149**	**0.0303**	**7.3000e-004**	**0.0310**		**119.0269**	**119.0269**	**3.4100e-003**		**119.1122**

3.4 Excavation - 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	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.0897**	**1.3974**	**7.4871**	**3.3205**	**1.2856**	**4.6060**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1583	5.4422	1.3399	0.0146	0.3928	0.0234	0.4162	0.1054	0.0224	0.1278		1,557.7277	1,557.7277	0.0904		1,559.9870
Vendor	4.7300e-003	0.1198	0.0358	2.5000e-004	6.0200e-003	8.6000e-004	6.8800e-003	1.7300e-003	8.3000e-004	2.5600e-003		26.5251	26.5251	1.5900e-003		26.5649
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	**0.2333**	**5.6006**	**1.9173**	**0.0160**	**0.5130**	**0.0251**	**0.5380**	**0.1374**	**0.0240**	**0.1613**		**1,707.0491**	**1,707.0491**	**0.0958**		**1,709.4448**

3.4 Excavation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.0897**	**1.3974**	**7.4871**	**3.3205**	**1.2856**	**4.6060**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1583	5.4422	1.3399	0.0146	0.3928	0.0234	0.4162	0.1054	0.0224	0.1278		1,557.7277	1,557.7277	0.0904		1,559.9870
Vendor	4.7300e-003	0.1198	0.0358	2.5000e-004	6.0200e-003	8.6000e-004	6.8800e-003	1.7300e-003	8.3000e-004	2.5600e-003		26.5251	26.5251	1.5900e-003		26.5649
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	**0.2333**	**5.6006**	**1.9173**	**0.0160**	**0.5130**	**0.0251**	**0.5380**	**0.1374**	**0.0240**	**0.1613**		**1,707.0491**	**1,707.0491**	**0.0958**		**1,709.4448**

3.4 Excavation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0897**	**1.2734**	**7.3631**	**3.3205**	**1.1716**	**4.4920**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1380	5.0391	1.1503	0.0144	1.0668	0.0184	1.0852	0.2708	0.0176	0.2884		1,541.7001	1,541.7001	0.0874		1,543.8852
Vendor	3.7700e-003	0.1098	0.0295	2.5000e-004	6.0200e-003	5.7000e-004	6.5900e-003	1.7300e-003	5.5000e-004	2.2800e-003		26.3655	26.3655	1.4900e-003		26.4029
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	**0.2064**	**5.1832**	**1.6696**	**0.0158**	**1.1869**	**0.0198**	**1.2067**	**0.3028**	**0.0189**	**0.3217**		**1,687.0926**	**1,687.0926**	**0.0923**		**1,689.4002**

3.4 Excavation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0897**	**1.2734**	**7.3631**	**3.3205**	**1.1716**	**4.4920**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1380	5.0391	1.1503	0.0144	1.0668	0.0184	1.0852	0.2708	0.0176	0.2884		1,541.7001	1,541.7001	0.0874		1,543.8852
Vendor	3.7700e-003	0.1098	0.0295	2.5000e-004	6.0200e-003	5.7000e-004	6.5900e-003	1.7300e-003	5.5000e-004	2.2800e-003		26.3655	26.3655	1.4900e-003		26.4029
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	**0.2064**	**5.1832**	**1.6696**	**0.0158**	**1.1869**	**0.0198**	**1.2067**	**0.3028**	**0.0189**	**0.3217**		**1,687.0926**	**1,687.0926**	**0.0923**		**1,689.4002**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7700e-003	0.1098	0.0295	2.5000e-004	6.0200e-003	5.7000e-004	6.5900e-003	1.7300e-003	5.5000e-004	2.2800e-003		26.3655	26.3655	1.4900e-003		26.4029
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0814**	**0.1510**	**0.6172**	**1.6900e-003**	**0.1430**	**1.5200e-003**	**0.1445**	**0.0381**	**1.4300e-003**	**0.0395**		**169.1979**	**169.1979**	**5.5800e-003**		**169.3375**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7700e-003	0.1098	0.0295	2.5000e-004	6.0200e-003	5.7000e-004	6.5900e-003	1.7300e-003	5.5000e-004	2.2800e-003		26.3655	26.3655	1.4900e-003		26.4029
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0814**	**0.1510**	**0.6172**	**1.6900e-003**	**0.1430**	**1.5200e-003**	**0.1445**	**0.0381**	**1.4300e-003**	**0.0395**		**169.1979**	**169.1979**	**5.5800e-003**		**169.3375**

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	lb/day										lb/day					
Mitigated	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228
Unmitigated	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,518.07	287.50	148.10	3,171,102	3,171,102
Total	1,518.07	287.50	148.10	3,171,102	3,171,102

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
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

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	lb/day										lb/day					
NaturalGas Mitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
NaturalGas Unmitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21368.3	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21.3683	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Unmitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

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

McKinley_2016.3.2

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	217.80	1000sqft	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Non-default based on PD

Off-road Equipment - Non-default based on PD

Off-road Equipment -

Off-road Equipment - Non-default based on PD

Off-road Equipment -

Grading - Non-default based on PD

Trips and VMT - Non-default based on PD

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	8.00	260.00
tblConstructionPhase	NumDays	8.00	110.00
tblConstructionPhase	NumDays	5.00	60.00
tblConstructionPhase	NumDays	230.00	65.00
tblConstructionPhase	PhaseEndDate	6/24/2019	3/27/2020
tblConstructionPhase	PhaseEndDate	8/6/2018	8/29/2020
tblConstructionPhase	PhaseEndDate	7/25/2018	3/29/2019
tblConstructionPhase	PhaseStartDate	8/7/2018	3/30/2019
tblConstructionPhase	PhaseStartDate	7/26/2018	3/30/2020
tblConstructionPhase	PhaseStartDate	7/19/2018	1/7/2019
tblGrading	AcresOfGrading	55.00	4.00
tblGrading	AcresOfGrading	130.00	0.00
tblGrading	MaterialExported	0.00	85,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	10,625.00	4,722.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	36.00	1.00
tblTripsAndVMT	WorkerTripNumber	10.00	18.00
tblTripsAndVMT	WorkerTripNumber	91.00	18.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8142	34.1940	18.2372	0.0453	12.1811	1.4905	13.6716	6.6568	1.3713	8.0281	0.0000	4,604.8357	4,604.8357	1.0291	0.0000	4,630.5630
2020	2.6346	31.7853	17.7372	0.0451	7.2766	1.2938	8.5705	3.6232	1.1911	4.8143	0.0000	4,520.7304	4,520.7304	1.0251	0.0000	4,546.3573
Maximum	**2.8142**	**34.1940**	**18.2372**	**0.0453**	**12.1811**	**1.4905**	**13.6716**	**6.6568**	**1.3713**	**8.0281**	**0.0000**	**4,604.8357**	**4,604.8357**	**1.0291**	**0.0000**	**4,630.5630**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8142	34.1940	18.2372	0.0453	12.1811	1.4905	13.6716	6.6568	1.3713	8.0281	0.0000	4,604.8357	4,604.8357	1.0291	0.0000	4,630.5630
2020	2.6346	31.7853	17.7372	0.0451	7.2766	1.2938	8.5705	3.6232	1.1911	4.8143	0.0000	4,520.7304	4,520.7304	1.0251	0.0000	4,546.3573
Maximum	**2.8142**	**34.1940**	**18.2372**	**0.0453**	**12.1811**	**1.4905**	**13.6716**	**6.6568**	**1.3713**	**8.0281**	**0.0000**	**4,604.8357**	**4,604.8357**	**1.0291**	**0.0000**	**4,630.5630**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474
Total	**8.0157**	**14.3140**	**35.9076**	**0.1118**	**8.9079**	**0.2509**	**9.1588**	**2.3817**	**0.2451**	**2.6268**		**12,561.6296**	**12,561.6296**	**0.5555**	**0.0461**	**12,589.2511**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474
Total	**8.0157**	**14.3140**	**35.9076**	**0.1118**	**8.9079**	**0.2509**	**9.1588**	**2.3817**	**0.2451**	**2.6268**		**12,561.6296**	**12,561.6296**	**0.5555**	**0.0461**	**12,589.2511**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/7/2019	3/29/2019	5	60	
2	Grading	Grading	3/30/2020	8/29/2020	5	110	
3	Excavation	Grading	3/30/2019	3/27/2020	5	260	
4	Building Construction	Building Construction	8/31/2020	11/27/2020	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Excavation	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Building Construction	Generator Sets	1	8.00	84	0.74
Excavation	Graders	1	8.00	187	0.41
Excavation	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

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
Building Construction	9	18.00	1.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	6	15.00	1.00	4,722.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704		2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**		**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0573	0.5591	1.3000e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		129.4200	129.4200	4.1100e-003		129.5227
Total	**0.0776**	**0.0573**	**0.5591**	**1.3000e-003**	**0.1369**	**9.8000e-004**	**0.1379**	**0.0363**	**9.0000e-004**	**0.0372**		**129.4200**	**129.4200**	**4.1100e-003**		**129.5227**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704	0.0000	2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**	**0.0000**	**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0573	0.5591	1.3000e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		129.4200	129.4200	4.1100e-003		129.5227
Total	**0.0776**	**0.0573**	**0.5591**	**1.3000e-003**	**0.1369**	**9.8000e-004**	**0.1379**	**0.0363**	**9.0000e-004**	**0.0372**		**129.4200**	**129.4200**	**4.1100e-003**		**129.5227**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0607	0.0000	6.0607	3.3144	0.0000	3.3144			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0607**	**1.2734**	**7.3341**	**3.3144**	**1.1716**	**4.4859**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	**0.0595**	**0.0424**	**0.4194**	**1.0500e-003**	**0.1141**	**7.9000e-004**	**0.1149**	**0.0303**	**7.3000e-004**	**0.0310**		**104.5333**	**104.5333**	**3.0100e-003**		**104.6084**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0607	0.0000	6.0607	3.3144	0.0000	3.3144			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0607**	**1.2734**	**7.3341**	**3.3144**	**1.1716**	**4.4859**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	**0.0595**	**0.0424**	**0.4194**	**1.0500e-003**	**0.1141**	**7.9000e-004**	**0.1149**	**0.0303**	**7.3000e-004**	**0.0310**		**104.5333**	**104.5333**	**3.0100e-003**		**104.6084**

3.4 Excavation - 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	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.0897**	**1.3974**	**7.4871**	**3.3205**	**1.2856**	**4.6060**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1640	5.6755	1.4372	0.0143	0.3928	0.0242	0.4170	0.1054	0.0231	0.1285		1,534.3203	1,534.3203	0.0948		1,536.6895
Vendor	4.9700e-003	0.1227	0.0407	2.4000e-004	6.0200e-003	8.9000e-004	6.9100e-003	1.7300e-003	8.5000e-004	2.5800e-003		25.8586	25.8586	1.7300e-003		25.9018
Worker	0.0647	0.0477	0.4660	1.0800e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		107.8500	107.8500	3.4200e-003		107.9356
Total	**0.2337**	**5.8460**	**1.9438**	**0.0157**	**0.5130**	**0.0259**	**0.5388**	**0.1374**	**0.0247**	**0.1621**		**1,668.0289**	**1,668.0289**	**0.0999**		**1,670.5268**

3.4 Excavation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.0897**	**1.3974**	**7.4871**	**3.3205**	**1.2856**	**4.6060**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1640	5.6755	1.4372	0.0143	0.3928	0.0242	0.4170	0.1054	0.0231	0.1285		1,534.3203	1,534.3203	0.0948		1,536.6895
Vendor	4.9700e-003	0.1227	0.0407	2.4000e-004	6.0200e-003	8.9000e-004	6.9100e-003	1.7300e-003	8.5000e-004	2.5800e-003		25.8586	25.8586	1.7300e-003		25.9018
Worker	0.0647	0.0477	0.4660	1.0800e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		107.8500	107.8500	3.4200e-003		107.9356
Total	**0.2337**	**5.8460**	**1.9438**	**0.0157**	**0.5130**	**0.0259**	**0.5388**	**0.1374**	**0.0247**	**0.1621**		**1,668.0289**	**1,668.0289**	**0.0999**		**1,670.5268**

3.4 Excavation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0897**	**1.2734**	**7.3631**	**3.3205**	**1.1716**	**4.4920**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1424	5.2449	1.2309	0.0142	1.0668	0.0190	1.0858	0.2708	0.0182	0.2890		1,518.0207	1,518.0207	0.0914		1,520.3066
Vendor	3.9700e-003	0.1121	0.0340	2.4000e-004	6.0200e-003	5.9000e-004	6.6100e-003	1.7300e-003	5.7000e-004	2.3000e-003		25.6912	25.6912	1.6200e-003		25.7317
Worker	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	**0.2058**	**5.3994**	**1.6842**	**0.0155**	**1.1869**	**0.0204**	**1.2073**	**0.3028**	**0.0195**	**0.3223**		**1,648.2452**	**1,648.2452**	**0.0961**		**1,650.6467**

3.4 Excavation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0897	0.0000	6.0897	3.3205	0.0000	3.3205			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0897**	**1.2734**	**7.3631**	**3.3205**	**1.1716**	**4.4920**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1424	5.2449	1.2309	0.0142	1.0668	0.0190	1.0858	0.2708	0.0182	0.2890		1,518.0207	1,518.0207	0.0914		1,520.3066
Vendor	3.9700e-003	0.1121	0.0340	2.4000e-004	6.0200e-003	5.9000e-004	6.6100e-003	1.7300e-003	5.7000e-004	2.3000e-003		25.6912	25.6912	1.6200e-003		25.7317
Worker	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	**0.2058**	**5.3994**	**1.6842**	**0.0155**	**1.1869**	**0.0204**	**1.2073**	**0.3028**	**0.0195**	**0.3223**		**1,648.2452**	**1,648.2452**	**0.0961**		**1,650.6467**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.9700e-003	0.1121	0.0340	2.4000e-004	6.0200e-003	5.9000e-004	6.6100e-003	1.7300e-003	5.7000e-004	2.3000e-003		25.6912	25.6912	1.6200e-003		25.7317
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0754**	**0.1629**	**0.5372**	**1.5000e-003**	**0.1430**	**1.5400e-003**	**0.1445**	**0.0381**	**1.4500e-003**	**0.0395**		**151.1312**	**151.1312**	**5.2300e-003**		**151.2618**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.9700e-003	0.1121	0.0340	2.4000e-004	6.0200e-003	5.9000e-004	6.6100e-003	1.7300e-003	5.7000e-004	2.3000e-003		25.6912	25.6912	1.6200e-003		25.7317
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0754**	**0.1629**	**0.5372**	**1.5000e-003**	**0.1430**	**1.5400e-003**	**0.1445**	**0.0381**	**1.4500e-003**	**0.0395**		**151.1312**	**151.1312**	**5.2300e-003**		**151.2618**

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	lb/day										lb/day					
Mitigated	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474
Unmitigated	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,518.07	287.50	148.10	3,171,102	3,171,102
Total	1,518.07	287.50	148.10	3,171,102	3,171,102

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
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

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	lb/day										lb/day					
NaturalGas Mitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
NaturalGas Unmitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21368.3	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21.3683	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Unmitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

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

C.2 CALEEMOD RESULTS BASED ON UPDATED DESIGN PARAMETERS AND UPDATED VERSION 2016.3.2

Mckinley

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	217.80	1000sqft	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule is based on Figure 2.4-3 in the Project Description

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Off-road Equipment -

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Grading - Material exported based on conservative estimates of material to be excavated

Trips and VMT - 105,000 cu yrds / 18 yrds per truck = 5,834 truck trips. Worker and Vendor trips based on Table 2.4-2 Construction Traffic in the PD.

Mckinley - Sacramento Metropolitan AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	285.00
tblConstructionPhase	NumDays	8.00	65.00
tblConstructionPhase	NumDays	5.00	40.00
tblConstructionPhase	NumDays	8.00	130.00
tblConstructionPhase	PhaseEndDate	1/8/2020	10/2/2020
tblConstructionPhase	PhaseEndDate	2/20/2019	1/1/2021
tblConstructionPhase	PhaseEndDate	2/8/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	2/21/2019	9/2/2019
tblConstructionPhase	PhaseStartDate	2/9/2019	10/5/2020
tblConstructionPhase	PhaseStartDate	2/2/2019	1/7/2019
tblGrading	AcresOfGrading	32.50	4.00
tblGrading	AcresOfGrading	65.00	0.00
tblGrading	MaterialExported	0.00	105,000.00
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	13,125.00	5,834.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	VendorTripNumber	36.00	40.00

tblTripsAndVMT	VendorTripNumber	0.00	100.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00
tblTripsAndVMT	WorkerTripNumber	91.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00

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	0.4114	5.3157	2.7574	8.3800e-003	0.7776	0.1884	0.9660	0.3866	0.1748	0.5614	0.0000	780.2548	780.2548	0.1202	0.0000	783.2607
2020	0.3321	3.4181	2.5292	5.4900e-003	0.2726	0.1551	0.4277	0.1276	0.1450	0.2727	0.0000	490.2690	490.2690	0.0922	0.0000	492.5749
2021	1.2900e-003	0.0155	9.1300e-003	2.0000e-005	5.4200e-003	5.9000e-004	6.0100e-003	1.9600e-003	5.4000e-004	2.5100e-003	0.0000	2.1009	2.1009	4.6000e-004	0.0000	2.1125
Maximum	**0.4114**	**5.3157**	**2.7574**	**8.3800e-003**	**0.7776**	**0.1884**	**0.9660**	**0.3866**	**0.1748**	**0.5614**	**0.0000**	**780.2548**	**780.2548**	**0.1202**	**0.0000**	**783.2607**

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	0.4114	5.3157	2.7574	8.3800e-003	0.7776	0.1884	0.9660	0.3866	0.1748	0.5614	0.0000	780.2544	780.2544	0.1202	0.0000	783.2603
2020	0.3321	3.4181	2.5292	5.4900e-003	0.2726	0.1551	0.4277	0.1276	0.1450	0.2727	0.0000	490.2687	490.2687	0.0922	0.0000	492.5745
2021	1.2900e-003	0.0155	9.1300e-003	2.0000e-005	5.4200e-003	5.9000e-004	6.0100e-003	1.9600e-003	5.4000e-004	2.5100e-003	0.0000	2.1009	2.1009	4.6000e-004	0.0000	2.1125
Maximum	**0.4114**	**5.3157**	**2.7574**	**8.3800e-003**	**0.7776**	**0.1884**	**0.9660**	**0.3866**	**0.1748**	**0.5614**	**0.0000**	**780.2544**	**780.2544**	**0.1202**	**0.0000**	**783.2603**

Mckinley - Sacramento Metropolitan AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	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	**1-7-2019**	**4-6-2019**	1.3688	1.3688
2	**4-7-2019**	**7-6-2019**	1.8667	1.8667
3	**7-7-2019**	**10-6-2019**	1.4883	1.4883
4	**10-7-2019**	**1-6-2020**	0.9446	0.9446
5	**1-7-2020**	**4-6-2020**	0.8541	0.8541
6	**4-7-2020**	**7-6-2020**	0.8508	0.8508
7	**7-7-2020**	**10-6-2020**	0.8485	0.8485
8	**10-7-2020**	**1-6-2021**	1.1171	1.1171
		Highest	1.8667	1.8667

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Energy	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	1,378.0193	1,378.0193	0.0515	0.0166	1,384.2613
Mobile	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479
Waste						0.0000	0.0000		0.0000	0.0000	54.8218	0.0000	54.8218	3.2399	0.0000	135.8186
Water						0.0000	0.0000		0.0000	0.0000	17.8197	73.0057	90.8253	0.0646	0.0394	104.1928
Total	**1.3654**	**2.0117**	**4.8613**	**0.0162**	**1.1828**	**0.0416**	**1.2244**	**0.3172**	**0.0408**	**0.3579**	**72.6414**	**2,733.0220**	**2,805.6634**	**3.4182**	**0.0561**	**2,907.8264**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Energy	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	1,378.0193	1,378.0193	0.0515	0.0166	1,384.2613
Mobile	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479
Waste						0.0000	0.0000		0.0000	0.0000	54.8218	0.0000	54.8218	3.2399	0.0000	135.8186
Water						0.0000	0.0000		0.0000	0.0000	17.8197	73.0057	90.8253	0.0646	0.0394	104.1928
Total	**1.3654**	**2.0117**	**4.8613**	**0.0162**	**1.1828**	**0.0416**	**1.2244**	**0.3172**	**0.0408**	**0.3579**	**72.6414**	**2,733.0220**	**2,805.6634**	**3.4182**	**0.0561**	**2,907.8264**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/7/2019	3/1/2019	5	40	mobilization, fencing, clear and grub
2	Excavation	Grading	3/4/2019	8/30/2019	5	130	Install excavation support, excavation and gravel pad
3	Building Construction	Building Construction	9/2/2019	10/2/2020	5	285	Vault construction
4	Grading	Grading	10/5/2020	1/1/2021	5	65	Restoration, demob

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Excavation	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Excavation	Graders	1	8.00	187	0.41
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	1	8.00	46	0.45
Excavation	Rubber Tired Dozers	1	8.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40

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
Excavation	6	30.00	100.00	5,834.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	30.00	20.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	30.00	60.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	40.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.2409	0.0000	0.2409	0.1324	0.0000	0.1324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0547	0.5765	0.2635	4.7000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	41.8383	41.8383	0.0132	0.0000	42.1692
Total	**0.0547**	**0.5765**	**0.2635**	**4.7000e-004**	**0.2409**	**0.0298**	**0.2707**	**0.1324**	**0.0274**	**0.1598**	**0.0000**	**41.8383**	**41.8383**	**0.0132**	**0.0000**	**42.1692**

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	1.9200e-003	0.0491	0.0150	1.0000e-004	2.3400e-003	3.5000e-004	2.6900e-003	6.8000e-004	3.3000e-004	1.0100e-003	0.0000	9.5236	9.5236	6.0000e-004	0.0000	9.5386
Worker	2.4300e-003	1.7000e-003	0.0184	4.0000e-005	4.4100e-003	3.0000e-005	4.4400e-003	1.1700e-003	3.0000e-005	1.2000e-003	0.0000	4.0282	4.0282	1.3000e-004	0.0000	4.0314
Total	**4.3500e-003**	**0.0508**	**0.0334**	**1.4000e-004**	**6.7500e-003**	**3.8000e-004**	**7.1300e-003**	**1.8500e-003**	**3.6000e-004**	**2.2100e-003**	**0.0000**	**13.5519**	**13.5519**	**7.3000e-004**	**0.0000**	**13.5699**

3.2 Site Preparation - 2019

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					0.2409	0.0000	0.2409	0.1324	0.0000	0.1324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0547	0.5765	0.2635	4.7000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	41.8382	41.8382	0.0132	0.0000	42.1692
Total	**0.0547**	**0.5765**	**0.2635**	**4.7000e-004**	**0.2409**	**0.0298**	**0.2707**	**0.1324**	**0.0274**	**0.1598**	**0.0000**	**41.8382**	**41.8382**	**0.0132**	**0.0000**	**42.1692**

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	1.9200e-003	0.0491	0.0150	1.0000e-004	2.3400e-003	3.5000e-004	2.6900e-003	6.8000e-004	3.3000e-004	1.0100e-003	0.0000	9.5236	9.5236	6.0000e-004	0.0000	9.5386
Worker	2.4300e-003	1.7000e-003	0.0184	4.0000e-005	4.4100e-003	3.0000e-005	4.4400e-003	1.1700e-003	3.0000e-005	1.2000e-003	0.0000	4.0282	4.0282	1.3000e-004	0.0000	4.0314
Total	**4.3500e-003**	**0.0508**	**0.0334**	**1.4000e-004**	**6.7500e-003**	**3.8000e-004**	**7.1300e-003**	**1.8500e-003**	**3.6000e-004**	**2.2100e-003**	**0.0000**	**13.5519**	**13.5519**	**7.3000e-004**	**0.0000**	**13.5699**

3.3 Excavation - 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					0.4023	0.0000	0.4023	0.2168	0.0000	0.2168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1677	1.8426	1.0591	1.9300e-003		0.0908	0.0908		0.0836	0.0836	0.0000	173.1747	173.1747	0.0548	0.0000	174.5445
Total	**0.1677**	**1.8426**	**1.0591**	**1.9300e-003**	**0.4023**	**0.0908**	**0.4931**	**0.2168**	**0.0836**	**0.3004**	**0.0000**	**173.1747**	**173.1747**	**0.0548**	**0.0000**	**174.5445**

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	0.0257	0.9064	0.2193	2.3200e-003	0.0492	3.8100e-003	0.0530	0.0135	3.6500e-003	0.0172	0.0000	225.5389	225.5389	0.0134	0.0000	225.8742
Vendor	0.0312	0.7974	0.2437	1.6100e-003	0.0380	5.6800e-003	0.0437	0.0110	5.4400e-003	0.0164	0.0000	154.7588	154.7588	9.7000e-003	0.0000	155.0014
Worker	7.8900e-003	5.5400e-003	0.0598	1.5000e-004	0.0143	1.1000e-004	0.0144	3.8100e-003	1.0000e-004	3.9100e-003	0.0000	13.0918	13.0918	4.1000e-004	0.0000	13.1020
Total	**0.0648**	**1.7093**	**0.5228**	**4.0800e-003**	**0.1016**	**9.6000e-003**	**0.1112**	**0.0283**	**9.1900e-003**	**0.0375**	**0.0000**	**393.3895**	**393.3895**	**0.0235**	**0.0000**	**393.9775**

3.3 Excavation - 2019

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					0.4023	0.0000	0.4023	0.2168	0.0000	0.2168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1677	1.8426	1.0591	1.9300e-003		0.0908	0.0908		0.0836	0.0836	0.0000	173.1745	173.1745	0.0548	0.0000	174.5443
Total	**0.1677**	**1.8426**	**1.0591**	**1.9300e-003**	**0.4023**	**0.0908**	**0.4931**	**0.2168**	**0.0836**	**0.3004**	**0.0000**	**173.1745**	**173.1745**	**0.0548**	**0.0000**	**174.5443**

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	0.0257	0.9064	0.2193	2.3200e-003	0.0492	3.8100e-003	0.0530	0.0135	3.6500e-003	0.0172	0.0000	225.5389	225.5389	0.0134	0.0000	225.8742
Vendor	0.0312	0.7974	0.2437	1.6100e-003	0.0380	5.6800e-003	0.0437	0.0110	5.4400e-003	0.0164	0.0000	154.7588	154.7588	9.7000e-003	0.0000	155.0014
Worker	7.8900e-003	5.5400e-003	0.0598	1.5000e-004	0.0143	1.1000e-004	0.0144	3.8100e-003	1.0000e-004	3.9100e-003	0.0000	13.0918	13.0918	4.1000e-004	0.0000	13.1020
Total	**0.0648**	**1.7093**	**0.5228**	**4.0800e-003**	**0.1016**	**9.6000e-003**	**0.1112**	**0.0283**	**9.1900e-003**	**0.0375**	**0.0000**	**393.3895**	**393.3895**	**0.0235**	**0.0000**	**393.9775**

3.4 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	0.1027	0.9169	0.7466	1.1700e-003		0.0561	0.0561		0.0528	0.0528	0.0000	102.2703	102.2703	0.0249	0.0000	102.8932
Total	**0.1027**	**0.9169**	**0.7466**	**1.1700e-003**		**0.0561**	**0.0561**		**0.0528**	**0.0528**	**0.0000**	**102.2703**	**102.2703**	**0.0249**	**0.0000**	**102.8932**

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	8.3400e-003	0.2135	0.0652	4.3000e-004	0.0102	1.5200e-003	0.0117	2.9400e-003	1.4500e-003	4.4000e-003	0.0000	41.4277	41.4277	2.6000e-003	0.0000	41.4927
Worker	8.8000e-003	6.1800e-003	0.0667	1.6000e-004	0.0160	1.2000e-004	0.0161	4.2500e-003	1.1000e-004	4.3600e-003	0.0000	14.6024	14.6024	4.5000e-004	0.0000	14.6137
Total	**0.0171**	**0.2196**	**0.1320**	**5.9000e-004**	**0.0262**	**1.6400e-003**	**0.0278**	**7.1900e-003**	**1.5600e-003**	**8.7600e-003**	**0.0000**	**56.0301**	**56.0301**	**3.0500e-003**	**0.0000**	**56.1064**

3.4 Building Construction - 2019

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	0.1027	0.9169	0.7466	1.1700e-003		0.0561	0.0561		0.0528	0.0528	0.0000	102.2702	102.2702	0.0249	0.0000	102.8931
Total	**0.1027**	**0.9169**	**0.7466**	**1.1700e-003**		**0.0561**	**0.0561**		**0.0528**	**0.0528**	**0.0000**	**102.2702**	**102.2702**	**0.0249**	**0.0000**	**102.8931**

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	8.3400e-003	0.2135	0.0652	4.3000e-004	0.0102	1.5200e-003	0.0117	2.9400e-003	1.4500e-003	4.4000e-003	0.0000	41.4277	41.4277	2.6000e-003	0.0000	41.4927
Worker	8.8000e-003	6.1800e-003	0.0667	1.6000e-004	0.0160	1.2000e-004	0.0161	4.2500e-003	1.1000e-004	4.3600e-003	0.0000	14.6024	14.6024	4.5000e-004	0.0000	14.6137
Total	**0.0171**	**0.2196**	**0.1320**	**5.9000e-004**	**0.0262**	**1.6400e-003**	**0.0278**	**7.1900e-003**	**1.5600e-003**	**8.7600e-003**	**0.0000**	**56.0301**	**56.0301**	**3.0500e-003**	**0.0000**	**56.1064**

3.4 Building Construction - 2020

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	0.2099	1.8994	1.6680	2.6600e-003		0.1106	0.1106		0.1040	0.1040	0.0000	229.2939	229.2939	0.0559	0.0000	230.6924
Total	**0.2099**	**1.8994**	**1.6680**	**2.6600e-003**		**0.1106**	**0.1106**		**0.1040**	**0.1040**	**0.0000**	**229.2939**	**229.2939**	**0.0559**	**0.0000**	**230.6924**

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	0.0152	0.4441	0.1239	9.8000e-004	0.0232	2.3000e-003	0.0255	6.6900e-003	2.2000e-003	8.8900e-003	0.0000	93.6989	93.6989	5.5500e-003	0.0000	93.8376
Worker	0.0184	0.0125	0.1370	3.6000e-004	0.0364	2.6000e-004	0.0366	9.6700e-003	2.4000e-004	9.9100e-003	0.0000	32.2114	32.2114	9.1000e-004	0.0000	32.2342
Total	**0.0336**	**0.4566**	**0.2609**	**1.3400e-003**	**0.0595**	**2.5600e-003**	**0.0621**	**0.0164**	**2.4400e-003**	**0.0188**	**0.0000**	**125.9103**	**125.9103**	**6.4600e-003**	**0.0000**	**126.0718**

3.4 Building Construction - 2020

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	0.2099	1.8994	1.6680	2.6600e-003		0.1106	0.1106		0.1040	0.1040	0.0000	229.2936	229.2936	0.0559	0.0000	230.6921
Total	**0.2099**	**1.8994**	**1.6680**	**2.6600e-003**		**0.1106**	**0.1106**		**0.1040**	**0.1040**	**0.0000**	**229.2936**	**229.2936**	**0.0559**	**0.0000**	**230.6921**

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	0.0152	0.4441	0.1239	9.8000e-004	0.0232	2.3000e-003	0.0255	6.6900e-003	2.2000e-003	8.8900e-003	0.0000	93.6989	93.6989	5.5500e-003	0.0000	93.8376
Worker	0.0184	0.0125	0.1370	3.6000e-004	0.0364	2.6000e-004	0.0366	9.6700e-003	2.4000e-004	9.9100e-003	0.0000	32.2114	32.2114	9.1000e-004	0.0000	32.2342
Total	**0.0336**	**0.4566**	**0.2609**	**1.3400e-003**	**0.0595**	**2.5600e-003**	**0.0621**	**0.0164**	**2.4400e-003**	**0.0188**	**0.0000**	**125.9103**	**125.9103**	**6.4600e-003**	**0.0000**	**126.0718**

3.5 Grading - 2020

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					0.1948	0.0000	0.1948	0.1062	0.0000	0.1062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0777	0.8444	0.5137	9.5000e-004		0.0408	0.0408		0.0375	0.0375	0.0000	83.3880	83.3880	0.0270	0.0000	84.0622
Total	**0.0777**	**0.8444**	**0.5137**	**9.5000e-004**	**0.1948**	**0.0408**	**0.2356**	**0.1062**	**0.0375**	**0.1437**	**0.0000**	**83.3880**	**83.3880**	**0.0270**	**0.0000**	**84.0622**

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	7.3500e-003	0.2153	0.0601	4.7000e-004	0.0112	1.1100e-003	0.0123	3.2400e-003	1.0700e-003	4.3100e-003	0.0000	45.4298	45.4298	2.6900e-003	0.0000	45.4970
Worker	3.5700e-003	2.4200e-003	0.0266	7.0000e-005	7.0500e-003	5.0000e-005	7.1000e-003	1.8800e-003	5.0000e-005	1.9200e-003	0.0000	6.2471	6.2471	1.8000e-004	0.0000	6.2515
Total	**0.0109**	**0.2177**	**0.0866**	**5.4000e-004**	**0.0183**	**1.1600e-003**	**0.0194**	**5.1200e-003**	**1.1200e-003**	**6.2300e-003**	**0.0000**	**51.6768**	**51.6768**	**2.8700e-003**	**0.0000**	**51.7485**

3.5 Grading - 2020

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					0.1948	0.0000	0.1948	0.1062	0.0000	0.1062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0777	0.8444	0.5137	9.5000e-004		0.0408	0.0408		0.0375	0.0375	0.0000	83.3879	83.3879	0.0270	0.0000	84.0621
Total	**0.0777**	**0.8444**	**0.5137**	**9.5000e-004**	**0.1948**	**0.0408**	**0.2356**	**0.1062**	**0.0375**	**0.1437**	**0.0000**	**83.3879**	**83.3879**	**0.0270**	**0.0000**	**84.0621**

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	7.3500e-003	0.2153	0.0601	4.7000e-004	0.0112	1.1100e-003	0.0123	3.2400e-003	1.0700e-003	4.3100e-003	0.0000	45.4298	45.4298	2.6900e-003	0.0000	45.4970
Worker	3.5700e-003	2.4200e-003	0.0266	7.0000e-005	7.0500e-003	5.0000e-005	7.1000e-003	1.8800e-003	5.0000e-005	1.9200e-003	0.0000	6.2471	6.2471	1.8000e-004	0.0000	6.2515
Total	**0.0109**	**0.2177**	**0.0866**	**5.4000e-004**	**0.0183**	**1.1600e-003**	**0.0194**	**5.1200e-003**	**1.1200e-003**	**6.2300e-003**	**0.0000**	**51.6768**	**51.6768**	**2.8700e-003**	**0.0000**	**51.7485**

3.5 Grading - 2021

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					5.1300e-003	0.0000	5.1300e-003	1.8800e-003	0.0000	1.8800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	0.0124	7.9300e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.3000e-004	5.3000e-004	0.0000	1.3027	1.3027	4.2000e-004	0.0000	1.3132
Total	**1.1500e-003**	**0.0124**	**7.9300e-003**	**1.0000e-005**	**5.1300e-003**	**5.8000e-004**	**5.7100e-003**	**1.8800e-003**	**5.3000e-004**	**2.4100e-003**	**0.0000**	**1.3027**	**1.3027**	**4.2000e-004**	**0.0000**	**1.3132**

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	9.0000e-005	3.0700e-003	8.2000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.7039	0.7039	4.0000e-005	0.0000	0.7049
Worker	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0943	0.0943	0.0000	0.0000	0.0944
Total	**1.4000e-004**	**3.1000e-003**	**1.2000e-003**	**1.0000e-005**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.7982**	**0.7982**	**4.0000e-005**	**0.0000**	**0.7993**

3.5 Grading - 2021

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					5.1300e-003	0.0000	5.1300e-003	1.8800e-003	0.0000	1.8800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	0.0124	7.9300e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.3000e-004	5.3000e-004	0.0000	1.3027	1.3027	4.2000e-004	0.0000	1.3132
Total	**1.1500e-003**	**0.0124**	**7.9300e-003**	**1.0000e-005**	**5.1300e-003**	**5.8000e-004**	**5.7100e-003**	**1.8800e-003**	**5.3000e-004**	**2.4100e-003**	**0.0000**	**1.3027**	**1.3027**	**4.2000e-004**	**0.0000**	**1.3132**

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	9.0000e-005	3.0700e-003	8.2000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.7039	0.7039	4.0000e-005	0.0000	0.7049
Worker	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0943	0.0943	0.0000	0.0000	0.0944
Total	**1.4000e-004**	**3.1000e-003**	**1.2000e-003**	**1.0000e-005**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.7982**	**0.7982**	**4.0000e-005**	**0.0000**	**0.7993**

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	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479
Unmitigated	0.3715	1.6293	4.5374	0.0140	1.1828	0.0125	1.1953	0.3172	0.0117	0.3289	0.0000	1,281.9916	1,281.9916	0.0623	0.0000	1,283.5479

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,518.07	287.50	148.10	3,171,102	3,171,102
Total	1,518.07	287.50	148.10	3,171,102	3,171,102

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
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

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	961.8127	961.8127	0.0435	9.0000e-003	965.5813
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	961.8127	961.8127	0.0435	9.0000e-003	965.5813
NaturalGas Mitigated	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800
NaturalGas Unmitigated	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800

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					
General Light Industry	7.79942e+006	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800
Total		**0.0421**	**0.3823**	**0.3212**	**2.2900e-003**		**0.0291**	**0.0291**		**0.0291**	**0.0291**	**0.0000**	**416.2067**	**416.2067**	**7.9800e-003**	**7.6300e-003**	**418.6800**

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					
General Light Industry	7.79942e+006	0.0421	0.3823	0.3212	2.2900e-003		0.0291	0.0291		0.0291	0.0291	0.0000	416.2067	416.2067	7.9800e-003	7.6300e-003	418.6800
Total		**0.0421**	**0.3823**	**0.3212**	**2.2900e-003**		**0.0291**	**0.0291**		**0.0291**	**0.0291**	**0.0000**	**416.2067**	**416.2067**	**7.9800e-003**	**7.6300e-003**	**418.6800**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	3.3062e+006	961.8127	0.0435	9.0000e-003	965.5813
Total		**961.8127**	**0.0435**	**9.0000e-003**	**965.5813**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	3.3062e+006	961.8127	0.0435	9.0000e-003	965.5813
Total		**961.8127**	**0.0435**	**9.0000e-003**	**965.5813**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Unmitigated	0.9518	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003

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	0.1010					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8506					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Total	**0.9518**	**3.0000e-005**	**2.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.4100e-003**	**5.4100e-003**	**1.0000e-005**	**0.0000**	**5.7600e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1010					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8506					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4100e-003	5.4100e-003	1.0000e-005	0.0000	5.7600e-003
Total	**0.9518**	**3.0000e-005**	**2.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.4100e-003**	**5.4100e-003**	**1.0000e-005**	**0.0000**	**5.7600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	90.8253	0.0646	0.0394	104.1928
Unmitigated	90.8253	0.0646	0.0394	104.1928

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	50.3663 / 0	90.8253	0.0646	0.0394	104.1928
Total		**90.8253**	**0.0646**	**0.0394**	**104.1928**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	50.3663 / 0	90.8253	0.0646	0.0394	104.1928
Total		**90.8253**	**0.0646**	**0.0394**	**104.1928**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	54.8218	3.2399	0.0000	135.8186
Unmitigated	54.8218	3.2399	0.0000	135.8186

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	270.07	54.8218	3.2399	0.0000	135.8186
Total		**54.8218**	**3.2399**	**0.0000**	**135.8186**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	270.07	54.8218	3.2399	0.0000	135.8186
Total		**54.8218**	**3.2399**	**0.0000**	**135.8186**

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

Mckinley

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	217.80	1000sqft	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule is based on Figure 2.4-3 in the Project Description

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Off-road Equipment -

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Grading - Material exported based on conservative estimates of material to be excavated

Trips and VMT - 105,000 cu yrds / 18 yrds per truck = 5,834 truck trips. Worker and Vendor trips based on Table 2.4-2 Construction Traffic in the PD.

Mckinley - Sacramento Metropolitan AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	285.00
tblConstructionPhase	NumDays	8.00	65.00
tblConstructionPhase	NumDays	5.00	40.00
tblConstructionPhase	NumDays	8.00	130.00
tblConstructionPhase	PhaseEndDate	1/8/2020	10/2/2020
tblConstructionPhase	PhaseEndDate	2/20/2019	1/1/2021
tblConstructionPhase	PhaseEndDate	2/8/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	2/21/2019	9/2/2019
tblConstructionPhase	PhaseStartDate	2/9/2019	10/5/2020
tblConstructionPhase	PhaseStartDate	2/2/2019	1/7/2019
tblGrading	AcresOfGrading	32.50	4.00
tblGrading	AcresOfGrading	65.00	0.00
tblGrading	MaterialExported	0.00	105,000.00
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	13,125.00	5,834.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	VendorTripNumber	36.00	40.00

tblTripsAndVMT	VendorTripNumber	0.00	100.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00
tblTripsAndVMT	WorkerTripNumber	91.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.5854	53.8508	24.2639	0.0932	12.3928	1.5433	13.9012	6.7156	1.4251	8.1040	0.0000	9,684.0333	9,684.0333	1.3196	0.0000	9,717.0236
2020	2.7844	33.0428	19.6615	0.0470	6.6766	1.3094	7.9860	3.4817	1.2059	4.6876	0.0000	4,692.4716	4,692.4716	1.0255	0.0000	4,718.1086
2021	2.5960	30.8247	18.2938	0.0468	6.6766	1.1780	7.8546	3.4817	1.0844	4.5660	0.0000	4,670.7397	4,670.7397	1.0207	0.0000	4,696.2572
Maximum	**3.5854**	**53.8508**	**24.2639**	**0.0932**	**12.3928**	**1.5433**	**13.9012**	**6.7156**	**1.4251**	**8.1040**	**0.0000**	**9,684.0333**	**9,684.0333**	**1.3196**	**0.0000**	**9,717.0236**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.5854	53.8508	24.2639	0.0932	12.3928	1.5433	13.9012	6.7156	1.4251	8.1040	0.0000	9,684.0333	9,684.0333	1.3196	0.0000	9,717.0236
2020	2.7844	33.0428	19.6615	0.0470	6.6766	1.3094	7.9860	3.4817	1.2059	4.6876	0.0000	4,692.4716	4,692.4716	1.0255	0.0000	4,718.1086
2021	2.5960	30.8247	18.2938	0.0468	6.6766	1.1780	7.8546	3.4817	1.0844	4.5660	0.0000	4,670.7397	4,670.7397	1.0207	0.0000	4,696.2572
Maximum	**3.5854**	**53.8508**	**24.2639**	**0.0932**	**12.3928**	**1.5433**	**13.9012**	**6.7156**	**1.4251**	**8.1040**	**0.0000**	**9,684.0333**	**9,684.0333**	**1.3196**	**0.0000**	**9,717.0236**

Mckinley - Sacramento Metropolitan AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228
Total	**8.8336**	**13.4360**	**39.0604**	**0.1226**	**8.9079**	**0.2497**	**9.1576**	**2.3817**	**0.2440**	**2.6257**		**13,639.8093**	**13,639.8093**	**0.5633**	**0.0461**	**13,667.6265**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228
Total	**8.8336**	**13.4360**	**39.0604**	**0.1226**	**8.9079**	**0.2497**	**9.1576**	**2.3817**	**0.2440**	**2.6257**		**13,639.8093**	**13,639.8093**	**0.5633**	**0.0461**	**13,667.6265**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/7/2019	3/1/2019	5	40	mobilization, fencing, clear and grub
2	Excavation	Grading	3/4/2019	8/30/2019	5	130	Install excavation support, excavation and gravel pad
3	Building Construction	Building Construction	9/2/2019	10/2/2020	5	285	Vault construction
4	Grading	Grading	10/5/2020	1/1/2021	5	65	Restoration, demob

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Excavation	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Excavation	Graders	1	8.00	187	0.41
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	1	8.00	46	0.45
Excavation	Rubber Tired Dozers	1	8.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40

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
Excavation	6	30.00	100.00	5,834.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	30.00	20.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	30.00	60.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	40.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704		2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**		**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0946	2.3956	0.7153	5.0200e-003	0.1204	0.0173	0.1377	0.0346	0.0165	0.0512		530.5019	530.5019	0.0319		531.2989
Worker	0.1406	0.0772	1.0832	2.4700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		245.5925	245.5925	7.7300e-003		245.7857
Total	**0.2352**	**2.4728**	**1.7985**	**7.4900e-003**	**0.3486**	**0.0189**	**0.3675**	**0.0952**	**0.0180**	**0.1132**		**776.0944**	**776.0944**	**0.0396**		**777.0846**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704	0.0000	2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**	**0.0000**	**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0946	2.3956	0.7153	5.0200e-003	0.1204	0.0173	0.1377	0.0346	0.0165	0.0512		530.5019	530.5019	0.0319		531.2989
Worker	0.1406	0.0772	1.0832	2.4700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		245.5925	245.5925	7.7300e-003		245.7857
Total	**0.2352**	**2.4728**	**1.7985**	**7.4900e-003**	**0.3486**	**0.0189**	**0.3675**	**0.0952**	**0.0180**	**0.1132**		**776.0944**	**776.0944**	**0.0396**		**777.0846**

3.3 Excavation - 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	lb/day										lb/day					
Fugitive Dust					6.1891	0.0000	6.1891	3.3355	0.0000	3.3355			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.1891**	**1.3974**	**7.5865**	**3.3355**	**1.2856**	**4.6211**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3912	13.4475	3.3110	0.0360	0.7809	0.0579	0.8388	0.2137	0.0553	0.2691		3,849.1247	3,849.1247	0.2233		3,854.7074
Vendor	0.4732	11.9781	3.5764	0.0251	0.6019	0.0864	0.6883	0.1732	0.0827	0.2559		2,652.5093	2,652.5093	0.1594		2,656.4944
Worker	0.1406	0.0772	1.0832	2.4700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		245.5925	245.5925	7.7300e-003		245.7857
Total	**1.0049**	**25.5028**	**7.9705**	**0.0635**	**1.6110**	**0.1459**	**1.7569**	**0.4475**	**0.1395**	**0.5870**		**6,747.2265**	**6,747.2265**	**0.3905**		**6,756.9875**

3.3 Excavation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1891	0.0000	6.1891	3.3355	0.0000	3.3355			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.1891**	**1.3974**	**7.5865**	**3.3355**	**1.2856**	**4.6211**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3912	13.4475	3.3110	0.0360	0.7809	0.0579	0.8388	0.2137	0.0553	0.2691		3,849.1247	3,849.1247	0.2233		3,854.7074
Vendor	0.4732	11.9781	3.5764	0.0251	0.6019	0.0864	0.6883	0.1732	0.0827	0.2559		2,652.5093	2,652.5093	0.1594		2,656.4944
Worker	0.1406	0.0772	1.0832	2.4700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		245.5925	245.5925	7.7300e-003		245.7857
Total	**1.0049**	**25.5028**	**7.9705**	**0.0635**	**1.6110**	**0.1459**	**1.7569**	**0.4475**	**0.1395**	**0.5870**		**6,747.2265**	**6,747.2265**	**0.3905**		**6,756.9875**

3.4 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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1893	4.7912	1.4306	0.0100	0.2408	0.0346	0.2753	0.0693	0.0331	0.1024		1,061.0037	1,061.0037	0.0638		1,062.5978
Worker	0.2343	0.1287	1.8053	4.1200e-003	0.3804	2.7100e-003	0.3831	0.1009	2.5000e-003	0.1034		409.3209	409.3209	0.0129		409.6429
Total	**0.4236**	**4.9199**	**3.2359**	**0.0142**	**0.6211**	**0.0373**	**0.6584**	**0.1702**	**0.0356**	**0.2057**		**1,470.3246**	**1,470.3246**	**0.0766**		**1,472.2406**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1893	4.7912	1.4306	0.0100	0.2408	0.0346	0.2753	0.0693	0.0331	0.1024		1,061.0037	1,061.0037	0.0638		1,062.5978
Worker	0.2343	0.1287	1.8053	4.1200e-003	0.3804	2.7100e-003	0.3831	0.1009	2.5000e-003	0.1034		409.3209	409.3209	0.0129		409.6429
Total	**0.4236**	**4.9199**	**3.2359**	**0.0142**	**0.6211**	**0.0373**	**0.6584**	**0.1702**	**0.0356**	**0.2057**		**1,470.3246**	**1,470.3246**	**0.0766**		**1,472.2406**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1508	4.3922	1.1805	9.9600e-003	0.2407	0.0229	0.2636	0.0693	0.0219	0.0912		1,054.6217	1,054.6217	0.0598		1,056.1157
Worker	0.2156	0.1144	1.6325	3.9900e-003	0.3804	2.6400e-003	0.3830	0.1009	2.4400e-003	0.1033		396.7565	396.7565	0.0114		397.0407
Total	**0.3664**	**4.5066**	**2.8130**	**0.0140**	**0.6211**	**0.0255**	**0.6466**	**0.1702**	**0.0243**	**0.1945**		**1,451.3782**	**1,451.3782**	**0.0711**		**1,453.1563**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1508	4.3922	1.1805	9.9600e-003	0.2407	0.0229	0.2636	0.0693	0.0219	0.0912		1,054.6217	1,054.6217	0.0598		1,056.1157
Worker	0.2156	0.1144	1.6325	3.9900e-003	0.3804	2.6400e-003	0.3830	0.1009	2.4400e-003	0.1033		396.7565	396.7565	0.0114		397.0407
Total	**0.3664**	**4.5066**	**2.8130**	**0.0140**	**0.6211**	**0.0255**	**0.6466**	**0.1702**	**0.0243**	**0.1945**		**1,451.3782**	**1,451.3782**	**0.0711**		**1,453.1563**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0874**	**1.2734**	**7.3608**	**3.3173**	**1.1716**	**4.4888**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2263	6.5883	1.7707	0.0149	0.3611	0.0343	0.3954	0.1039	0.0329	0.1368		1,581.9326	1,581.9326	0.0896		1,584.1735
Worker	0.1294	0.0687	0.9795	2.3900e-003	0.2282	1.5900e-003	0.2298	0.0605	1.4600e-003	0.0620		238.0539	238.0539	6.8200e-003		238.2244
Total	**0.3556**	**6.6569**	**2.7502**	**0.0173**	**0.5893**	**0.0359**	**0.6252**	**0.1644**	**0.0343**	**0.1988**		**1,819.9864**	**1,819.9864**	**0.0965**		**1,822.3979**

3.5 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0874**	**1.2734**	**7.3608**	**3.3173**	**1.1716**	**4.4888**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2263	6.5883	1.7707	0.0149	0.3611	0.0343	0.3954	0.1039	0.0329	0.1368		1,581.9326	1,581.9326	0.0896		1,584.1735
Worker	0.1294	0.0687	0.9795	2.3900e-003	0.2282	1.5900e-003	0.2298	0.0605	1.4600e-003	0.0620		238.0539	238.0539	6.8200e-003		238.2244
Total	**0.3556**	**6.6569**	**2.7502**	**0.0173**	**0.5893**	**0.0359**	**0.6252**	**0.1644**	**0.0343**	**0.1988**		**1,819.9864**	**1,819.9864**	**0.0965**		**1,822.3979**

3.5 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.0874**	**1.1599**	**7.2473**	**3.3173**	**1.0671**	**4.3844**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1854	6.0264	1.5389	0.0148	0.3610	0.0165	0.3776	0.1039	0.0158	0.1197		1,568.8674	1,568.8674	0.0857		1,571.0111
Worker	0.1202	0.0616	0.8975	2.3100e-003	0.2282	1.5400e-003	0.2298	0.0605	1.4200e-003	0.0620		229.9437	229.9437	6.1200e-003		230.0967
Total	**0.3057**	**6.0880**	**2.4363**	**0.0171**	**0.5893**	**0.0181**	**0.6073**	**0.1644**	**0.0172**	**0.1817**		**1,798.8112**	**1,798.8112**	**0.0919**		**1,801.1077**

3.5 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.0874**	**1.1599**	**7.2473**	**3.3173**	**1.0671**	**4.3844**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1854	6.0264	1.5389	0.0148	0.3610	0.0165	0.3776	0.1039	0.0158	0.1197		1,568.8674	1,568.8674	0.0857		1,571.0111
Worker	0.1202	0.0616	0.8975	2.3100e-003	0.2282	1.5400e-003	0.2298	0.0605	1.4200e-003	0.0620		229.9437	229.9437	6.1200e-003		230.0967
Total	**0.3057**	**6.0880**	**2.4363**	**0.0171**	**0.5893**	**0.0181**	**0.6073**	**0.1644**	**0.0172**	**0.1817**		**1,798.8112**	**1,798.8112**	**0.0919**		**1,801.1077**

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	lb/day										lb/day					
Mitigated	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228
Unmitigated	3.3870	11.3409	37.2784	0.1100	8.9079	0.0904	8.9983	2.3817	0.0847	2.4664		11,125.8477	11,125.8477	0.5150		11,138.7228

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,518.07	287.50	148.10	3,171,102	3,171,102
Total	1,518.07	287.50	148.10	3,171,102	3,171,102

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
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

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	lb/day										lb/day					
NaturalGas Mitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
NaturalGas Unmitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21368.3	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21.3683	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Unmitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

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

Mckinley

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	217.80	1000sqft	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule is based on Figure 2.4-3 in the Project Description

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Off-road Equipment -

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Off-road Equipment - Equipment based on Section 2.4.3.1 of the PD and the description of activities in Table 2.4-1

Grading - Material exported based on conservative estimates of material to be excavated

Trips and VMT - 105,000 cu yrds / 18 yrds per truck = 5,834 truck trips. Worker and Vendor trips based on Table 2.4-2 Construction Traffic in the PD.

Mckinley - Sacramento Metropolitan AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	285.00
tblConstructionPhase	NumDays	8.00	65.00
tblConstructionPhase	NumDays	5.00	40.00
tblConstructionPhase	NumDays	8.00	130.00
tblConstructionPhase	PhaseEndDate	1/8/2020	10/2/2020
tblConstructionPhase	PhaseEndDate	2/20/2019	1/1/2021
tblConstructionPhase	PhaseEndDate	2/8/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	2/21/2019	9/2/2019
tblConstructionPhase	PhaseStartDate	2/9/2019	10/5/2020
tblConstructionPhase	PhaseStartDate	2/2/2019	1/7/2019
tblGrading	AcresOfGrading	32.50	4.00
tblGrading	AcresOfGrading	65.00	0.00
tblGrading	MaterialExported	0.00	105,000.00
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	13,125.00	5,834.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	VendorTripNumber	36.00	40.00

tblTripsAndVMT	VendorTripNumber	0.00	100.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00
tblTripsAndVMT	WorkerTripNumber	91.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.6125	54.7382	24.8448	0.0917	12.3928	1.5474	13.9017	6.7156	1.4291	8.1045	0.0000	9,529.6504	9,529.6504	1.3429	0.0000	9,563.2231
2020	2.7862	33.1935	19.6043	0.0463	6.6766	1.3105	7.9872	3.4817	1.2070	4.6887	0.0000	4,623.0255	4,623.0255	1.0320	0.0000	4,648.8265
2021	2.5975	30.9382	18.4077	0.0461	6.6766	1.1790	7.8556	3.4817	1.0853	4.5670	0.0000	4,602.3902	4,602.3902	1.0271	0.0000	4,628.0672
Maximum	**3.6125**	**54.7382**	**24.8448**	**0.0917**	**12.3928**	**1.5474**	**13.9017**	**6.7156**	**1.4291**	**8.1045**	**0.0000**	**9,529.6504**	**9,529.6504**	**1.3429**	**0.0000**	**9,563.2231**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.6125	54.7382	24.8448	0.0917	12.3928	1.5474	13.9017	6.7156	1.4291	8.1045	0.0000	9,529.6504	9,529.6504	1.3429	0.0000	9,563.2231
2020	2.7862	33.1935	19.6043	0.0463	6.6766	1.3105	7.9872	3.4817	1.2070	4.6887	0.0000	4,623.0255	4,623.0255	1.0320	0.0000	4,648.8265
2021	2.5975	30.9382	18.4077	0.0461	6.6766	1.1790	7.8556	3.4817	1.0853	4.5670	0.0000	4,602.3902	4,602.3902	1.0271	0.0000	4,628.0672
Maximum	**3.6125**	**54.7382**	**24.8448**	**0.0917**	**12.3928**	**1.5474**	**13.9017**	**6.7156**	**1.4291**	**8.1045**	**0.0000**	**9,529.6504**	**9,529.6504**	**1.3429**	**0.0000**	**9,563.2231**

Mckinley - Sacramento Metropolitan AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474
Total	**8.0157**	**14.3140**	**35.9076**	**0.1118**	**8.9079**	**0.2509**	**9.1588**	**2.3817**	**0.2451**	**2.6268**		**12,561.6296**	**12,561.6296**	**0.5555**	**0.0461**	**12,589.2511**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Energy	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Mobile	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474
Total	**8.0157**	**14.3140**	**35.9076**	**0.1118**	**8.9079**	**0.2509**	**9.1588**	**2.3817**	**0.2451**	**2.6268**		**12,561.6296**	**12,561.6296**	**0.5555**	**0.0461**	**12,589.2511**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/7/2019	3/1/2019	5	40	mobilization, fencing, clear and grub
2	Excavation	Grading	3/4/2019	8/30/2019	5	130	Install excavation support, excavation and gravel pad
3	Building Construction	Building Construction	9/2/2019	10/2/2020	5	285	Vault construction
4	Grading	Grading	10/5/2020	1/1/2021	5	65	Restoration, demob

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Excavation	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Excavation	Graders	1	8.00	187	0.41
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	1	8.00	46	0.45
Excavation	Rubber Tired Dozers	1	8.00	247	0.40
Excavation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40

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
Excavation	6	30.00	100.00	5,834.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	30.00	20.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	30.00	60.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	40.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704		2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**		**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0995	2.4541	0.8137	4.8900e-003	0.1204	0.0178	0.1381	0.0346	0.0170	0.0516		517.1716	517.1716	0.0346		518.0353
Worker	0.1294	0.0955	0.9319	2.1700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		215.7000	215.7000	6.8500e-003		215.8712
Total	**0.2289**	**2.5496**	**1.7456**	**7.0600e-003**	**0.3486**	**0.0194**	**0.3680**	**0.0952**	**0.0185**	**0.1137**		**732.8717**	**732.8717**	**0.0414**		**733.9065**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.7348	28.8236	13.1736	0.0233		1.4896	1.4896		1.3704	1.3704	0.0000	2,305.9407	2,305.9407	0.7296		2,324.1801
Total	**2.7348**	**28.8236**	**13.1736**	**0.0233**	**12.0442**	**1.4896**	**13.5337**	**6.6205**	**1.3704**	**7.9908**	**0.0000**	**2,305.9407**	**2,305.9407**	**0.7296**		**2,324.1801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0995	2.4541	0.8137	4.8900e-003	0.1204	0.0178	0.1381	0.0346	0.0170	0.0516		517.1716	517.1716	0.0346		518.0353
Worker	0.1294	0.0955	0.9319	2.1700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		215.7000	215.7000	6.8500e-003		215.8712
Total	**0.2289**	**2.5496**	**1.7456**	**7.0600e-003**	**0.3486**	**0.0194**	**0.3680**	**0.0952**	**0.0185**	**0.1137**		**732.8717**	**732.8717**	**0.0414**		**733.9065**

3.3 Excavation - 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	lb/day										lb/day					
Fugitive Dust					6.1891	0.0000	6.1891	3.3355	0.0000	3.3355			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.1891**	**1.3974**	**7.5865**	**3.3355**	**1.2856**	**4.6211**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4053	14.0242	3.5512	0.0354	0.7809	0.0597	0.8406	0.2137	0.0571	0.2708		3,791.2854	3,791.2854	0.2342		3,797.1395
Vendor	0.4974	12.2706	4.0683	0.0245	0.6019	0.0888	0.6906	0.1732	0.0849	0.2581		2,585.8581	2,585.8581	0.1727		2,590.1763
Worker	0.1294	0.0955	0.9319	2.1700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		215.7000	215.7000	6.8500e-003		215.8712
Total	**1.0321**	**26.3902**	**8.5515**	**0.0620**	**1.6110**	**0.1501**	**1.7611**	**0.4475**	**0.1435**	**0.5910**		**6,592.8436**	**6,592.8436**	**0.4137**		**6,603.1870**

3.3 Excavation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1891	0.0000	6.1891	3.3355	0.0000	3.3355			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.1891**	**1.3974**	**7.5865**	**3.3355**	**1.2856**	**4.6211**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4053	14.0242	3.5512	0.0354	0.7809	0.0597	0.8406	0.2137	0.0571	0.2708		3,791.2854	3,791.2854	0.2342		3,797.1395
Vendor	0.4974	12.2706	4.0683	0.0245	0.6019	0.0888	0.6906	0.1732	0.0849	0.2581		2,585.8581	2,585.8581	0.1727		2,590.1763
Worker	0.1294	0.0955	0.9319	2.1700e-003	0.2282	1.6300e-003	0.2298	0.0605	1.5000e-003	0.0620		215.7000	215.7000	6.8500e-003		215.8712
Total	**1.0321**	**26.3902**	**8.5515**	**0.0620**	**1.6110**	**0.1501**	**1.7611**	**0.4475**	**0.1435**	**0.5910**		**6,592.8436**	**6,592.8436**	**0.4137**		**6,603.1870**

3.4 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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1990	4.9082	1.6273	9.7800e-003	0.2408	0.0355	0.2763	0.0693	0.0340	0.1033		1,034.3432	1,034.3432	0.0691		1,036.0705
Worker	0.2157	0.1591	1.5532	3.6100e-003	0.3804	2.7100e-003	0.3831	0.1009	2.5000e-003	0.1034		359.5001	359.5001	0.0114		359.7853
Total	**0.4146**	**5.0673**	**3.1805**	**0.0134**	**0.6211**	**0.0382**	**0.6593**	**0.1702**	**0.0365**	**0.2066**		**1,393.8433**	**1,393.8433**	**0.0805**		**1,395.8559**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1990	4.9082	1.6273	9.7800e-003	0.2408	0.0355	0.2763	0.0693	0.0340	0.1033		1,034.3432	1,034.3432	0.0691		1,036.0705
Worker	0.2157	0.1591	1.5532	3.6100e-003	0.3804	2.7100e-003	0.3831	0.1009	2.5000e-003	0.1034		359.5001	359.5001	0.0114		359.7853
Total	**0.4146**	**5.0673**	**3.1805**	**0.0134**	**0.6211**	**0.0382**	**0.6593**	**0.1702**	**0.0365**	**0.2066**		**1,393.8433**	**1,393.8433**	**0.0805**		**1,395.8559**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1589	4.4819	1.3579	9.7100e-003	0.2407	0.0237	0.2644	0.0693	0.0226	0.0919		1,027.6492	1,027.6492	0.0647		1,029.2660
Worker	0.1984	0.1414	1.3978	3.5000e-003	0.3804	2.6400e-003	0.3830	0.1009	2.4400e-003	0.1033		348.4443	348.4443	0.0100		348.6947
Total	**0.3573**	**4.6232**	**2.7558**	**0.0132**	**0.6211**	**0.0263**	**0.6474**	**0.1702**	**0.0251**	**0.1952**		**1,376.0935**	**1,376.0935**	**0.0747**		**1,377.9607**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1589	4.4819	1.3579	9.7100e-003	0.2407	0.0237	0.2644	0.0693	0.0226	0.0919		1,027.6492	1,027.6492	0.0647		1,029.2660
Worker	0.1984	0.1414	1.3978	3.5000e-003	0.3804	2.6400e-003	0.3830	0.1009	2.4400e-003	0.1033		348.4443	348.4443	0.0100		348.6947
Total	**0.3573**	**4.6232**	**2.7558**	**0.0132**	**0.6211**	**0.0263**	**0.6474**	**0.1702**	**0.0251**	**0.1952**		**1,376.0935**	**1,376.0935**	**0.0747**		**1,377.9607**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0874**	**1.2734**	**7.3608**	**3.3173**	**1.1716**	**4.4888**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2383	6.7228	2.0369	0.0146	0.3611	0.0355	0.3966	0.1039	0.0340	0.1379		1,541.4738	1,541.4738	0.0970		1,543.8990
Worker	0.1190	0.0848	0.8387	2.1000e-003	0.2282	1.5900e-003	0.2298	0.0605	1.4600e-003	0.0620		209.0666	209.0666	6.0100e-003		209.2168
Total	**0.3574**	**6.8076**	**2.8756**	**0.0167**	**0.5893**	**0.0371**	**0.6264**	**0.1644**	**0.0354**	**0.1999**		**1,750.5403**	**1,750.5403**	**0.1030**		**1,753.1158**

3.5 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.0874**	**1.2734**	**7.3608**	**3.3173**	**1.1716**	**4.4888**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2383	6.7228	2.0369	0.0146	0.3611	0.0355	0.3966	0.1039	0.0340	0.1379		1,541.4738	1,541.4738	0.0970		1,543.8990
Worker	0.1190	0.0848	0.8387	2.1000e-003	0.2282	1.5900e-003	0.2298	0.0605	1.4600e-003	0.0620		209.0666	209.0666	6.0100e-003		209.2168
Total	**0.3574**	**6.8076**	**2.8756**	**0.0167**	**0.5893**	**0.0371**	**0.6264**	**0.1644**	**0.0354**	**0.1999**		**1,750.5403**	**1,750.5403**	**0.1030**		**1,753.1158**

3.5 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.0874**	**1.1599**	**7.2473**	**3.3173**	**1.0671**	**4.3844**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1964	6.1255	1.7847	0.0144	0.3610	0.0176	0.3786	0.1039	0.0168	0.1207		1,528.5124	1,528.5124	0.0929		1,530.8338
Worker	0.1107	0.0760	0.7655	2.0300e-003	0.2282	1.5400e-003	0.2298	0.0605	1.4200e-003	0.0620		201.9493	201.9493	5.3800e-003		202.0838
Total	**0.3072**	**6.2016**	**2.5502**	**0.0165**	**0.5893**	**0.0191**	**0.6083**	**0.1644**	**0.0182**	**0.1826**		**1,730.4617**	**1,730.4617**	**0.0982**		**1,732.9177**

3.5 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0874	0.0000	6.0874	3.3173	0.0000	3.3173			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.0874**	**1.1599**	**7.2473**	**3.3173**	**1.0671**	**4.3844**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1964	6.1255	1.7847	0.0144	0.3610	0.0176	0.3786	0.1039	0.0168	0.1207		1,528.5124	1,528.5124	0.0929		1,530.8338
Worker	0.1107	0.0760	0.7655	2.0300e-003	0.2282	1.5400e-003	0.2298	0.0605	1.4200e-003	0.0620		201.9493	201.9493	5.3800e-003		202.0838
Total	**0.3072**	**6.2016**	**2.5502**	**0.0165**	**0.5893**	**0.0191**	**0.6083**	**0.1644**	**0.0182**	**0.1826**		**1,730.4617**	**1,730.4617**	**0.0982**		**1,732.9177**

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	lb/day										lb/day					
Mitigated	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474
Unmitigated	2.5691	12.2188	34.1255	0.0992	8.9079	0.0916	8.9995	2.3817	0.0858	2.4675		10,047.6680	10,047.6680	0.5072		10,060.3474

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,518.07	287.50	148.10	3,171,102	3,171,102
Total	1,518.07	287.50	148.10	3,171,102	3,171,102

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
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

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	lb/day										lb/day					
NaturalGas Mitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
NaturalGas Unmitigated	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21368.3	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	21.3683	0.2304	2.0949	1.7597	0.0126		0.1592	0.1592		0.1592	0.1592		2,513.9139	2,513.9139	0.0482	0.0461	2,528.8529
Total		**0.2304**	**2.0949**	**1.7597**	**0.0126**		**0.1592**	**0.1592**		**0.1592**	**0.1592**		**2,513.9139**	**2,513.9139**	**0.0482**	**0.0461**	**2,528.8529**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Unmitigated	5.2162	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6609					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0900e-003	2.0000e-004	0.0223	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0477	0.0477	1.3000e-004		0.0508
Total	**5.2162**	**2.0000e-004**	**0.0223**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0477**	**0.0477**	**1.3000e-004**		**0.0508**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

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 GEOTECHNICAL DATA REPORT

The McKinley Vault, CSS Storage Facility

Geotechnical Data Report

June 15, 2018

Prepared for:

City of Sacramento
Department of Utilities

Prepared by:

Stantec Consulting Services, Inc

This document entitled Geotechnical Data Report was prepared by Stantec Consulting Services Inc. for the account of the City of Sacramento Department of Utilities. Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____

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Approved by _____

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Dan Back, GE, Principal

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1.0 INTRODUCTION

1.1 COMBINED SEWER SYSTEM

The combined sewer system (CSS) around McKinley Park is part of the larger area wide CSS that serves over 200,000 city residents including people in the Downtown, River Park, Land Park, Curtis Park, Oak Park and East Sacramento neighborhoods. Running in a single pipe network, the CSS conveys both wastewater and stormwater.

During moderate to intense storms, the McKinley Park area and surrounding neighborhoods in East Sacramento can experience significant street flooding. This occurs due to the limited capacity of the CSS, thus causing mixed stormwater and wastewater to flow out of the system and onto low-lying areas of the streets and properties.

1.2 MCKINLEY WATER VAULT

The McKinley Water Vault project undertaken by the City of Sacramento, Department of Utilities consists of constructing a new off-line storage facility under McKinley Park to help reduce CSS outflows during moderate to intense storms. Once built, the below ground facility (the Vault), will not only reduce local flooding during storm events but also help fulfill applicable requirements of California Regional Water Quality Control Board.

The Vault will store wastewater and stormwater during storm events and slowly feed the water into the CSS. Based on the planning-level studies, the Vault is expected to be a single structure under approximately 2.0 acres of the park with a rough capacity of 800,000 cubic feet. McKinley Park is located at 601 Alhambra Blvd, Sacramento, CA. as shown in Plate 1. The proposed area for McKinley Vault is located in the southeast and central portion of the park. The foundation of the Vault is expected to be approximately 20 feet below the ground surface.

1.3 PRE-DESIGN PHASE

The City retained Stantec Consulting Inc. to assist with the pre-design phase and final design phase (City project number X14010104). As part of our scope of work, we have completed a geotechnical investigation at the site. This Geotechnical Data Report (GDR) is presented to the City in accordance with our Professional Service Agreement. Additional geotechnical investigations were done during the final design phase. This report has been updated to include data from the additional investigations.

1.4 GEOTECHNICAL DATA REPORT

In accordance with our service agreement, the following information has been included in this GDR.

- Description of the field and laboratory investigations
- Discussion regarding the subsurface soil and groundwater conditions encountered
- Discussion regarding the limitations of the investigation, conditions for use of the data
- Summarized data collected during the field investigation including boring logs, laboratory test results, water level measurements, and other factual data.

Recommendations for foundation design; seismic design; shoring, bracing, and backfill; corrosion potential; and dewatering at the site will be provided in the Geotechnical Interpretive Report.

2.0 GEOLOGIC CONDITIONS AND SEISMICITY

The City of Sacramento sits within the Great Valley Geomorphic Province of California, in an area referred to as the Central Valley. This flat valley is bounded to the east by the Sierra Nevada mountain range and to the west by the Coast Ranges. The Great Valley is formed by the accumulation of a sequence of sediments derived from weathering of the adjacent mountain ranges. These sediments of the Cretaceous, Tertiary, and Quaternary deposits are up to a 10-mile depth on the western side of the Sacramento Valley and gradually thin out on the eastern side. The Holocene alluvium material at the surface presents gravel, sand and silt up to 30 feet thick underlain by older Pleistocene Alluviums comprising of a more consolidated and weathered gravel, sand, silt and clay deposits (see Plate 2).

The project site is located within a seismically active region. Table 1 presents the distance of the mapped, active regional faults and estimated maximum magnitude (see Plate 3).

Table 1. Regional Seismicity

Fault	Distance (miles)	Magnitude Moment Magnitude
Foothills Fault System	28	6.5
Great Valley, Segment 4	32	6.6
Great Valley, Segment 5	33	6.5
Hunting Creek - Berryessa	38	7.1
Great Valley, Segment 3	41	6.9
Great Valley, Segment 6	44	6.2
Concord – Avon Section	49	6.9
West Napa	51	6.5
Greenville	51	6.9
Calaveras (No. of Calaveras Res)	61	6.8
Great Valley, Segment 2	61	6.4
Rodgers Creek	62	7.0
Bartlett springs	62	7.1

3.0 FIELD INVESTIGATION

A site investigation program began on March 20, 2017 and was completed on March 29, 2017. At the request of the city of Sacramento an additional site investigation program was undertaken on April 26, 2018 and April 27, 2018. The two site investigation programs totaled four borings and three CPTs. The geotechnical data was gathered to support the pre-design phase and final design phase of the project. An exploration location plan, cone penetration test data and borings records are provided in Appendix A.

3.1 EXPLORATORY BORINGS

The four exploratory borings were drilled using hollow stem auger or mud-rotary drilling methods. Stantec hired a contractor (Cascade Drilling) who used a CME-85 truck mounted drill rig equipped with an automatic hammer with 140 lbs weight with 30-inch drop height.

Work was performed under the continuous supervision of a Stantec geotechnical professional, who visually inspected soil samples and develop detailed boring records for each boring including groundwater levels.

Soil samples were collected at 2.5-foot or 5-foot intervals and at noteworthy changes in soil strata. Disturbed sampling was generally performed using a 2-inch outside diameter (OD)(1.4-inch (ID)) Split Sampler (SS) for a standard STP and a 3.0-inch OD (2.4-inch (ID)) for the California modified sampler. Samples were collected and stored in double plastic bags to protect them from moisture loss during transportation.

Blow counts were recorded for each 6-inch interval for an 18-inch drive at every sampling interval. When soft or medium stiff cohesive soils were encountered, undisturbed samples were obtained in accordance with ASTM D1587 using a 30-inch-long, 3-inch OD (2.9-inch ID) Shelby tubes. Samples were immediately inspected upon retrieval from boring and visually classified by Stantec representative. Visual descriptions and soil sample classifications were developed and noted on records in accordance with ASTM D2488. Index strength tests were performed using a pocket penetrometer devise for cohesive soil samples obtained from Boring B-2.

Table 2. Summary of Completed Borings

Boring I.D.	Location*		Date(s) Performed	Ground Surface Elevation [GSE]** (ft.)	Total Depth (ft.)
	Northing (ft)	Easting (ft)			
B-1	1971705	6715855	3/29/2017	21.0	66
B-2	1972072	6715773	3/21/2017	21.1	60
B-3	1971841	6715724	4/26/2018	21.1	51.5
B-4	1971779	6715648	4/25/2018	22.0	51.5

* Coordinates are provided in California State Plane Zone 2
** Vertical datum NAVD88

3.2 CONE PENETRATION TEST

Three CPT soundings were performed in accordance with ASTM D3441 by Fugro Consultants, Inc. Fugro used a 20-ton capacity truck-mounted rig with a 15 square-centimeter (cm^2) tip area, an apex angle of 60 degrees, and a friction sleeve with a surface area of 225 cm^2. Cone readings were taken at approximately 5-cm intervals with a penetration rate of 2 cm per second. A summary of the pertinent CPT soundings is provided in Table 3. Measurements include the tip resistance to penetration of the cone (Q_c), the resistance of the surface sleeve (F_s), and pore pressure (U). The CPT data is presented in Appendix A.

Table 3. Summary of Completed Cone Penetration Test

Boring I.D.	Location		Date(s) Performed	Ground Surface Elevation [GSE]* (ft.)	Total Depth (ft.)
	Northing (ft)	Easting (ft)			
CPT-1	1971772.8	6715650.6	3/20/2017	21.6	60
CPT-2	1972012.9	6715952.9	3/20/2017	19.8	60
CPT-3	1971899.0	6715813.0	3/20/2017	20.4	64

* Coordinates are provided in California State Plane Zone 2
** Vertical datum NAVD88

4.0 SITE CONDITIONS

The following section summarizes and describes the surface, subsurface, and groundwater conditions encountered in the explorations.

4.1 SURFACE CONDITIONS

The project site is located in East Sacramento approximately 0.9 miles south of the American River and approximately 2.5-miles east of the Sacramento River (see Plate 1). The park is relatively low lying with flat topography. Surrounding the park are residences along McKinley Boulevard to the north, 33rd Street to the east, H Street to the south, and commercial establishments along Alhambra Boulevard to the west. The project footprint is located in the eastern/southeastern portion of the park within the grass baseball field. The location is predominantly grassy, with several trees surrounding the perimeter of the project footprint. The ground surface elevation at the site varies approximately between 19 feet and 22 feet (NAVD88) and slopes gently to the west/southwest. McKinley Park Lake, a small pond located in the southwestern portion of the park, is approximately 400 feet to the west.

4.2 SUBSURFACE CONDITIONS

Subsurface conditions encountered in the soil borings are described in the following sections. The subsurface conditions are generally indicative of river plain depositional sequences, with alternating layers of cohesive and granular material. Classifications and thicknesses of materials vary.

4.2.1 Boring B-1

Boring B-1 was drilled near the southeast corner of the project site, to a total depth of 66.2 feet below ground surface. The ground surface consisted of grass, and was underlain by a thin layer of topsoil to a depth of approximately 1-foot. Below the topsoil to a depth of 22.5 feet was a cohesive layer, consisting of brown to grayish-brown, dry to slightly moist, very stiff to hard silt with sand (ML) and sandy silt (ML) with estimated percentages of sand ranging between 15 and 40 percent. A very thin lens of wet silty sand (SM), approximately 1 foot thick, was encountered at an estimated depth of 18.5 feet. Underlying the cohesive layer to a depth of 35.5 feet is a granular layer, consisting of silty sand (SM) to a depth of 32.5 feet, and a thin lens of poorly graded sand with silt (SP-SM) to 35.5 feet. The silty sand is orangish-brown to brownish gray, dense to very dense, and contains up to an estimated 30 percent nonplastic to low-plasticity fines.

A second cohesive layer, which is below the granular layer, was encountered in this boring between 35.5 feet and 42.5 feet. Soil encountered consists of brownish-gray, wet, hard sandy silt (ML) from 35.5 feet to 37.5 feet, and then brownish-gray, moist, hard silty clay with sand (CL-ML) from 37.5 feet to 42.5 feet. At 42.5 feet and extending to a depth of 60.75 feet within the borehole is a second granular layer. This layer consists predominantly of olive-gray, wet, medium dense to dense silty sand (SM) with up to 40 percent fines. Within the layer are lenses of poorly graded sand with silt (SP-SM) from 45.75 to 46.5 feet, and well-graded sand with silt (SW-SM) from 57.5 to 60.75 feet. The lower granular layer is encountered at 60.75 feet and extends to the bottom of the boring. This layer consists of wet, soft, sandy silty clay (CL-ML) from 60.75 to 61.75 feet, and then silt to sandy silt (ML) from 61.75 feet.

Groundwater was initially observed during drilling at a depth of 19.5 feet below ground surface. During drilling, an equipment malfunction on the drilling rig necessitated an almost three hour delay, at which time the groundwater level was able to stabilize to a level more indicative of the static conditions at the site. After three hours, groundwater was estimated at a depth of 12 feet below the ground surface by observing the wet level on the drill rods as they were removed from the hole.

4.2.2 Boring B-2

Boring B-2 was drilled near the northwest corner of the proposed project footprint, to a total depth of 60 feet below ground surface. The ground surface consisted of grass, with a thin, 0.5-foot thick layer of topsoil below, as observed during hand augering. Below the topsoil to a depth of 22.5 feet below ground surface is a cohesive layer, consisting of alternating clay (CL/CL-ML) and silt (ML) layers. From 0.5 feet to 7.5 feet is very soft, wet, lean clay with up to 25 percent sand. Dry, hard silt is encountered from 7.5 to 12.5 feet, and then moist, firm silty clay (CL-ML) with trace fine grained sand from 12.5 to 19 feet. The bottom of the second cohesive layer is slightly moist, very stiff silt which features scattered orange iron-oxide stains and up to 15 percent sand.

A granular layer was observed below the cohesive layer, between 22.5 feet and 30.75 feet below ground surface. This layer comprised of brownish-gray, wet, dense, poorly graded sand with an estimated 5 to 15 percent nonplastic fines (SP-SM). Underlying this granular layer is a second cohesive layer, consisting of brown, moist, hard silt with sand (ML) to 31.5 feet, and the dry to slightly moist, hard, lean clay with sand (CL) from 31.5 to 37.5 feet.

Observed from 37.5 feet to 55.5 in boring B-2 is a second granular layer. The upper portion of this layer, to a depth of approximately 47.5 feet, consists primarily of poorly graded sand with silt (SP-SM). The SP-SM here is gray, wet, and very dense. There is a thin lens of silty sand (SM) and silt with sand (ML) from 41 to 41.5 feet. The bottom portion of the second granular layer, from 47.5 to 55.5 feet, comprises primarily of gray, wet, very dense silty sand (SM). There is a thin lens of well-graded sand (SW) and silt (ML) within the silty sand between 51.25 and 52.5 feet. Underlying the second granular layer and extending to the bottom of the boring is the second cohesive layer, which consists of olive-brown to olive-gray, moist, hard silt (ML).

Groundwater was observed during drilling at a depth of 25 feet below ground surface. The static groundwater level after drilling was not measured but is likely to be around 12 feet based on boring B-2, located approximately 350 feet away.

4.2.3 Boring B-3

Boring B-3 was drilled approximately half way between CPT-1 and CPT-3, to a total depth of 51.5 feet below ground surface. The ground surface consisted of grass and was underlain by a thin layer of topsoil to a depth of approximately 0.4 feet. Below the topsoil to a depth of 22.5 feet below ground surface is a generally cohesive layer consisting of sandy lean clay (CL), silty sand (SM), and sandy silt (ML) layers. From 0.4 feet to 3.0 feet is moist, sandy lean clay (CL) with medium plasticity. From 3.0 to 8.0 feet a moist, very dense silty sand (SM) with an estimated 30 percent fines content was observed. From 8.0 to 13.0 feet, a moist, firm sandy silt (ML) with an estimated 30 percent fine to medium grained sand was encountered. From 13.0 to 23.0 feet, a wet cohesive layer, very stiff, sandy lean clay (CL) was observed.

A granular layer was observed below the cohesive layer, between 23.0 feet and 28.5 feet below ground surface. This layer comprised of brown, orange, and gray, wet, dense, well graded clayey sand (SC) with approximately 30 percent medium plasticity fines. Underlying this granular layer is a second cohesive layer, consisting of brown, orange, and gray, wet, hard sandy lean clay (CL) from 28.5 feet to 38.0 feet. Lastly, a wet, dense to very dense clayey sand (SC) layer was observed from 38.0 feet to 51.5 feet with up to 30 percent low to medium plasticity fines.

Groundwater was observed during drilling at a depth of approximately 18.5 feet below ground surface upon the completion of soil augering. After groundwater was encountered, the drilling method was switched from hollow stem augering to mud rotary at approximately 19 feet from ground surface. Therefore, additional natural groundwater readings were not observed due to drilling fluid being used to remove soil cuttings away from the mud rotary bit.

4.2.4 Boring B-4

Boring B-4 was drilled approximately five feet northeast of CPT-1, to a total depth of 51.5 feet below ground surface. The ground surface consisted of grass and was underlain by a thin layer of topsoil to a depth of approximately 0.5 feet. Below the topsoil to a depth of 21.5 feet is a generally cohesive layer, consisting of alternating sandy clay (CL) clayey sand (SC), and silty sand (SM) layers. From 0.4 feet to 3.0 feet is moist, brown and orange, medium plastic, lean clay with sand (CL). A very thin, moist, brown and orange silty sand (SM) layer was observed from 3.0 feet to 4.5 feet. Moist, brown, orange, and gray mottled, very stiff sandy lean clay (CL) underlies the silty sand and was observed from approximately 4.5 to 8.5 feet. Moist, medium dense silty sand (SM) with an estimated 20 percent fines content was then observed from 8.5 to 13.5 feet. Lastly from 13.5 feet to 21.5 feet a generally gray, brown, and orange generally cohesive layer mottled hard sandy lean clay (CL) with approximately 20 to 30 percent sand content was observed.

A sand layer was generally observed below the cohesive layer, between 21.5 feet and 51.5 feet below ground surface. This layer was comprised of wet, brown to brown, orange, and gray mottled clayey sand (SC) with low plasticity fines. Apparent densities of the clayey sand ranged

from medium dense to very dense. From approximately 21.5 feet to 33.0 feet, the clayey sand had up to approximately 50 percent fines content while fines content from 33.0 feet to 51.5 feet decreased to approximately 20 to 30 percent.

At approximately 11.5 feet, and prior to encountering the groundwater, the drilling method was switched from hollow stem augering to mud rotary. Therefore, natural groundwater readings were not obtained in boring B-4 due to drilling fluid being used to remove soil cuttings away from the mud rotary bit.

4.3 GROUNDWATER CONDITIONS

As discussed in previous sections, during exploration at Boring B-2 groundwater was encountered at 12 feet below ground surface (~ EL. 9.0 feet NAVD88). Due to the drilling procedures employed at other locations, the location of the phreatic surface was not evaluated. A review of available data from the Sacramento County Water Agency, shows groundwater elevation approximately to EL. -15 feet for spring 2004 and a groundwater elevation of EL 2.03 feet for spring 2016. Historical data for nearby wells (Monitoring well SWP-177) shows that the groundwater elevation has risen from EL. -20 feet to EL. -10 feet in the last 12 years at this location.

Groundwater elevation contours for the upper threshold map shows that the groundwater elevation at the project site could be approximately as high as EL 7.0 feet (see Plate 4) and the groundwater elevation for the lower threshold is set at approximately at elevation EL 0.0 feet (see Plate 5).

5.0 LABORATORY ANALYSIS

A laboratory testing program was developed to aid in visual classification of the soil samples and to measure pertinent engineering properties of soil for the proposed McKinley Park Vault. Samples obtained during drilling were transported to Blackburn Consulting, an accredited lab in West Sacramento, California, for testing. Testing was performed in accordance with applicable ASTM standards. Table 4 summarizes the geotechnical soil tests performed during this investigation.

Table 4. Summary of Geotechnical Tests Performed on Soil Samples

Laboratory test	Number of Samples	Test Method
Moisture Content	6	ASTM D2216
Moisture/Density	2	ASTM D2216/ASTM 2937
Unconfined Compression	1	ASTM D2166
No. 200 Wash	10	ASTM D1140
Plasticity Index	8	ASTM D4318
Expansion Index	1	ASTM D4829
Direct Shear	1	ASTM D3080
One-Dimensional Consolidation	1	ASTM D2435
Chemical Analysis (pH, Resistivity, Chloride, and Sulfate content)	1	CA DOT #643, #417, and #422

Data obtained from laboratory tests for each sample are listed in the boring logs at the elevation where the sample was taken. Full laboratory testing data are provided in Appendix B.

6.0 LIMITATIONS

The limited data provided in this report pertain only to the site investigated and should be used only to support the preliminary design of the McKinley Vault. This GDR has been prepared in accordance with generally accepted geotechnical engineering practice for site exploration and testing. No other warranty, expressed or implied, is made.

7.0 REFERENCES

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APPENDICES

Appendix A FIELD INVESTIGATION

Appendix B SOIL LABORATORY RESULTS

Appendix C SEISMIC INFORMATION

APPENDIX A
FIELD INVESTIGATION
BORING AND CPT DATA

Plate A-1
Photographic Record

The McKinley Park CSS Storage Facility
Sacramento, CA

Stantec

Boring B-3

Boring B-4

Plate A-2
Photographic Record

The McKinley Park CSS Storage Facility
Sacramento, CA

Stantec

FEET

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Plate A-3
Borings and CPT Location

The McKinley Park CSS Storage Facility
Sacramento, CA

Stantec

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-1** PAGE 1 OF 4
DRILLING / INSTALLATION: STARTED **3/29/17** COMPLETED: **3/29/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,706** EASTING (ft): **6,715,856** LAT: LONG: GROUND ELEV (ft): **21.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **19.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **12** DEPTH (ft): **65.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		OL	Ground surface is grass with underlying topsoil.						
		ML							
5			**SILT with Sand (ML),** brown, slightly moist, very stiff, low plasticity, estimated 10 to 20% fine grained sand, black specs - possible organics.		7:56 1 SS	1.5	4 8 11		5
			Unable to push shelby tube. Pressure > 1000PSI bent and damaged bottom of tube. Soil observed same as SS-1.		8:15 2 ST	0.3	PUSH		
		ML							
10			**SILT, ML,** grayish-brown, dry to slightly moist, hard, non plastic to very low plasticity, 10% fine grained sand. **Laboratory Results for 3-CA:** mc = 30.1%; DD = 92.2 pcf UCS = 2.87 tsf (39.9 psi) %Fines = 90%; LL = 37; PI = 11		8:24 3 CA	1.5	13 26 27		10
		ML							
15			**SILT with Sand (ML),** olive-brown, slightly moist, very stiff, very low plasticity, estimated 15 to 30% fine grained sand. Pocket Penetrometer at 15-feet: 3.5 tsf.		8:32 4 SS	1.5	6 13 16		15
			Observed in top of Shelby Tube: Same as SS-4. Pocket Penetrometer: 3.0 tsf.		8:39 5 ST	2.2	PUSH (1000 PSI)		
		SM	Observed in bottom of Shelby Tube: **Silty SAND (SM),** orangish-brownish-gray, wet, fine to medium sand, nonplastic to low plasticity fines. Pocket Penetrometer: 4.5 tsf						

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-1** PAGE 2 OF 4 Stantec
DRILLING / INSTALLATION: STARTED **3/29/17** COMPLETED: **3/29/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,706** EASTING (ft): **6,715,856** LAT: LONG: GROUND ELEV (ft): **21.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **19.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **12** DEPTH (ft): **65.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		ML	**SILT with Sand (ML),** same as SS-4, except stiff and moist to wet.		9:00 6 SS	1.5	5 6 7		
		SM							
25			**Silty SAND (SM),** orangish-brown with FeOx stains, wet, dense, predominantly fine grained sand with some medium sand, estimated 25 to 30% nonplastic to low plasticity fines, 1/4-inch black organic seam at 26.2 feet.		9:06 7 SS	1.5	7 15 19		25
30			**Silty SAND, SM,** brown-gray, wet, very dense, fine to medium sand, nonplastic to very low plasticity fines. **Laboratory Results for 8-CA:** mc = 21.2%; %Fine = 18% Direct Shear: C = 56.1 psf; X = 41.5 deg; DD = 107.1 pcf (Sample remolded)		9:16 8 CA	1.5	3 17 34		30
		SP-SM							
35			35 to 35.5': **Poorly Graded SAND with Silt (SP-SM),** brown-gray, wet, medium dense, estimated 5 to 15% nonplastic fines. (SS-9A)		12:28 9 SS	1.5	7 11 20		35
		ML	35.5 to 36.5': **Sandy SILT (ML),** brown-gray, wet, dense/hard, low plasticity, estimated 40 to 50% fine grained sand. Possibly SM. (SS-9B)						
		CL-ML							

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-1** PAGE 3 OF 4 Stantec
DRILLING / INSTALLATION: STARTED **3/29/17** COMPLETED: **3/29/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,706** EASTING (ft): **6,715,856** LAT: LONG: GROUND ELEV (ft): **21.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **19.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **12** DEPTH (ft): **65.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		CL-ML	Top 5-inches in samples is sand. Possible heave? **Silty CLAY with Sand (CL-ML),** brownish-gray, moist, low plasticity, estimated 10 to 20% fine grained sand, 1/16-inch completely weathered calcareous seam at 41.3 feet. Pocket Penetrometer at 41-feet: 4.5 tsf.		12:38 10 CA	1.5	10 20 28		
		SM							
45			45 to 45.75': **Silty SAND (SM),** olive-gray, wet, dense, fine to medium sand, estimated 20 to 30% low plasticity fines.		13:03 11 SS	1.5	9 21 37		45
		SP-SM	45.75 to 46.5': **Poorly Graded SAND with Silt (SP-SM),** olive-gray, wet, very dense, fine to medium sand, estimated 5 to 10% nonplastic fines.						
		SM							
50			**Silty SAND (SM),** olive-gray with scattered FeOx stains, wet, medium dense, fine grained sand, estimated 30 to 40% nonplastic to low plasticity fines, 1/4-inch oolitic, calcareous weathered lens at 51 feet.		13:15 12 SS	1.3	7 11 14		50
55			**Silty SAND (SM),** olive-gray, wet, medium dense, fine grained sand, estimated 10 to 20% nonplastic fines.		13:30 13 SS	1.5	5 9 10		55
		SW-SM							

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-1** PAGE 4 OF 4
DRILLING / INSTALLATION: STARTED **3/29/17** COMPLETED: **3/29/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,706** EASTING (ft): **6,715,856** LAT: LONG: GROUND ELEV (ft): **21.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **19.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **12** DEPTH (ft): **65.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		SW-SM	60 to 60.75': **Well-Graded SAND with Silt (SW-SM),** gray, wet, very loose, fine to coarse sand, estimated 5 to 15% nonplastic fines. (SS-14A)		13:40 14 SS	1.5	1 1 3		
		CL-ML	60.75 to 61.5': **Sandy Silty CLAY (CL-ML),** gray with some brown seams, wet, soft, low plasticity, estimated 30 to 35% fine grained sand.						
		SP-SM	Observed in top of Shelby Tube: Loose sand (SP-SM) and pooled water.						
		MLS	Observed in bottom of Shelby Tube: **Sandy SILT (ML),** gray, wet, estimated up to 40% fine grained sand.		14:00 15 ST	2.5	PUSH (600 PSI)		
65		ML			14:22 16 SS	0.8	6 23 50/3"		65
			Top 6-inches is sand heave. **SILT (ML),** gray, slightly moist, hard, non-plastic, estimated 5 to 15% fine grained sand. Cemented very dark brown fine to coarse silty sand (SM) in split-spoon shoe. Borehole terminated at 66.2 feet.						
70									70
75									75

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-2** PAGE 1 OF 3
DRILLING / INSTALLATION: STARTED **3/21/17** COMPLETED: **3/21/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,972,072** EASTING (ft): **6,715,773** LAT: LONG: GROUND ELEV (ft): **21.1 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **25** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **60.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
			Grass/Topsoil - Hand auger to 5-FT below ground surface to clear irrigation lines.						
		CL							
5			**Lean CLAY with Sand (CL),** brown, wet, very soft, low plasticity, estimated 15 to 25% fine grained sand.		8:40 1 SS	1.5	WOH WOH 1		5
		ML							
10			**SILT (ML),** light brown, dry, hard, very low plasticity, trace fine grained sand, some minor cementation.		8:48 2 SS	0.9	22 50/5"		10
		CL							
15			**Lean CLAY, (CL),** light to medium brown, moist, firm, low plasticity, trace fine grained sand.		8:56 3 SS	1.5	3 4 5		15
			Same as SS-3, as observed from bottom of Shelby Tube. **Laboratory Results for 4-ST:** mc = 24.5%; DD = 99.0 pcf; LL = 30; PI = 14 Expansion Index = 57 (Medium Expansion Potential) pH = 6.95; Res = 0.56 ohm-cm; Chloride = 179.7ppm; Sulfate = 82.8ppm *See Laboratory Results for Consolidation Test Results*		9:05 4 ST	2.1	PUSH - 500PSI		
		ML							

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-2** PAGE 2 OF 3 Stantec
DRILLING / INSTALLATION: STARTED **3/21/17** COMPLETED: **3/21/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,972,072** EASTING (ft): **6,715,773** LAT: LONG: GROUND ELEV (ft): **21.1 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **25** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **60.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		ML	**SILT (ML),** olive-gray, slightly moist, very stiff, very low plasticity, estimated 5 to 15% fine grained sand, scattered FeOx stains - possibly completely weathered coarse sand grains.		9:15 5 SS	1.5	5 7 11		
		SM							
25			**Silty SAND, SM,** brownish-gray, wet, dense, fine grained slightly micaceous sand, 20% nonplastic fines, one 1/2-inch clay chunk at 25.5 feet. **Laboratory Results for 6-CA:** %Fines = 20%		9:25 6 CA	1.5	8 16 21		25
30			SS-7A, 30 to 30.75 feet: **Silty SAND (SM),** same as above.		9:38 7 SS	1.5	7 16 23		30
		ML	SS-7B, 30.75 to 31.5 feet: **SILT with Sand (ML),** light to medium brown, moist, hard, low plasticity, estimated 15 to 30% fine grained sand.						
		SC							
35			**Clayey SAND, SC,** light brownish-orange with minor FeOx staining, dry to slightly moist, very dense, fine grained sand, low plasticity fines, trace organics. **Laboratory Results for 8-SS:** %Fines = 46%; LL = 28; PI = 11		9:50 8 SS	1.5	6 22 35		35
		SP-SM							

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-2** PAGE 3 OF 3
DRILLING / INSTALLATION: STARTED **3/21/17** COMPLETED: **3/21/17** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,972,072** EASTING (ft): **6,715,773** LAT: LONG: GROUND ELEV (ft): **21.1 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **25** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **60.0** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **SB** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		SP-SM	40 to 41 feet: **Poorly Graded SAND with Silt (SP-SM),** gray, wet, very dense, fine to medium micaceous sand, estimated up to 10% low plasticity fines.		10:05 9 SS	0.5	4 32 50/5"		
		SM	41 to 41.4 feet: **Silty SAND (SM),** same as above, with estimated 20 to 30% low plasticity fines.						
		ML	41.4 to 41.5 feet: **SILT with Sand (ML),** light brownish-gray, moist, hard, very low to no plasticity.						
		SP-SM	Same as above from 40 to 41 feet.						
45			1-foot of heave in top of sample 10-CA. Blow counts were 3-5-37. Reamed hole to 45.5 feet and resampled 11-SS. No heave before sampling. **Poorly Graded SAND with Silt, SP-SM,** same as 40 to 41 feet. **Laboratory Results for 11-SS:** %Fines = 5.7%; LL = NP; PI = NP		11:15 10 CA 11:25 11 SS	1.5 1.5	3 5 37 10 28 30		45
		SM							
50			50 to 51.25 feet: **Silty SAND (SM),** gray, wet, very dense, fine grained sand, estimated 15 to 25% very low plasticity fines, two 1/8-inch thick black organic lenses at 51.1 to 51.2 feet.		11:46 12 SS	1.5	5 22 37		50
		SW	51.25 to 51.4 feet: **Well-Graded SAND (SW),** gray, wet, very dense, coarse sand, trace fines.						
		ML	51.4 to 51.5 feet: **SILT (ML),** brown, dry, hard.						
		SM							
55			55 to 55.5 feet: **Silty SAND (SM),** gray, wet, very dense, fine to medium sand, estimated 15 to 25% very low plasticity fines, trace organics.		11:55 13 SS	1.5	23 50/6"		55
		ML	55.5 to 56 feet: **SILT (ML),** olive-brown, slightly moist, hard, nonplastic to low plasticity, estimated 5 to 10% fine to medium sand, trace organics and FeOx stains.						
			SILT (ML), light olive-gray, dry to slightly moist, hard, nonplastic, trace fine grained sand.		12:15 14 SS	1.5	26 37 38		

Refusal at 58.5 feet. Borehole terminated at 60 feet.

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-3** PAGE 1 OF 3
DRILLING / INSTALLATION: STARTED **4/27/18** COMPLETED: **4/27/18** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger/Mud Rotary** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,841** EASTING (ft): **6,715,724** LAT: LONG: GROUND ELEV (ft): **21.2 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **18.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **51.5** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **JK** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
			Topsoil - Hand auger to 5-FT below ground surface to clear irrigation and utility lines.						
		CL	**Sandy LEAN CLAY (CL)** dark brown, moist, medium plasticity, with black oxide nodules, with rock fragments		7:15 AM 1 GRAB				
		SM							
5			**Silty SAND (SM),** brown, orange, and gray mottled, moist, very dense, poorly graded sand, low plasticity fines, estimated 70% sand and 30% fines, with trace fine roots, Pocket Penetrometer = 4.0 TSF		7:35 AM 2 SS	1.3	16 35 50/.4		5
		MLS							
10			**Sandy SILT (MLS),** orangish brown and gray, moist, hard, low plasticity fines, estimated 70% fines and 30% sand, fine to medium grained sand, Pocket Penetrometer = 2.0 TSF		8:05 AM 3 SS	1.5	4 15 22		10
		CL							
15			**Sandy LEAN CLAY, (CL),** orangish brown and gray mottled, wet, very stiff, low plasticity, trace fine grained sand, black oxide nodules and staining, est. 85% fines and 15% sand, plasticity decr. with depth, Pocket Penetrometer = 2.5 TSF		8:25 AM 4 SS	1.3	4 10 12		15
			Groundwater observed at 18.5 feet upon the completion of soil augering Switch to mud rotary at 19.0 feet						▽
			Same as SS-4, Pocket Penetrometer = 3.5 TSF		8:45 AM 5	1.5	5 11		

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-3** PAGE 2 OF 3 Stantec
DRILLING / INSTALLATION: STARTED **4/27/18** COMPLETED: **4/27/18** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger/Mud Rotary** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,841** EASTING (ft): **6,715,724** LAT: LONG: GROUND ELEV (ft): **21.2 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **18.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **51.5** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **JK** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		CL			SS		15		
			Same as SS-4 and SS-5, slight decrease in plasticity, Pocket Penetrometer = 3.0 TSF		9:45 AM 6 SS	1.5	5 6 10		
			Same as SS-6, Pocket Penetrometer = 3.5 TSF **Laboratory Results for SS-7** mc = 23.4%; LL = 31; PI = 16; %Fines = 55.9%		10:15 AM 7 SS	1.5	4 8 9		
		SC	**Clayey SAND, (SC),** brown, orange, and gray mottled, wet, dense, medium plasticity fines, fine to medium grained sand, well graded, black oxide nodules and staining, SS-8 Pocket Penetrometer = 2.5 TSF **Laboratory Results for SS-8** mc = 13.9%; LL = 29; PI = 20; %Fines = 31.9%		10:40 AM 8 SS	1.3	7 16 24		
25			Same as SS-8, Pocket Penetrometer = 2.0 TSF		11:05 AM 9 SS	1.5	10 15 16		25
		CL							
30			**Sandy LEAN CLAY, (CL),** brown, orange, and gray mottled, wet, hard, medium plasticity fines, fine to medium grained sand, well graded, black oxide nodules and staining, estimated 70% fines and 30% sand, fine content incr. with depth, Pocket Penetrometer = 4.5+ TSF		11:30 AM 10 SS	1.5	8 20 28		30
35			Same as SS-10, estimated 80% fines and 20% sand, Pocket Penetrometer = 4.5+ TSF		11:50 AM 11 SS	1.3	10 21 30		35
		SC							

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-3** PAGE 3 OF 3
DRILLING / INSTALLATION: STARTED **4/27/18** COMPLETED: **4/27/18** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger/Mud Rotary** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,841** EASTING (ft): **6,715,724** LAT: LONG: GROUND ELEV (ft): **21.2 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **18.5** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **51.5** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **JK** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		SC	**Clayey SAND, (SC),** brown, orange, and gray, wet, dense, low to medium plasticity fines, fine to coarse grained sand, well graded, estimated 80% sand and 20% fines, sand content decreasing with depth		12:15 PM 12 SS	1.2	8 16 21		
45			Same as SS-12, very dense		12:40 PM 13 SS	1.5	20 25 26		45
50			Same as SS-12 and SS-13, 70% sand, 30% clay, dense		1:20 PM 14 SS	1.5	9 18 19		50
			Boring terminated at 51.5 feet at engineer's discrection. Boring backfilled with neat cement grout to 5 feet below the ground surface and finished to the surface with 5 feet of clean soil.						
55									55

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-4** PAGE 1 OF 3
DRILLING / INSTALLATION: STARTED **4/26/18** COMPLETED: **4/26/18** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger/Mud Rotary** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,779** EASTING (ft): **6,715,648** LAT: LONG: GROUND ELEV (ft): **22.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **Not Measured** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **51.5** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **JK** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
			Topsoil - Hand auger to 5-FT below ground surface to clear irrigation and utility lines.						
			LEAN CLAY with Sand (CL) brown and orange, moist, medium plasticity, with fine roots, with trace rock fragments		8:30 AM 1 GRAB				
		SM	**Silty SAND (SM),** brown, orange, and gray mottled, moist, medium grained - poorly graded sand, low plasticity fines, with trace fine roots						
		CL							
5			**Sandy LEAN CLAY (CL),** brown, orange, and gray mottled, moist, very stiff, poorly graded sand, medium plasticity fines, estimated 80% sand and 20% fines, black and orange oxide nodules and staining, trace fine roots Pocket Penetrometer = 1.5 TSF		8:55 AM 2 SS	1.5	11 9 15		5
		SM							
10			**Silty SAND (SM),** orangish brown, moist, medium dense, low plasticity fines, estimated 80% sand and 20% fines, fine to medium grained sand, well graded		9:15 AM 3 SS	1.5	2 12 13		10
			Switch to mud rotary at 11.5 feet. Natural groundwater conditions were not observed or measured due to switching to mud rotary prior to encountering ground water.						
		CL							
15			**Sandy LEAN CLAY (CL),** gray, brown and orange mottled, moist to wet, hard, medium plasticity fines, estimated 80% fines and 20% sand, fine to medium grained sand, sand increasing with depth, slight organic smell, some organics Pocket Penetrometer = 4.5+ TSF		9:30 AM 4 SS	1.5	7 14 19		15

PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-4** PAGE 2 OF 3 Stantec
DRILLING / INSTALLATION: STARTED **4/26/18** COMPLETED: **4/26/18** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger/Mud Rotary** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,779** EASTING (ft): **6,715,648** LAT: LONG: GROUND ELEV (ft): **22.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **Not Measured** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **51.5** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **JK** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		CL	Same as SS-4, slight decrease in fine content, Pocket Penetrometer = 2.0 TSF **Laboratory Results for SS-5** mc = 26.2%; LL = 29; PI = 8; %Fines: 69.4%		10:30 AM 5 SS	1.5	7 17 20		
		SC	**Clayey SAND, (SC),** brown, wet, medium dense to dense, low plasticity fines, fine to medium grained sand, well graded, black oxide nodules and staining, est. 50% fines and 50% sand, sand incr. with depth, Pocket Penetrometer = 2.0 TSF		11:00 AM 6 SS	1.3	1 3 10		
25			Same as SS-6, stiff, Pocket Penetrometer = 4.5+ TSF **Laboratory Results for SS-7** mc = 21.5%; LL = 26; PI = 11; %fines = 48.6%		11:30 AM 7 SS	1.5	3 11 21		25
30			Same as SS-6, hard, 60% sand, 40% fines, Pocket Penetrometer = 4.5+ TSF		12:15 PM 8 SS	1.5	11 17 20		30
		SC							
35			**Clayey SAND, (SC),** brown, orange, and gray mottled, wet, dense, low plasticity fines, fine to coarse grained sand, trace gravel, well graded, est. 60% sand and 40% fines, sand content incr. with depth, Pocket Penetrometer = 3.5 TSF		1:10 PM 9 SS	1.4	14 16 18		35

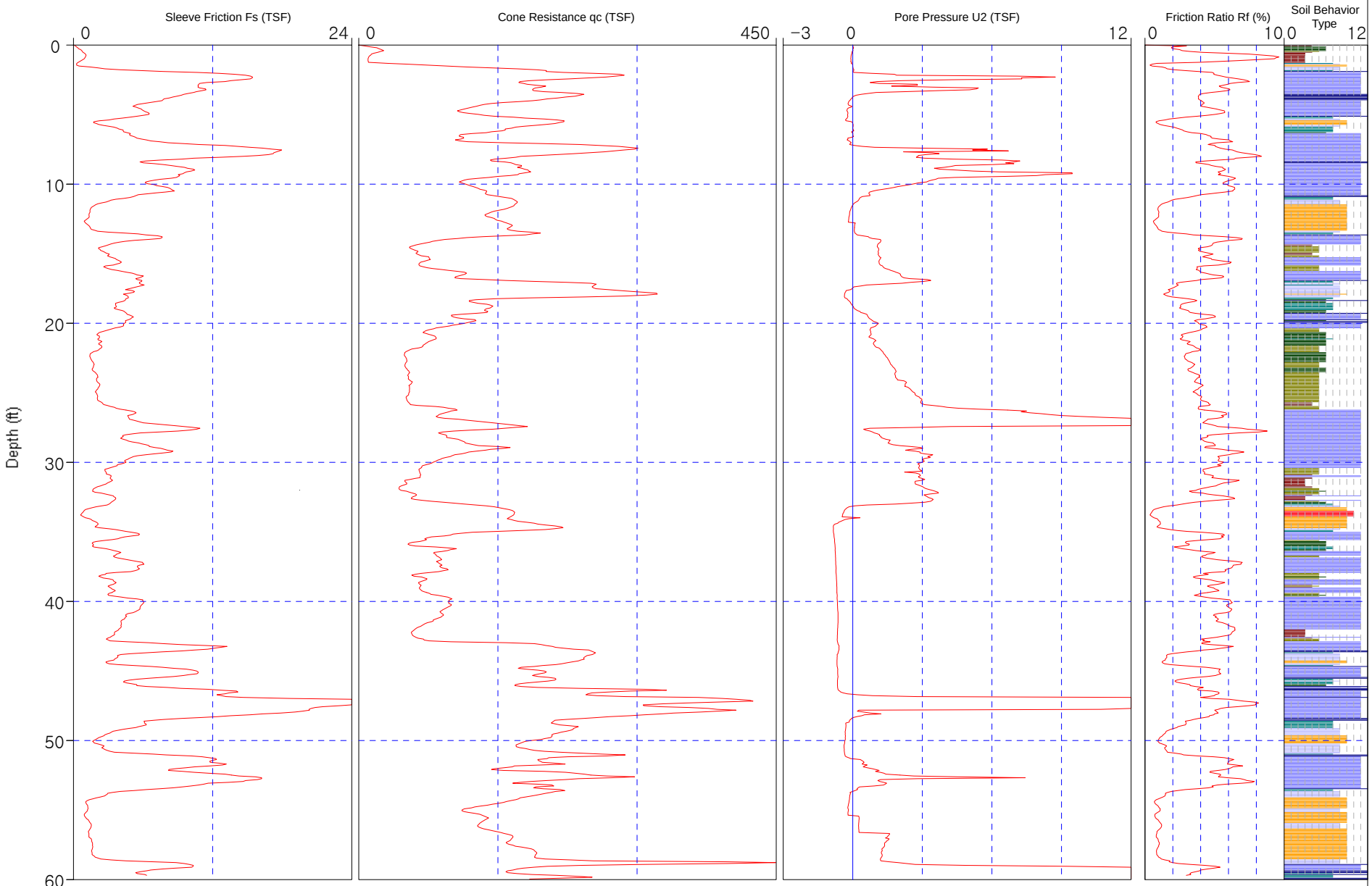
PROJECT: **McKinley Park Water Vault** LOCATION: **Sacramento, CA** PROJECT NUMBER: **184030594**	WELL/PROBEHOLE/BOREHOLE NO: **B-4** PAGE 3 OF 3 Stantec
DRILLING / INSTALLATION: STARTED **4/26/18** COMPLETED: **4/26/18** DRILLING COMPANY: **Cascade Drilling** DRILLING EQUIPMENT: **CME-85 Truck** DRILLING METHOD: **Hollow-Stem Auger/Mud Rotary** SAMPLING EQUIPMENT: **140-LB Autohammer, 30-inch Drop**	NORTHING (ft): **1,971,779** EASTING (ft): **6,715,648** LAT: LONG: GROUND ELEV (ft): **22.0 (NAVD88)** TOC ELEV (ft): INITIAL DTW (ft): **Not Measured** WELL DEPTH (ft): **---** STATIC DTW (ft): **Not Measured** DEPTH (ft): **51.5** WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8** LOGGED BY: **JK** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
		SC	Same as SS-9, low to medium plasticity		1:40 PM 10 SS	1.5	8 14 16		
45			Same as SS-10, estimated 80% sand, 20% fines, very dense		2:10 PM 11 SS	1.3	11 23 50/.4		45
50			Same as SS-11, estimated 70% sand, 30% fines		2:35 PM 12 SS	1.5	12 24 32		50
			Boring terminated at 51.5 feet at engineer's discrection. Boring backfilled with neat cement grout to 5 feet below the ground surface and finished to the surface with 5 feet of clean soil.						
55									55

Job Number: 04.0917-0006
Operator: Danny Garza
Location: Sacramento, CA

CPT Number: CPT-01
Date: 20-Mar-2017
Elevation (ft): 19.1 (NAVD88)

Coordinates (ft): X: 1971772.8; Y: 6715650.6 (NAVD88)
Cone Number: CP15-CF75PB7SN2-P1E1 2600



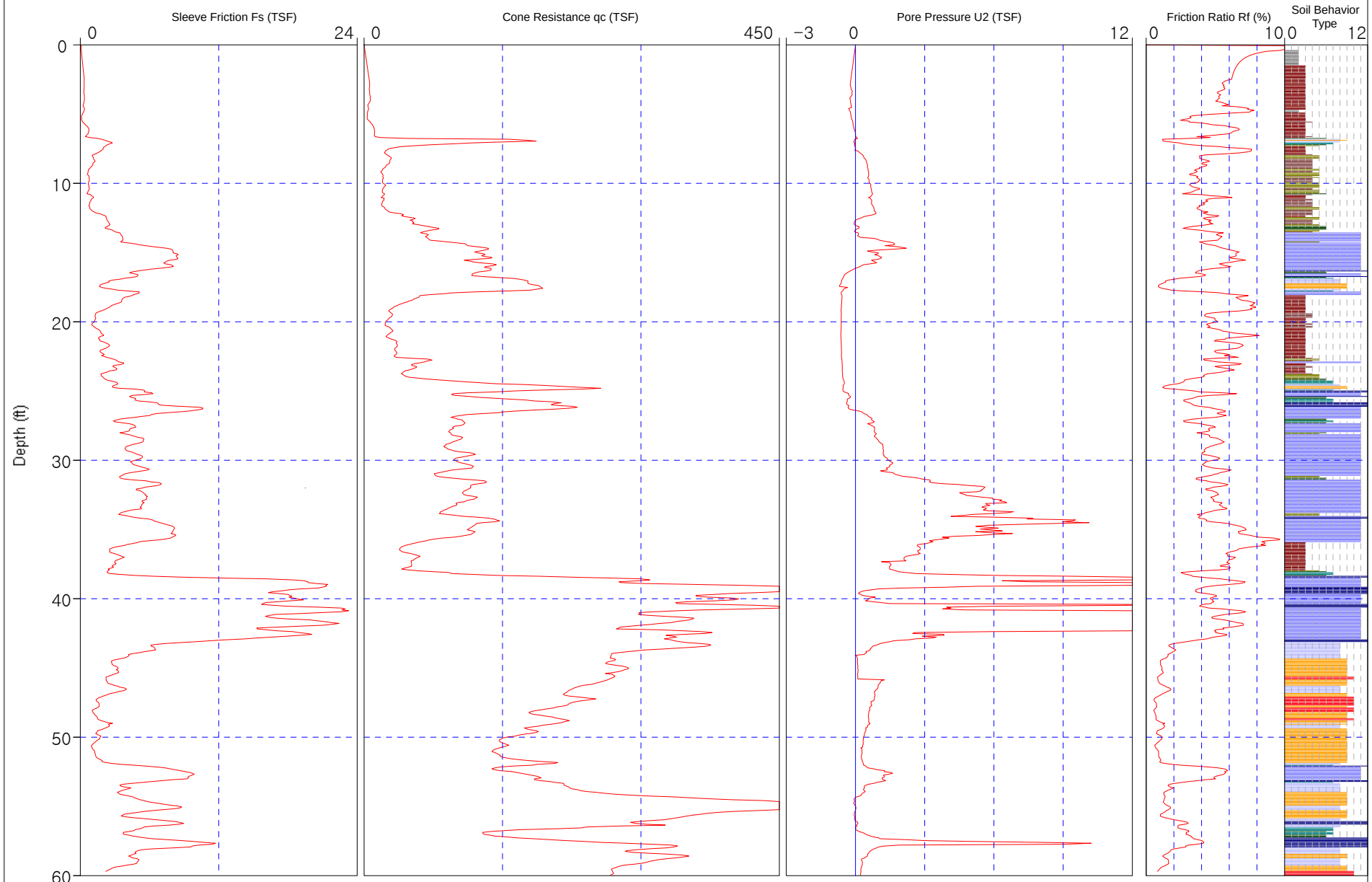
(1) sensitive fine grained (OL-CH)
(2) organic material (OL-OH)
(3) clay (CH)
(4) silty clay to clay (CL-CH)
(5) clayey silt to silty clay (MH-CL)
(6) sandy silt to clayey silt (ML-MH)
(7) silty sand to sandy silt (SM-ML)
(8) sand to silty sand (SM-SP)
(9) sand (SW-SP)
(10) gravel to gravelly sand (SW-GW)
(11) very stiff fine grained* (CH-CL)
(12) sand to clayey sand* (SC-SM)

Robertson et al. 1986 *Overconsolidated or Cemented

Job Number: 04.0917-0006
Operator: Danny Garza
Location: Sacramento, CA

CPT Number: CPT-02
Date: 20-Mar-2017
Elevation (ft): 17.3 (NAVD88)

Coordinates (ft): X: 1972012.9; Y: 6715952.9 (NAVD88)
Cone Number: CP15-CF75PB7SN2-P1E1 2600



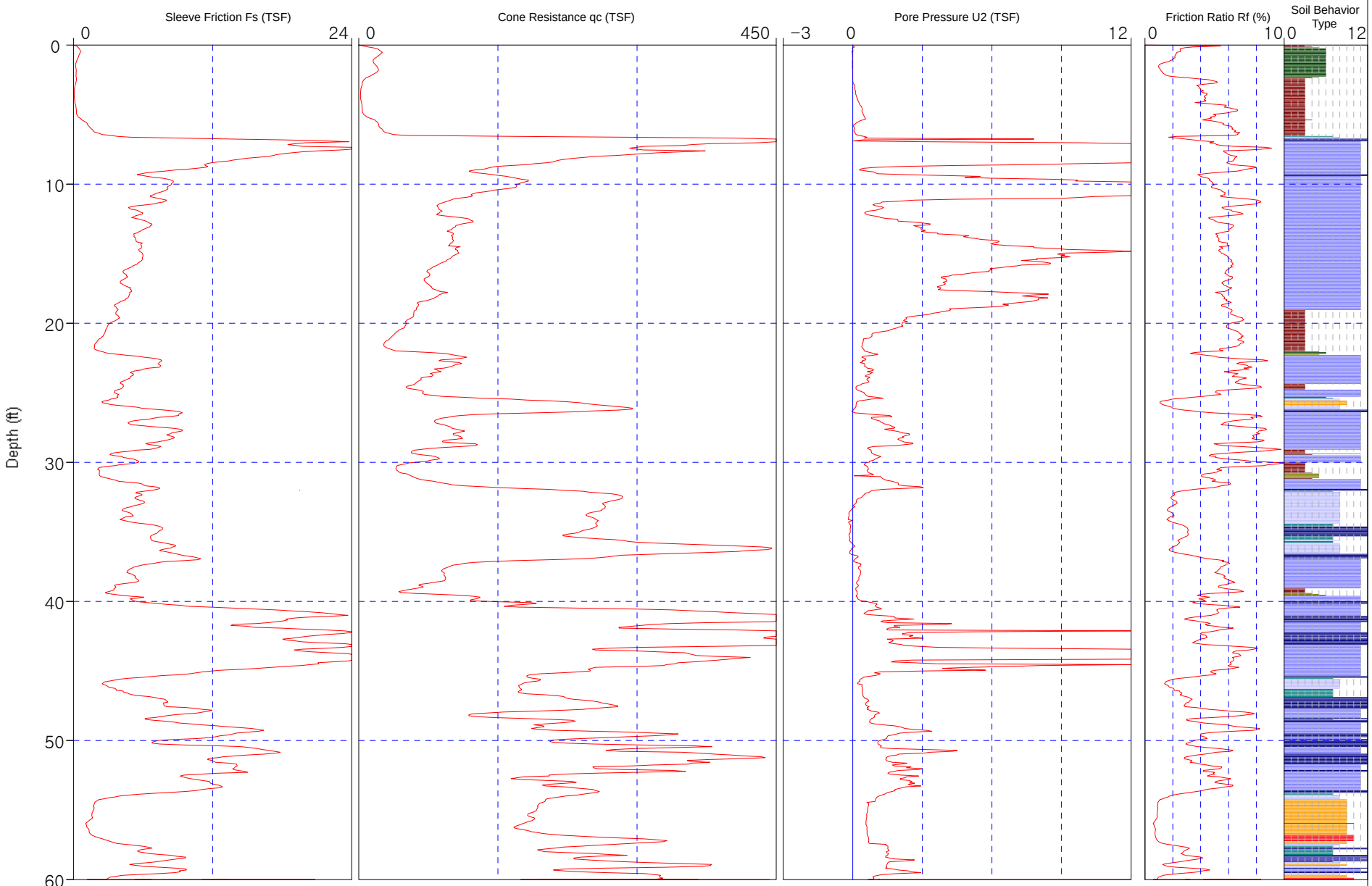
(1) sensitive fine grained (OL-CH)
(2) organic material (OL-OH)
(3) clay (CH)
(4) silty clay to clay (CL-CH)
(5) clayey silt to silty clay (MH-CL)
(6) sandy silt to clayey silt (ML-MH)
(7) silty sand to sandy silt (SM-ML)
(8) sand to silty sand (SM-SP)
(9) sand (SW-SP)
(10) gravel to gravelly sand (SW-GW)
(11) very stiff fine grained* (CH-CL)
(12) sand to clayey sand* (SC-SM)

Robertson et al. 1986 *Overconsolidated or Cemented

Job Number: 0409-0006
Operator: D. Garza
Location: Sacramento, CA

CPT Number: CPT-03
Date: 20-Mar-2017
Elevation (ft): 17.9 (NAVD88)

Coordinates (ft): X: 1971899.0; Y: 6715813.0 (NAVD88)
Cone Number: CP15-CF75PB7SN2-P1E1 2600



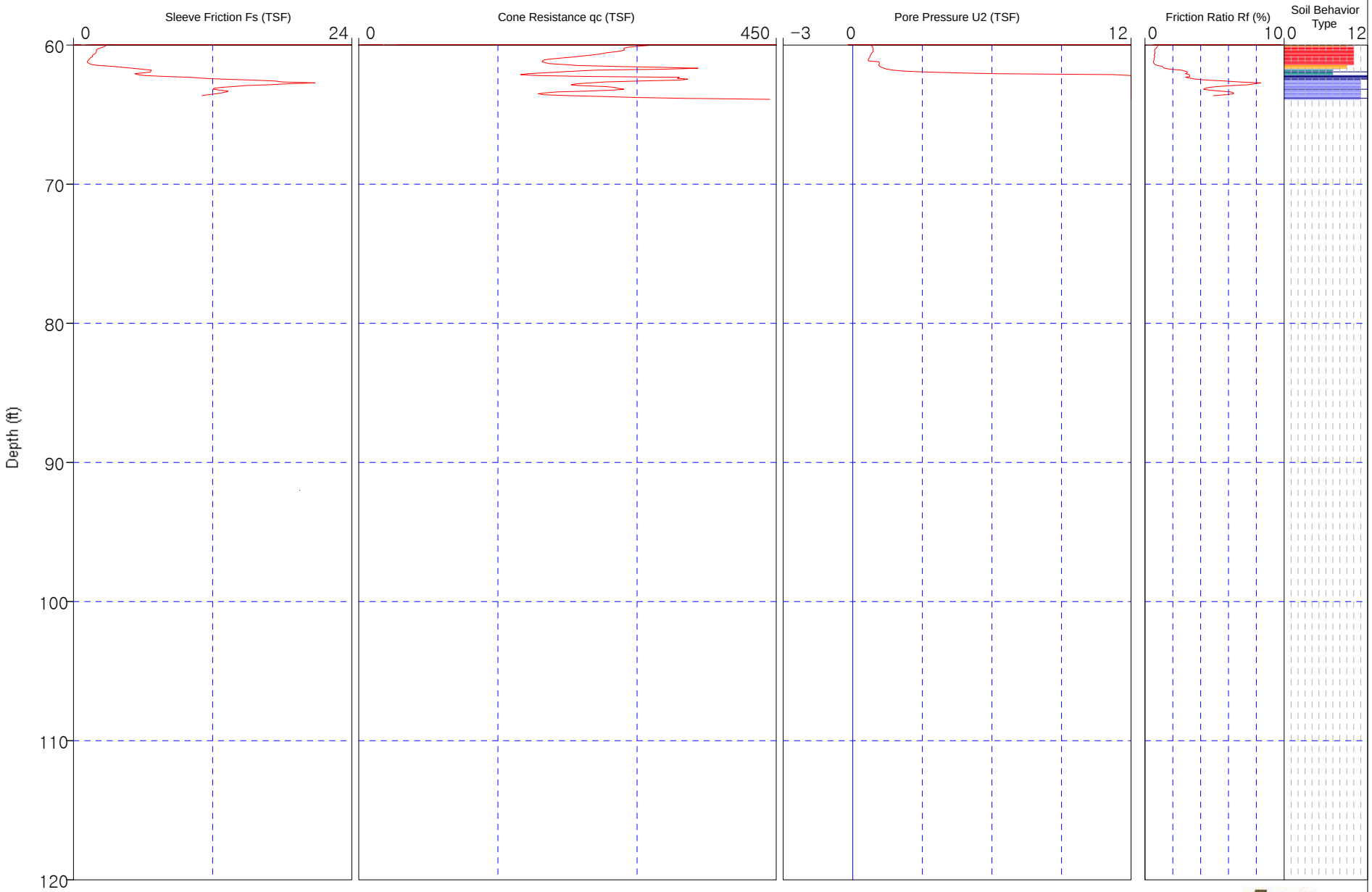
(1) sensitive fine grained (OL-CH)
(2) organic material (OL-OH)
(3) clay (CH)
(4) silty clay to clay (CL-CH)
(5) clayey silt to silty clay (MH-CL)
(6) sandy silt to clayey silt (ML-MH)
(7) silty sand to sandy silt (SM-ML)
(8) sand to silty sand (SM-SP)
(9) sand (SW-SP)
(10) gravel to gravelly sand (SW-GW)
(11) very stiff fine grained* (CH-CL)
(12) sand to clayey sand* (SC-SM)

Robertson et al. 1986 *Overconsolidated or Cemented

Job Number: 0409-0006
Operator: D. Garza
Location: Sacramento, CA

CPT Number: CPT-03
Date: 20-Mar-2017
Elevation (ft): 17.9 (NAVD88)

Coordinates (ft): X: 1971899.0; Y: 6715813.0 (NAVD88)
Cone Number: CP15-CF75PB7SN2-P1E1 2600



(1) sensitive fine grained (OL-CH)
(2) organic material (OL-OH)
(3) clay (CH)
(4) silty clay to clay (CL-CH)
(5) clayey silt to silty clay (MH-CL)
(6) sandy silt to clayey silt (ML-MH)
(7) silty sand to sandy silt (SM-ML)
(8) sand to silty sand (SM-SP)
(9) sand (SW-SP)
(10) gravel to gravelly sand (SW-GW)
(11) very stiff fine grained* (CH-CL)
(12) sand to clayey sand* (SC-SM)

Robertson et al. 1986 *Overconsolidated or Cemented

APPENDIX B
SOIL LABORATORY RESULTS

Project Name: Stantec Lab Testing- McKinley Park

BCI File No: 3237.P

Date: 4/7/2017

Technician: DGF

MOISTURE-DENSITY TESTS

ASTM D 2216 / D 2937

Sample No.	B1- CA 3B	B2-17'	B1-31'					
Depth (ft.)	10.5-11.0	17.2-17.7	31'					
Moisture (%)	**30.1**	**24.5**	**21.2**					
Wet Density (pcf)	**119.9**	**123.3**	**---**					
Dry Density (pcf)	**92.2**	**99.0**	**---**					
Pocket Pen (tsf)	**>4.5**	**2.0**	**---**					

Sample: B1- CA 3B Description: SILT, yellowish brown

Moisture (Appearance): moist Consistency/Cementation:

Sample: B2-17' Description: Lean CLAY, strong brown

Moisture (Appearance): moist Consistency/Cementation:

Sample: B1-31' Description: Poorly-graded SAND with CLAY, light brown

Moisture (Appearance): Consistency/Cementation:

Sample: Description:

Moisture (Appearance): Consistency/Cementation:

Sample: Description:

Moisture (Appearance): Consistency/Cementation:

Sample: Description:

Moisture (Appearance): Consistency/Cementation:

Sample: Description:

Moisture (Appearance): Consistency/Cementation:

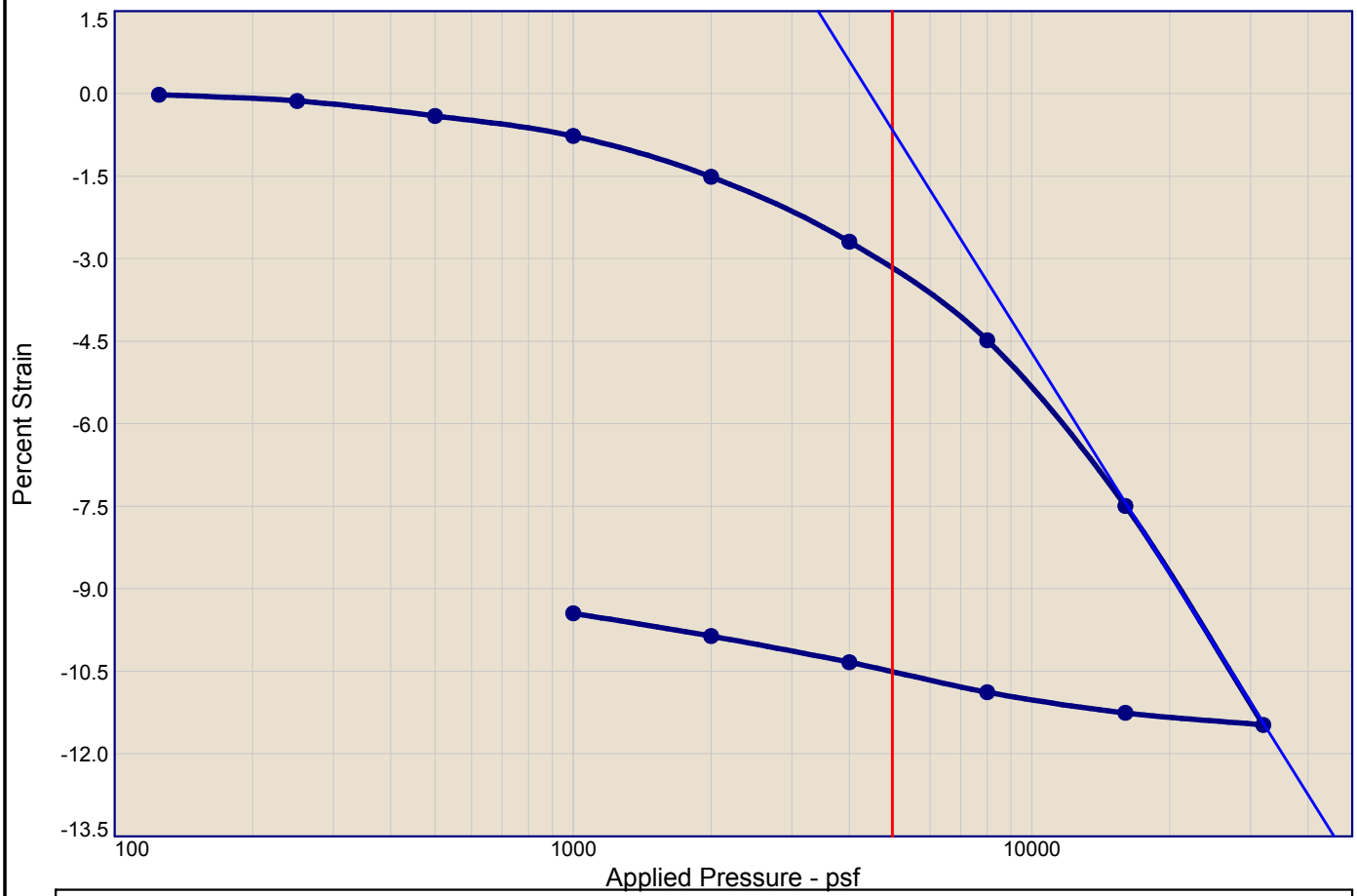
Sample: Description:

Moisture (Appearance): Consistency/Cementation:

Diameter = 1.44" for 1.5-inch Tubes Diameter = 2.43" for 2.5-inch Brass / 2.40" for SS

Diameter = 1.938" for 2-inch Tubes Diameter= 2.850" for 3.0-inch Shelby Tubes

CONSOLIDATION TEST REPORT



Coefficients of Consolidation and Secondary Consolidation

No.	Load (psf)	C_v (ft.^{2}/day)	C_α	No.	Load (psf)	C_v (ft.^{2}/day)	C_α	No.	Load (psf)	C_v (ft.^{2}/day)	C_α
1	125.00	6.516		8	16000	0.376					
2	250.00	1.571		9	32000	0.189					
3	500.00	0.466		10	16000	1.077					
4	1000.00	0.754		11	8000	0.459					
5	2000	0.444		12	4000	0.163					
6	4000	0.407		13	2000	0.122					
7	8000	0.420									

Natural Saturation	Natural Moisture	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_r	Initial Void Ratio
97.2 %	25.6 %	98.6	30	14	2.7	2000	8505	0.23	0.03	0.710

MATERIAL DESCRIPTION	USCS	AASHTO
Lean CLAY, strong brown	CL	

Project No. 3237.P **Client:** Stantec

Project: McKinley Park

Source of Sample: B-2 **Depth:** 17'

Remarks:

Blackburn Consulting

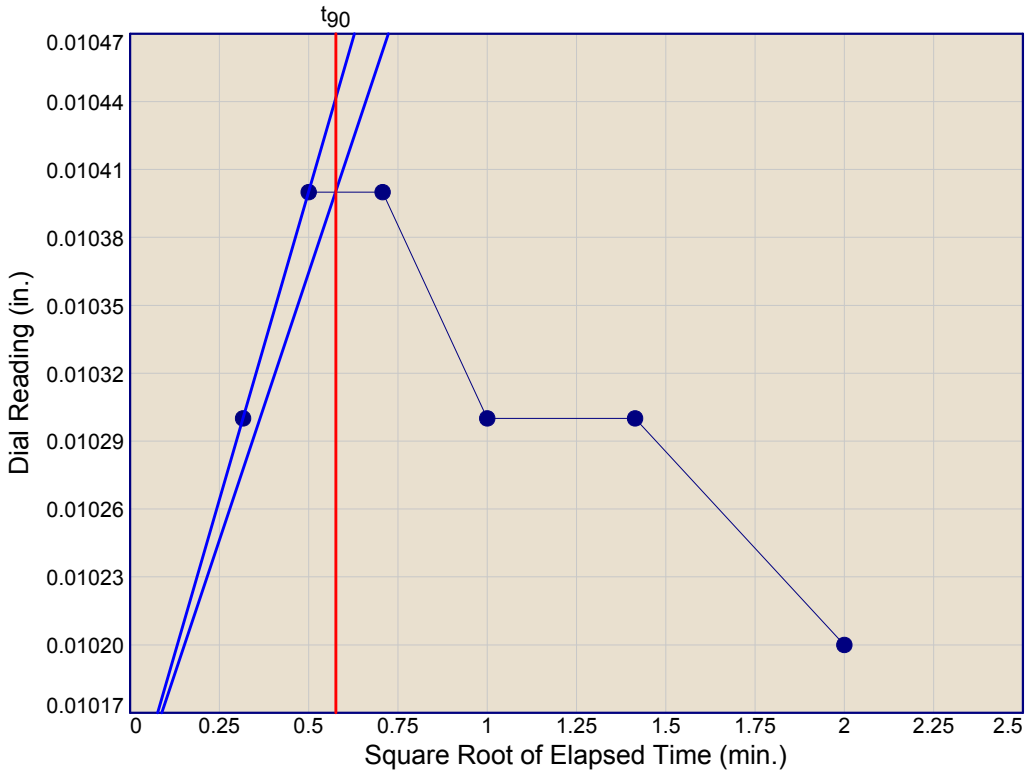
W. Sacramento, CA

Figure

Dial Reading vs. Time

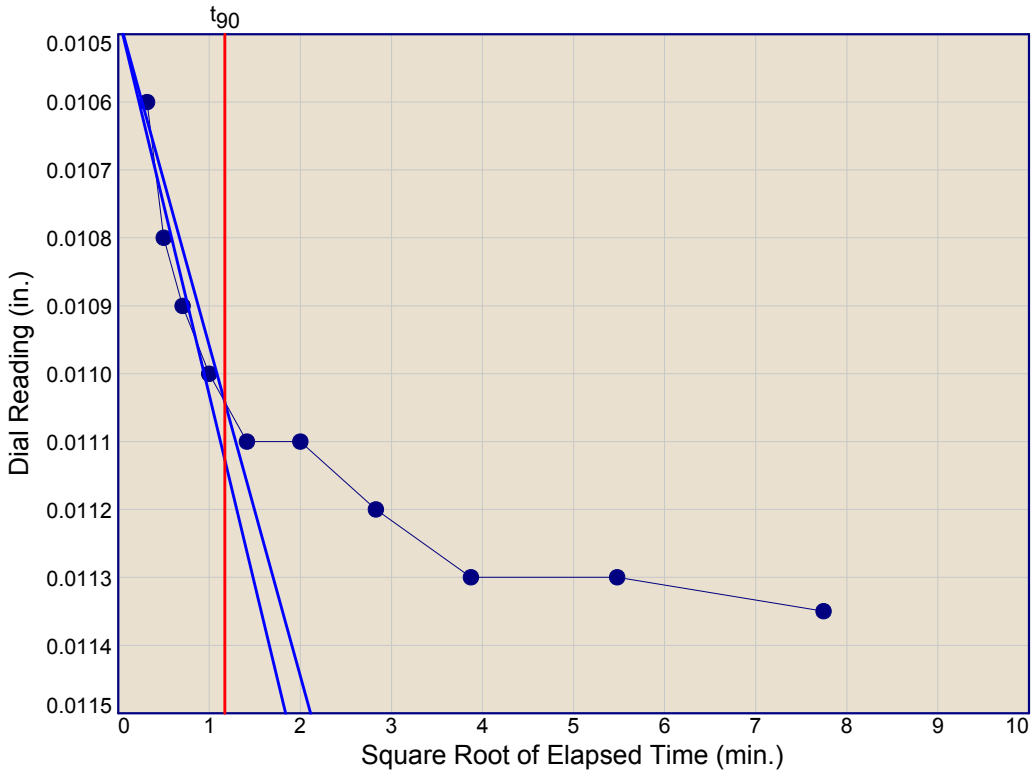
Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 1
Load= 125.00 psf
D_0 = 0.0101
D_{90} = 0.0104
D_{100} = 0.0104
T_{90} = 0.33 min.

C_v @ T_{90}
6.516 ft.^{2}/day



Load No.= 2
Load= 250.00 psf
D_0 = 0.0105
D_{90} = 0.0110
D_{100} = 0.0111
T_{90} = 1.37 min.

C_v @ T_{90}
1.571 ft.^{2}/day

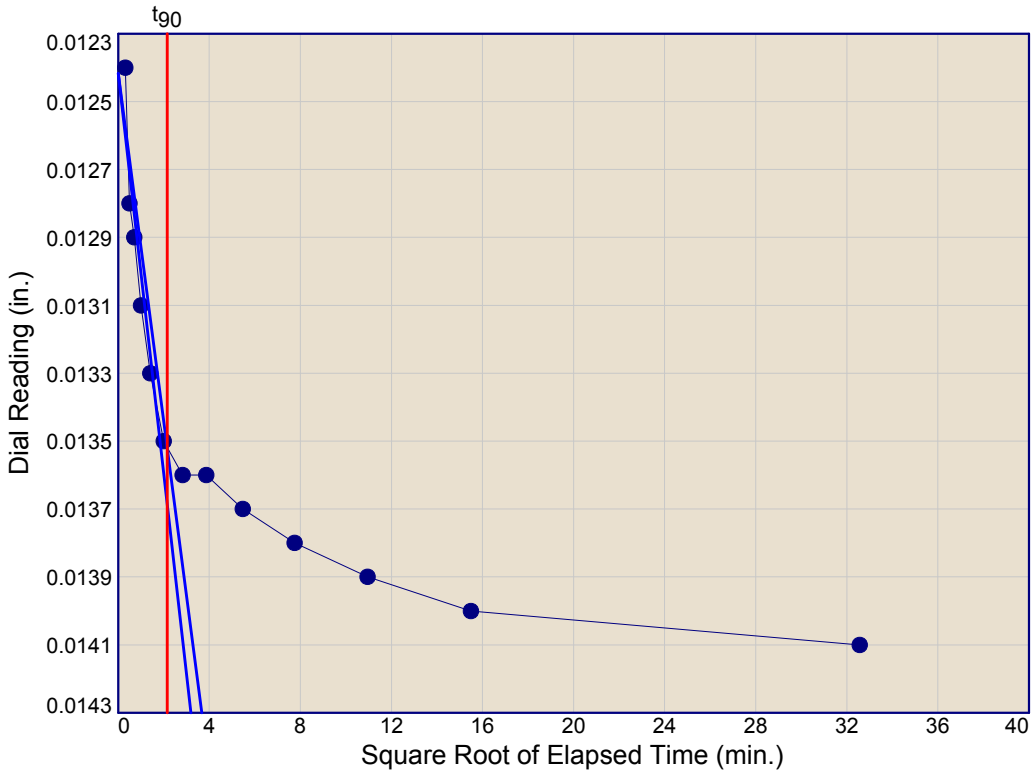
Figure

Blackburn Consulting

Dial Reading vs. Time

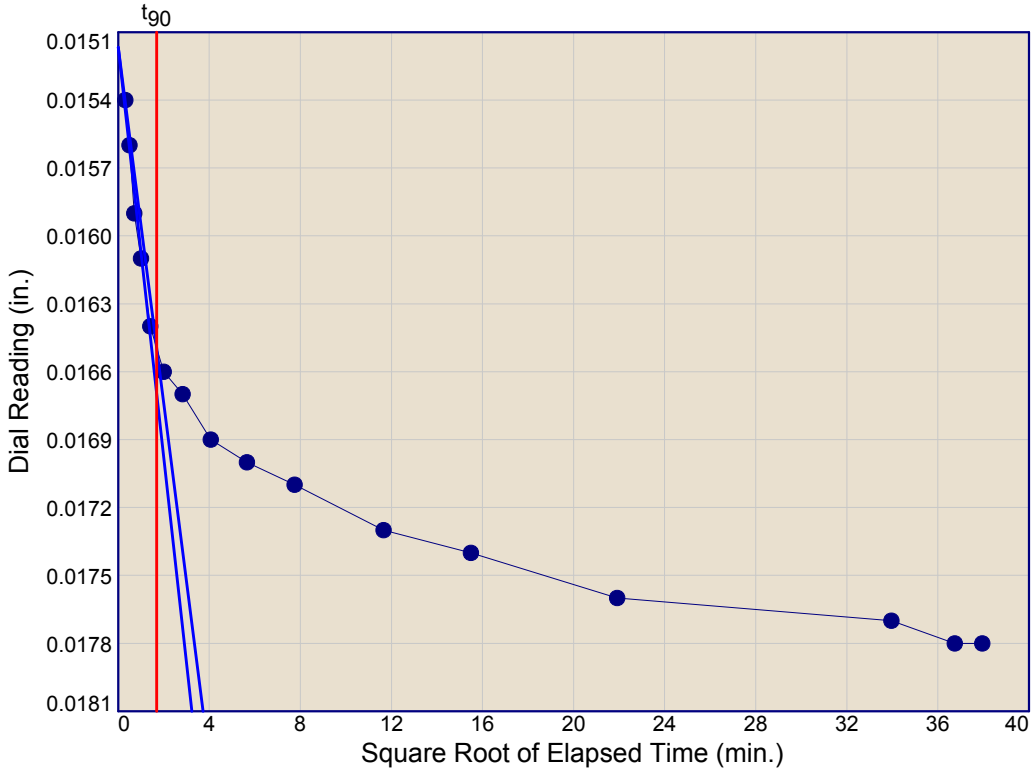
Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 3
Load= 500.00 psf
D_0 = 0.0124
D_{90} = 0.0135
D_{100} = 0.0136
T_{90} = 4.62 min.

C_v @ T_{90}
0.466 ft.^{2}/day



Load No.= 4
Load= 1000.00 psf
D_0 = 0.0152
D_{90} = 0.0165
D_{100} = 0.0166
T_{90} = 2.84 min.

C_v @ T_{90}
0.754 ft.^{2}/day

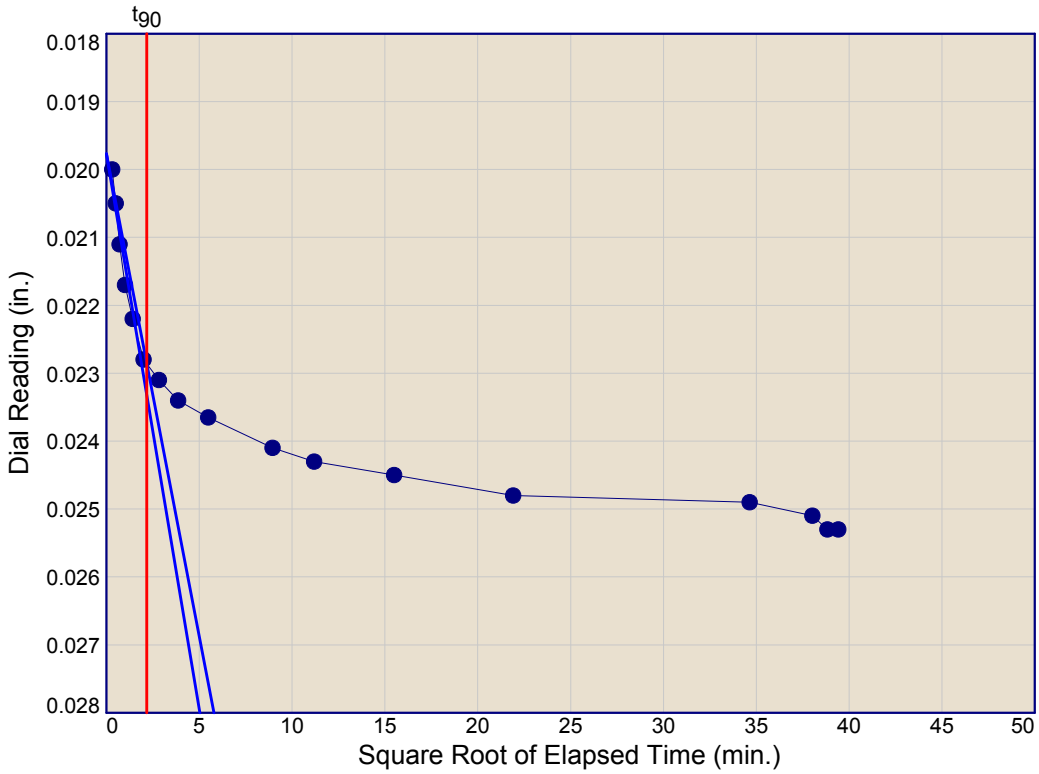
Figure

Blackburn Consulting

Dial Reading vs. Time

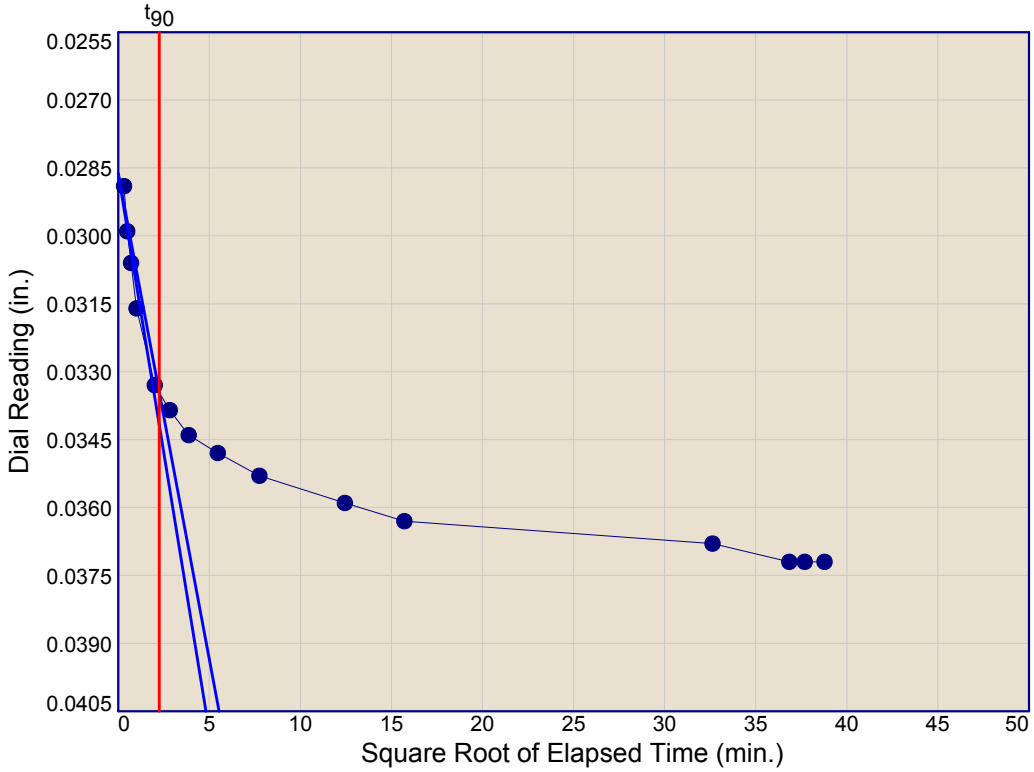
Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 5
Load= 2000 psf
D_0 = 0.0198
D_{90} = 0.0229
D_{100} = 0.0232
T_{90} = 4.76 min.

C_v @ T_{90}
0.444 ft.^{2}/day



Load No.= 6
Load= 4000 psf
D_0 = 0.0286
D_{90} = 0.0335
D_{100} = 0.0340
T_{90} = 5.10 min.

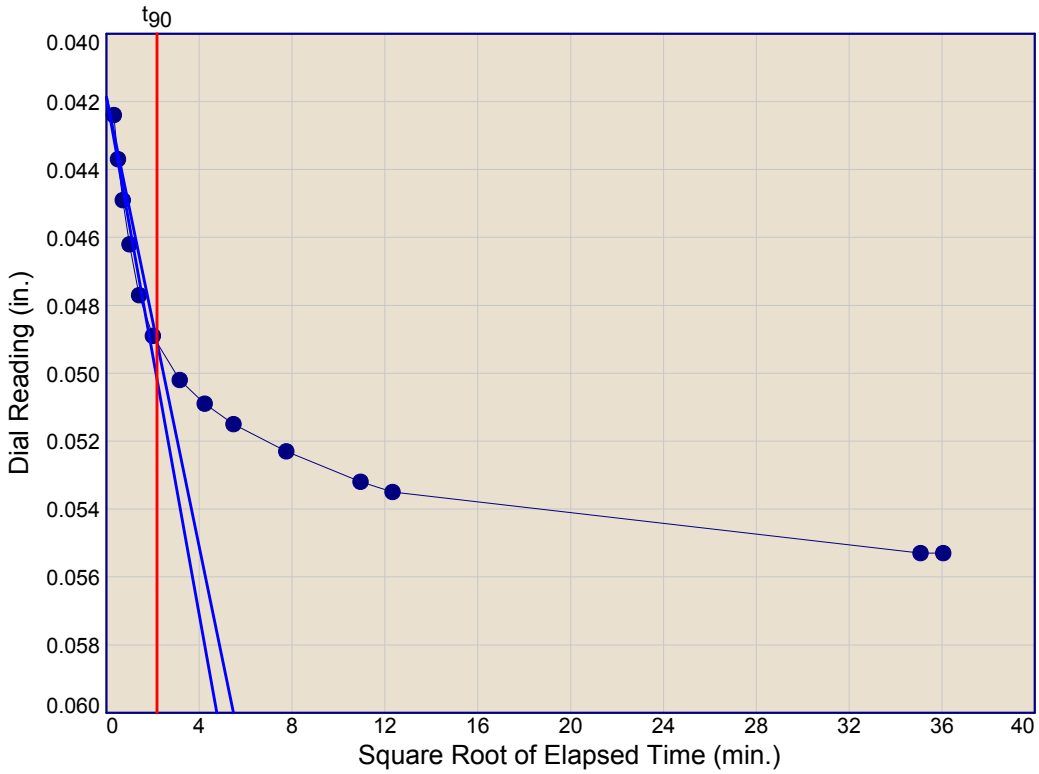
C_v @ T_{90}
0.407 ft.^{2}/day

Figure

Dial Reading vs. Time

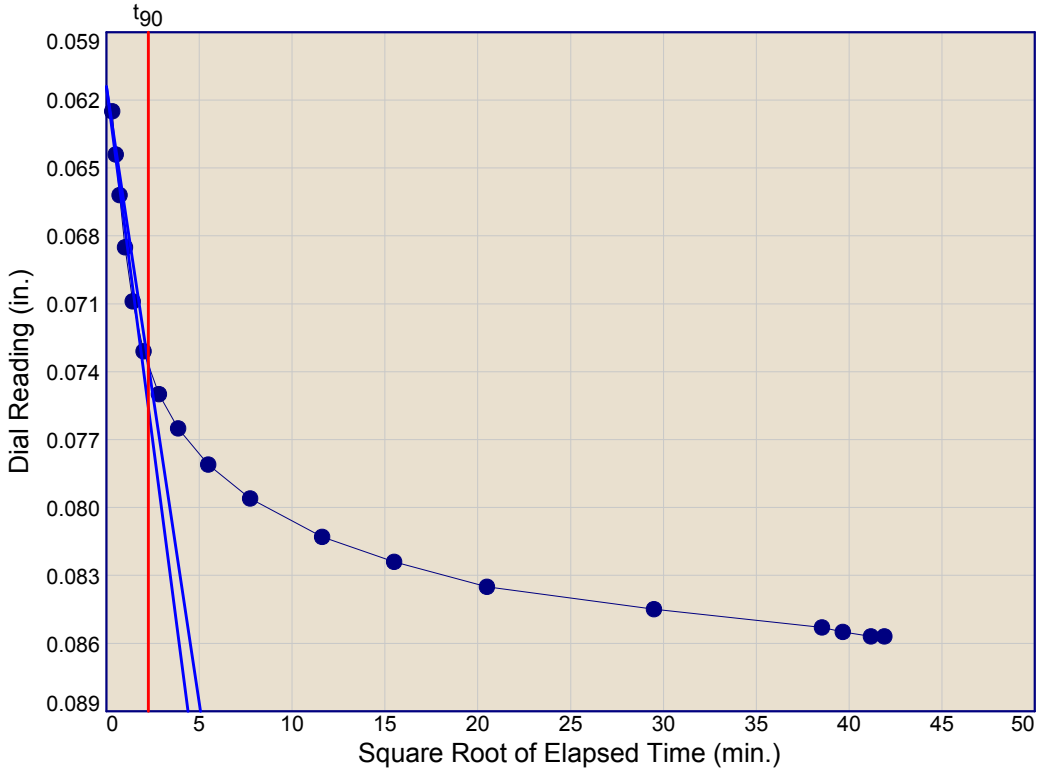
Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 7
Load= 8000 psf
D_0 = 0.0419
D_{90} = 0.0491
D_{100} = 0.0499
T_{90} = 4.79 min.

C_v @ T_{90}
0.420 ft.^{2}/day



Load No.= 8
Load= 16000 psf
D_0 = 0.0614
D_{90} = 0.0737
D_{100} = 0.0751
T_{90} = 5.09 min.

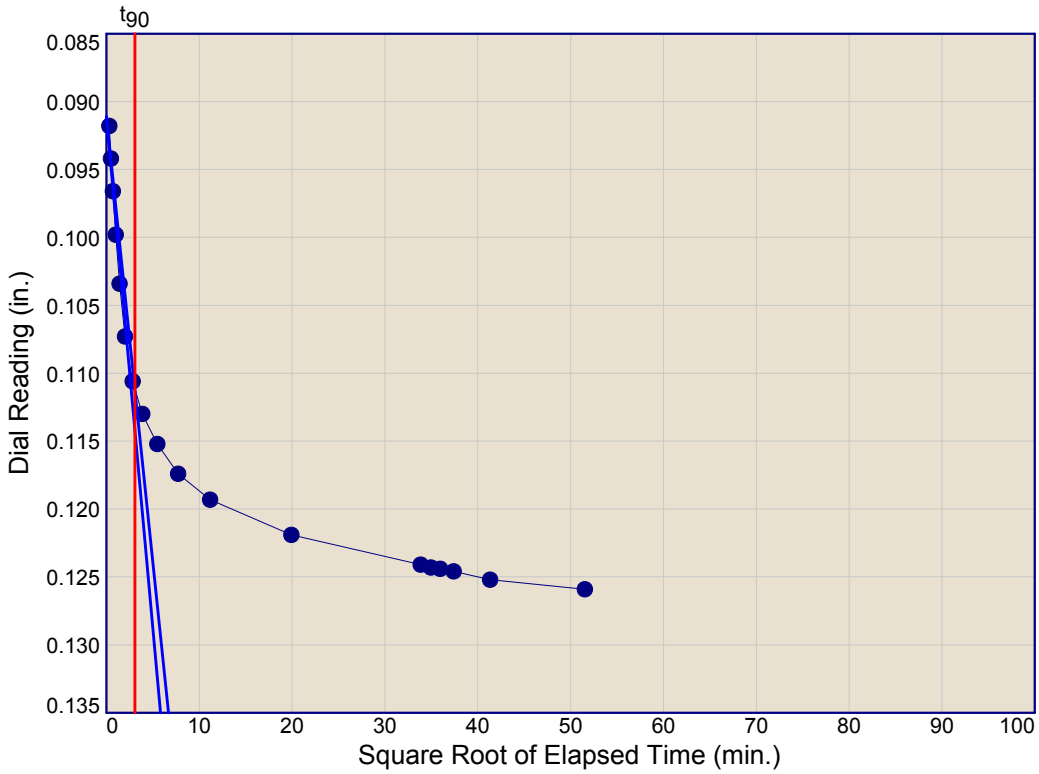
C_v @ T_{90}
0.376 ft.^{2}/day

Figure

Dial Reading vs. Time

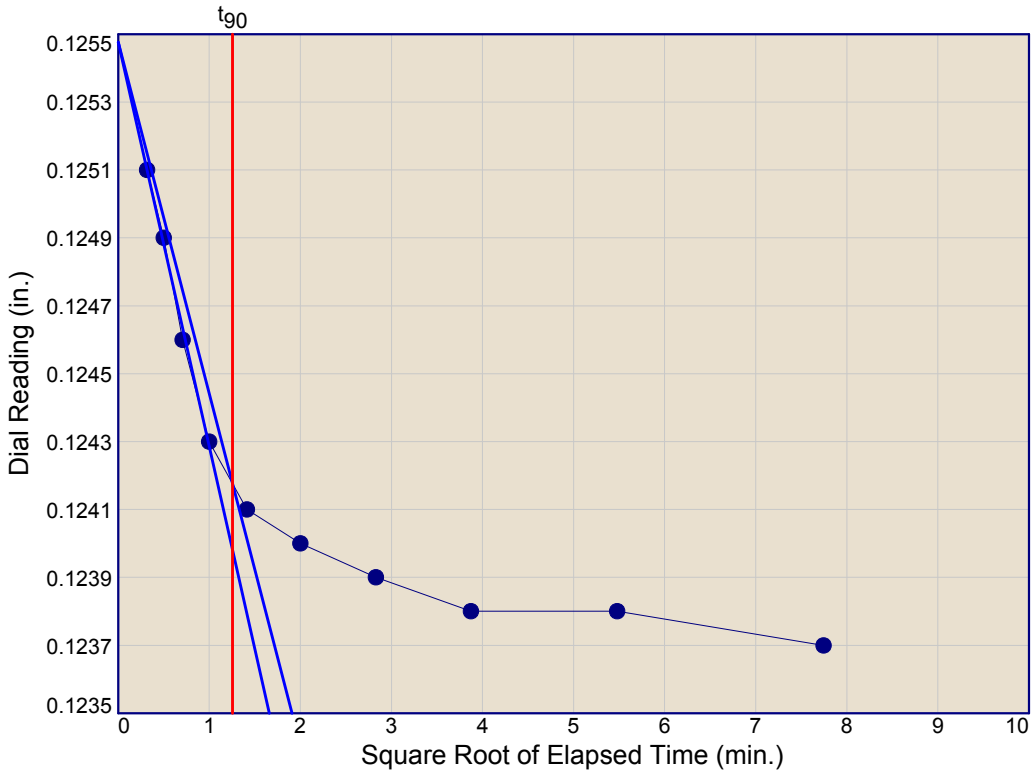
Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 9
Load= 32000 psf
D_0 = 0.0911
D_{90} = 0.1111
D_{100} = 0.1134
T_{90} = 9.37 min.

C_v @ T_{90}
0.189 ft.^{2}/day



Load No.= 10
Load= 16000 psf
D_0 = 0.1255
D_{90} = 0.1242
D_{100} = 0.1240
T_{90} = 1.58 min.

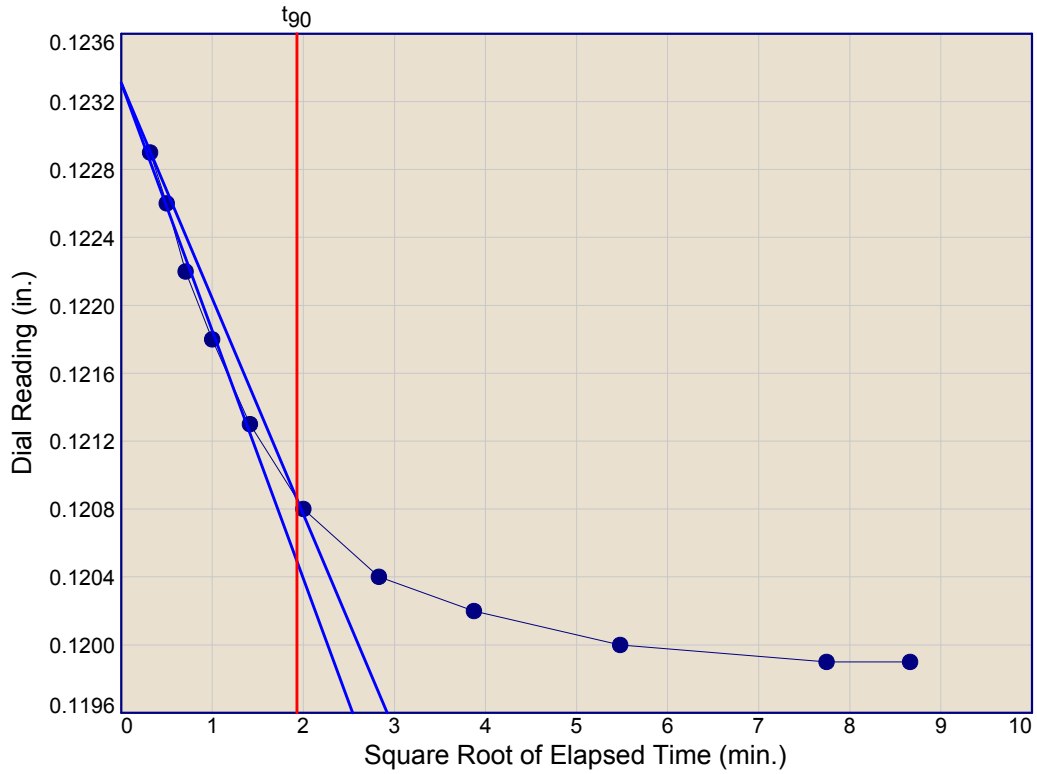
C_v @ T_{90}
1.077 ft.^{2}/day

Figure

Dial Reading vs. Time

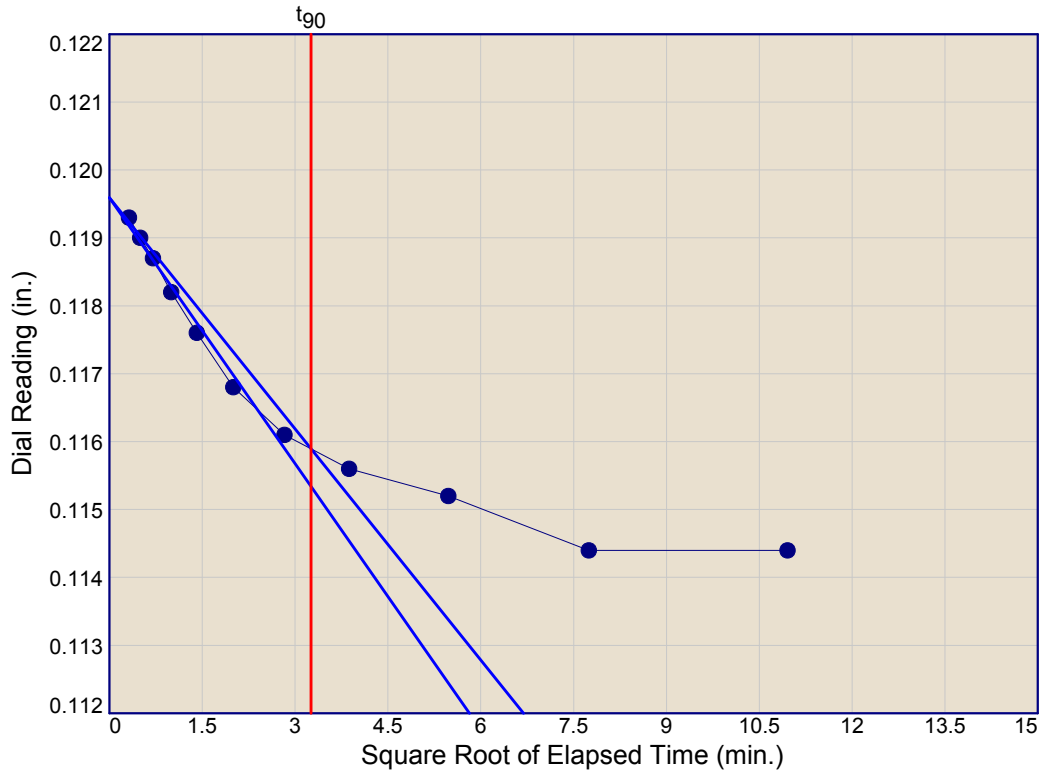
Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 11
Load= 8000 psf
D_0 = 0.1233
D_{90} = 0.1209
D_{100} = 0.1206
T_{90} = 3.72 min.

C_v @ T_{90}
0.459 ft.^{2}/day



Load No.= 12
Load= 4000 psf
D_0 = 0.1196
D_{90} = 0.1159
D_{100} = 0.1155
T_{90} = 10.62 min.

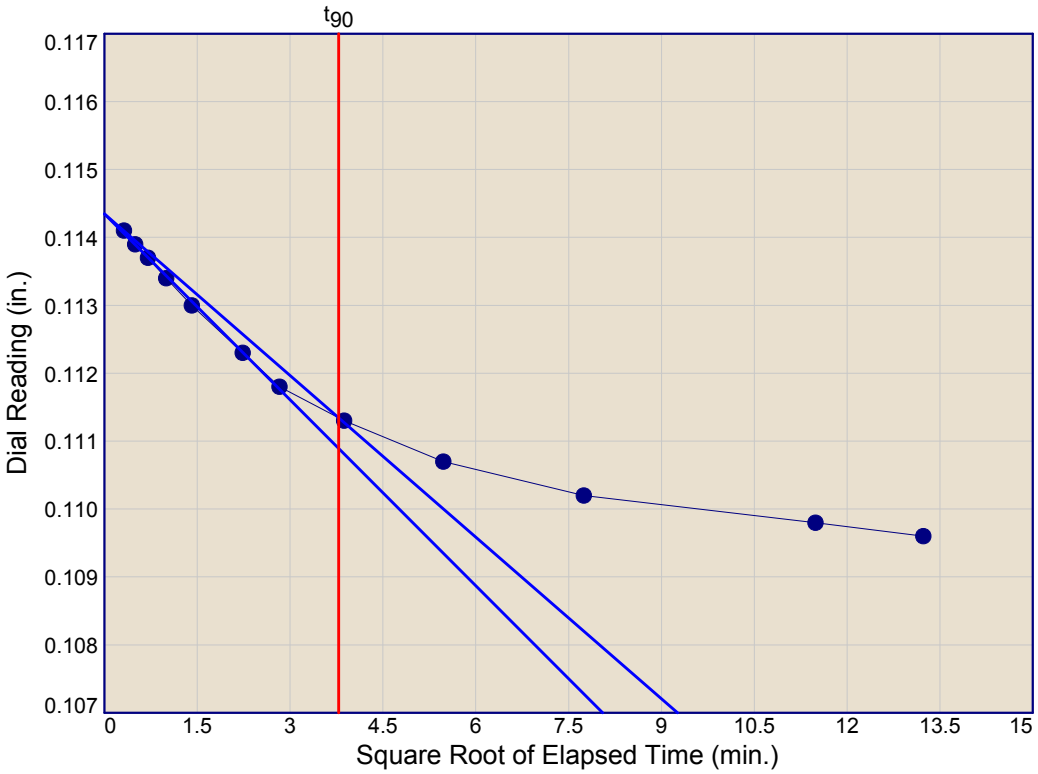
C_v @ T_{90}
0.163 ft.^{2}/day

Figure

Dial Reading vs. Time

Project No.: 3237.P
Project: McKinley Park

Source of Sample: B-2 Depth: 17'



Load No.= 13

Load= 2000 psf

D_0 = 0.1143

D_{90} = 0.1113

D_{100} = 0.1110

T_{90} = 14.35 min.

C_v @ T_{90}
0.122 ft.^{2}/day

Figure

Unconfined Compression
ASTM D 2166

Project Name:	Stantect Lab Testing - McKinley Park		
Sample ID:	B-1 (CA-3-B)		
Type of Sample:	2.4" Mod Cal	Depth (ft):	10.5-11
Sample Description:	SILT, yellowish brown		

Sample Data

Sample Length:	5.59	in	Sample + Tube:	1072	g
Diameter:	2.40	in	Tube:	275.85	g
Height-to-Diameter Ratio:	2.33		Sample Weight:	796	g
Sample Area:	4.52	in^2	Wet Density:	120.0	pcf
Sample Volume:	25.3	in^3	Moisture:	30	%
Specific Gravity:	2.67	(assumed)	Dry Density:	92.2	pcf
			Saturation:	99.7	%

**Moisture content taken after test*

Test Results

Rate of Strain:	0.0300	in/min
Deflection at Max. Load:	0.214	in
Maximum Load:	188	lbs
Strain at Failure:	3.84	%
Average cross-sectional area at failure:	4.70	in^2
Compressive Strength:	**2.87**	**tsf**
	39.9	**psi**

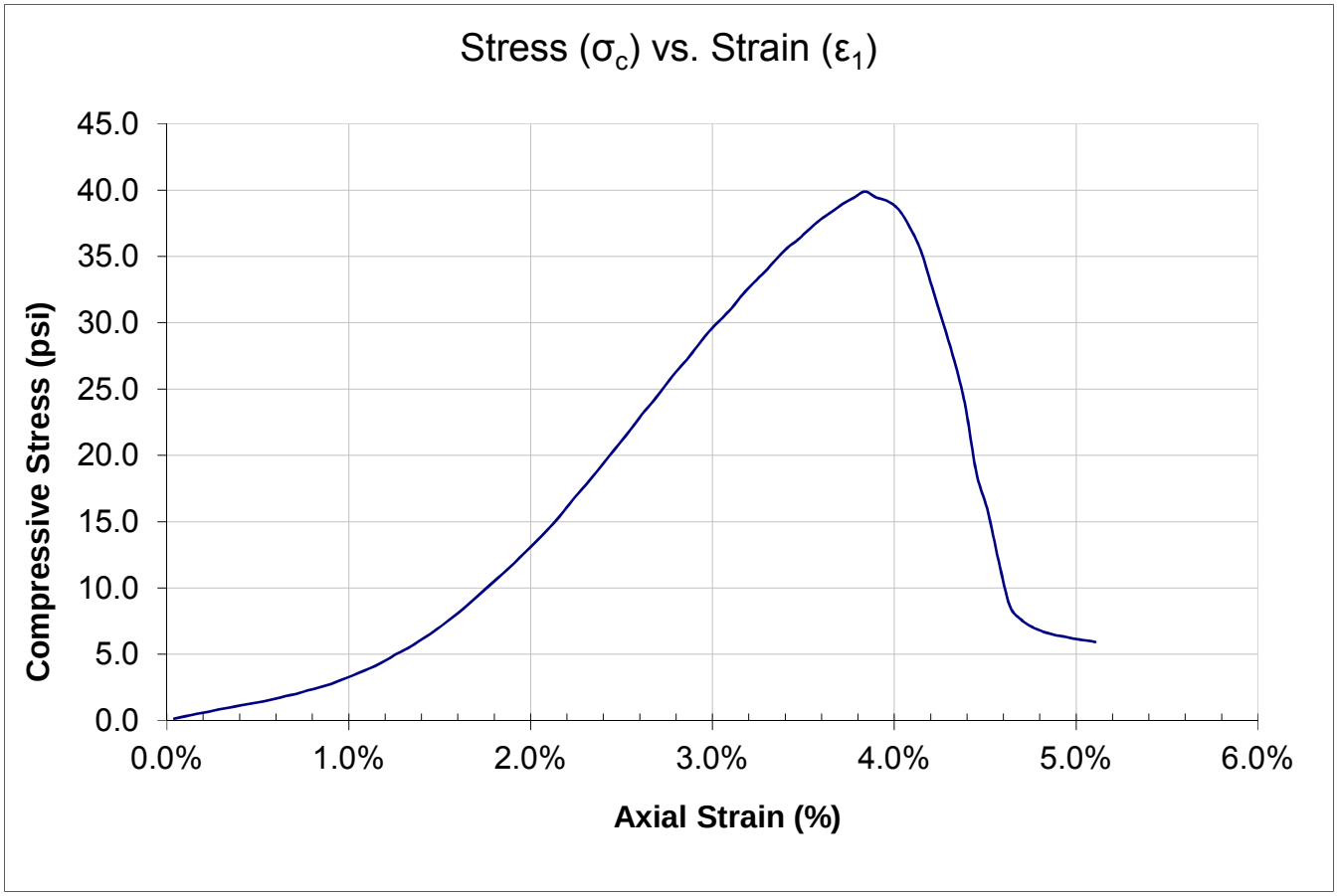
Strain Information

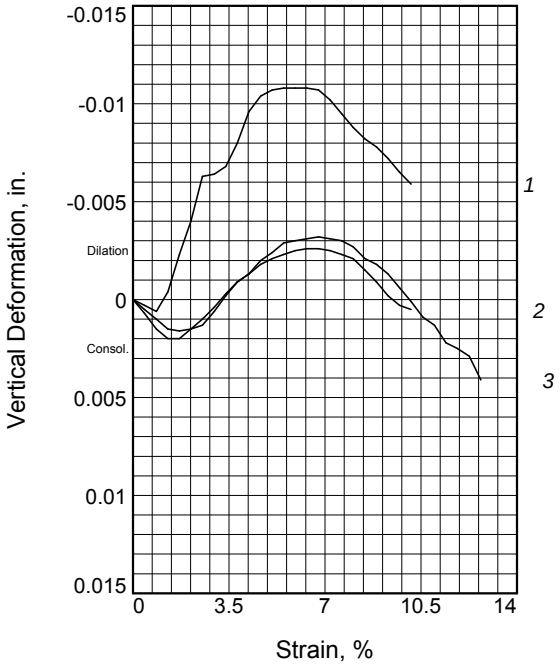
Rate of Strain ½%:	0.028	in/min
Rate of Strain 2%:	0.112	in/min
Strain Rate:	0.030	in/min
15% Strain:	0.838	in

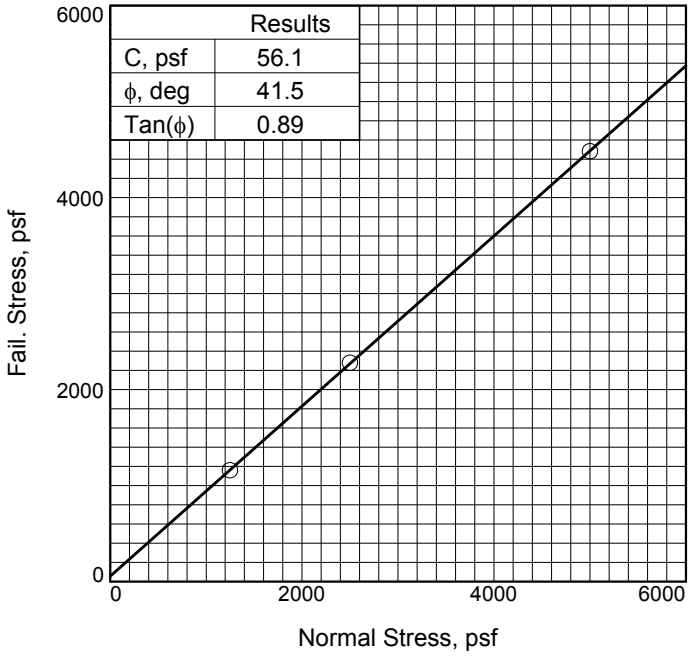
Unconfined Compression
ASTM D 2166

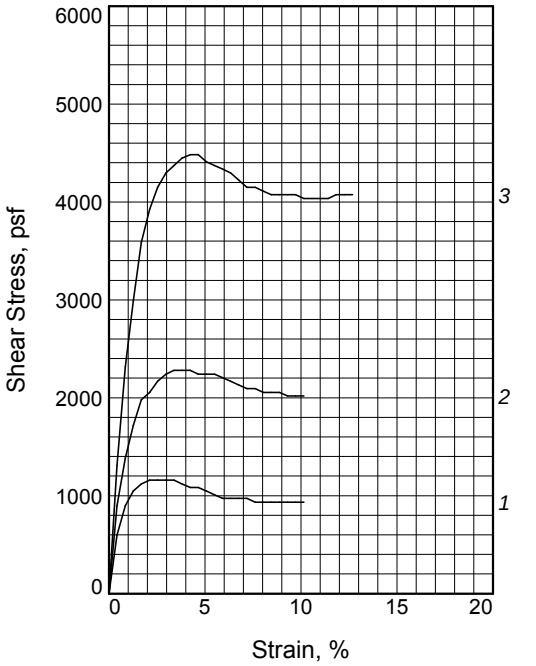
Project Name: Stantect Lab Testing - McKinley Park
Sample ID: B-1 (CA-3-B)
Type of Sample: 2.4" Mod Cal Depth (ft): 10.5-11
Sample Description: SILT, yellowish brown

Compressive Strength:	**2.87**	**tsf**
	39.9	**psi**









Sample No.		1	2	3
Initial	Water Content, %	21.1	21.1	21.1
	Dry Density, pcf	106.5	107.1	107.0
	Saturation, %	97.7	99.4	99.0
	Void Ratio	0.5831	0.5732	0.5755
	Diameter, in.	2.365	2.365	2.365
	Height, in.	0.945	0.945	0.945
At Test	Water Content, %	21.5	20.4	19.8
	Dry Density, pcf	106.7	108.6	109.6
	Saturation, %	99.9	99.6	99.6
	Void Ratio	0.5800	0.5524	0.5379
	Diameter, in.	2.365	2.365	2.365
	Height, in.	0.943	0.933	0.922
Normal Stress, psf		1250.0	2500.0	5000.0
Fail. Stress, psf		1158.4	2279.5	4484.3
Strain, %		2.1	3.4	4.2
Ult. Stress, psf				
Strain, %				
Strain rate, in./min.		0.005	0.005	0.005

Sample Type: Remolded

Description: Poorly-graded SAND with CLAY, light brown

Assumed Specific Gravity= 2.7

Remarks:

Client: Stantec

Project: McKinley Park

Source of Sample: B-1 **Depth:** 31'

Sample Number: CA-6

Proj. No.: 3237.X **Date Sampled:** 3/16/17

DIRECT SHEAR TEST REPORT

Blackburn Consulting

W. Sacramento, CA

Figure _____

Project Name: McKinley Park
Project No: 3237.P
Sample No: B2
Depth 17'
Date: 4/13/2017
Sample Description: Lean CLAY, strong brown

EXPANSION INDEX TEST
(ASTM D4829)

Test Data Summary

Retained #4 (%)	0
Initial Moisture (%)	13.6
Final Moisture (%)	28.7
Percent Saturation (%)	51.3
Initial Dry Density (pcf)	98.4
Final Dry Density (pcf)	93.0
Expansion Index	57

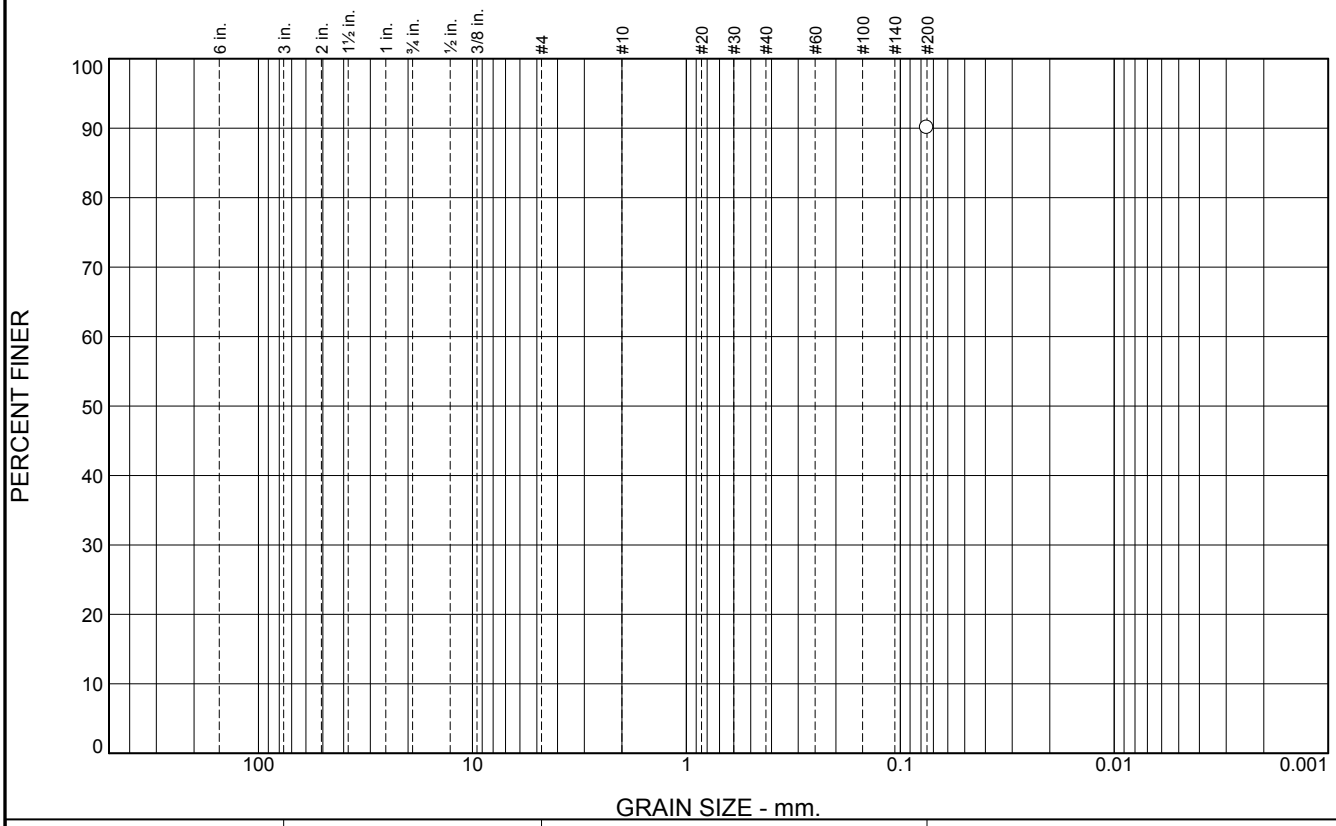
*

TABLE 1 Classification of Potential Expansion of Soils Using *EI*

Expansion Index, *EI*	Potential Expansion
0–20	Very Low
21–50	Low
51–90	Medium
91–130	High
>130	Very High

***ASTM D4829-11 pg.2, table 1**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						90	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	90		

* (no specification provided)

Material Description

SILT, yellowish brown

Atterberg Limits

PL= 26 LL= 37 PI= 11

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO=

Remarks

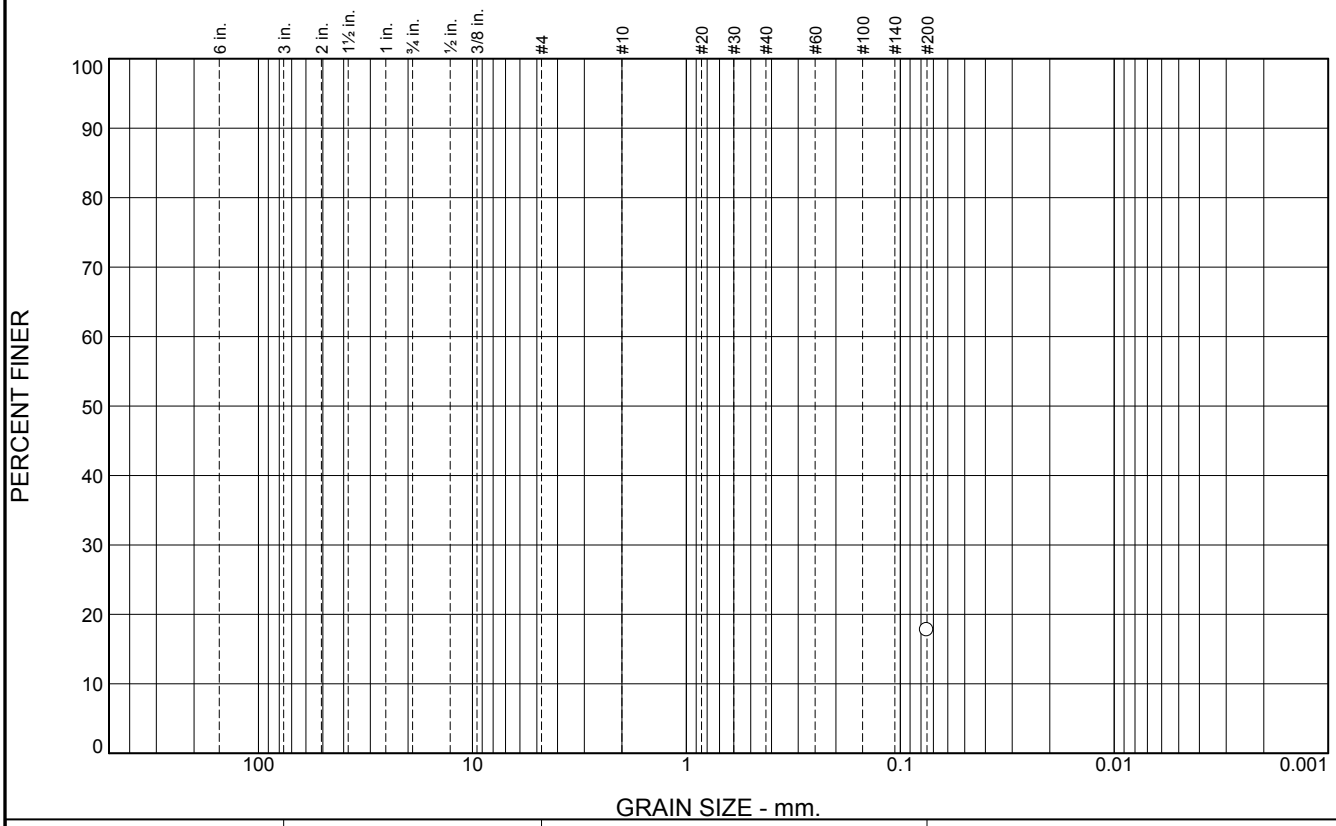
Source of Sample: B-1 **Depth:** 10.5-11.0'
Sample Number: CA-3-B **Date:** 4/7/17

Blackburn Consulting

W. Sacramento, CA

Client: Stantec
Project: McKinley Park
Project No: 3237.P **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						18	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18		

* (no specification provided)

Material Description

Poorly-graded SAND with CLAY, light brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SP-SC AASHTO=

Remarks

very moist
medium SAND
approximately 5%medium plasticity fines

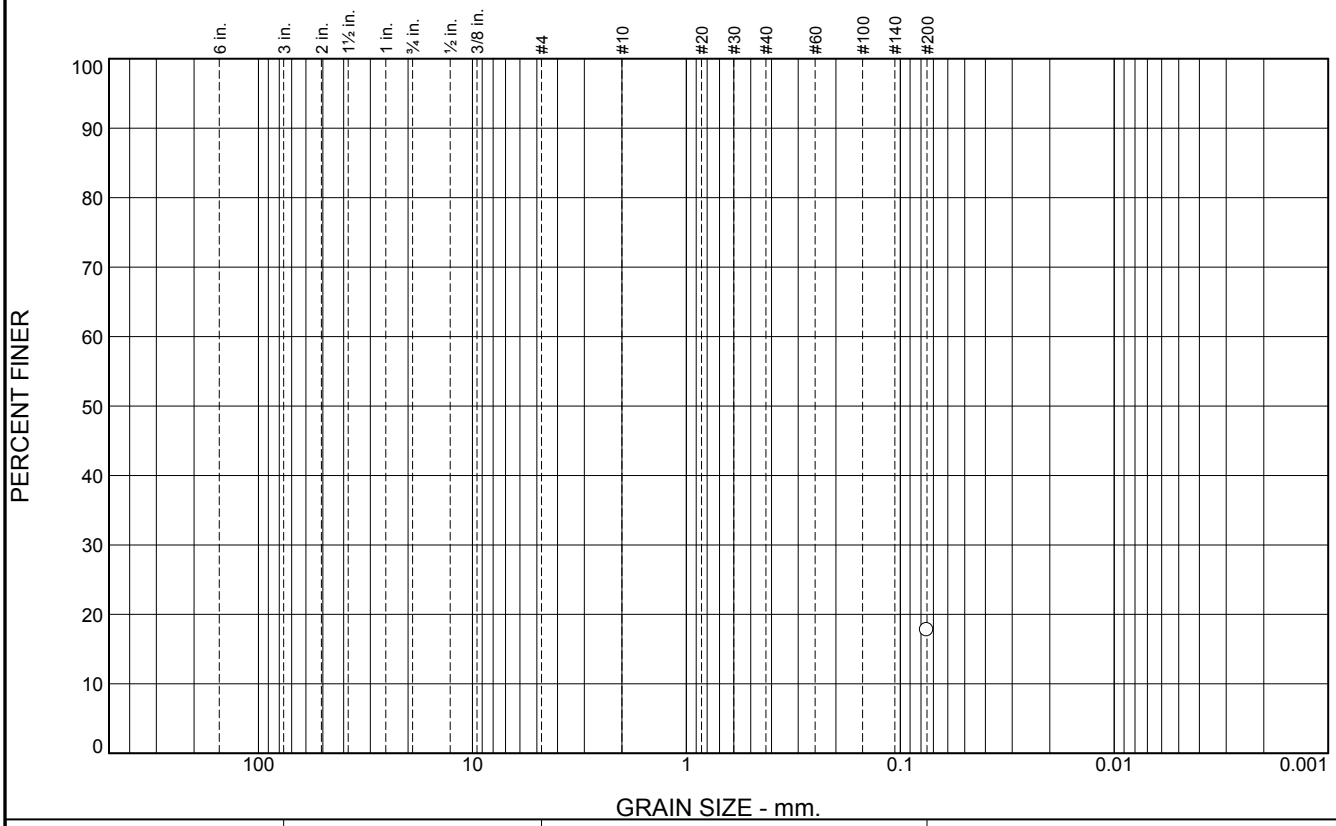
Source of Sample: B-1 **Depth:** 31'
Sample Number: CA-6 **Date:** 3/16/17

Blackburn Consulting

W. Sacramento, CA

Client: Stantec
Project: McKinley Park
Project No: 3237.P **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						18	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18		

* (no specification provided)

Material Description

Poorly-graded SAND with CLAY, light brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SP-SC AASHTO=

Remarks

very moist
medium SAND
approximately 5%medium plasticity fines

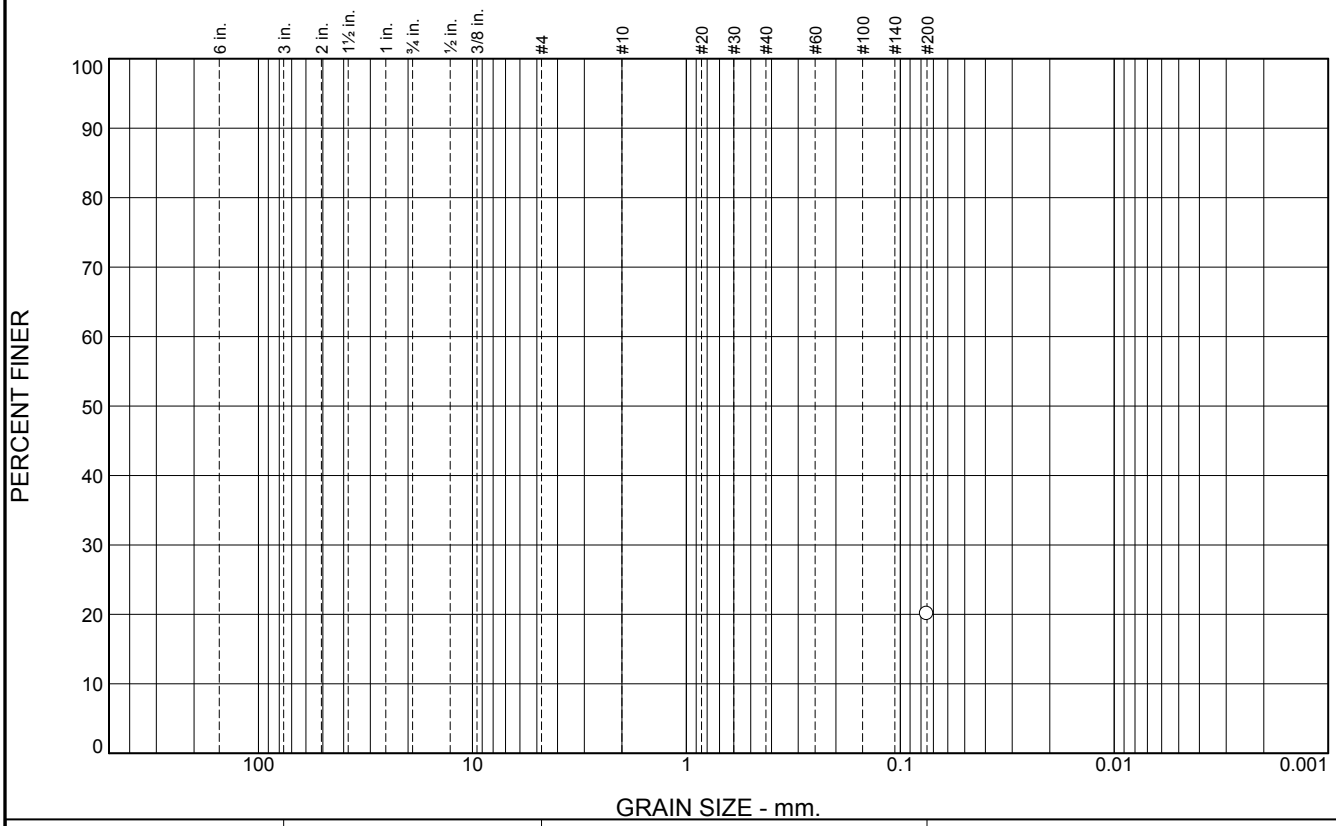
Source of Sample: B-1 **Depth:** 31'
Sample Number: CA-6 **Date:** 3/16/17

Blackburn Consulting

W. Sacramento, CA

Client: Stantec
Project: McKinley Park
Project No: 3237.P **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						20	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	20		

* (no specification provided)

Material Description

CLAYEY SAND, olive brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Source of Sample: B-2 **Depth:** 25'

Date: 4/7/17

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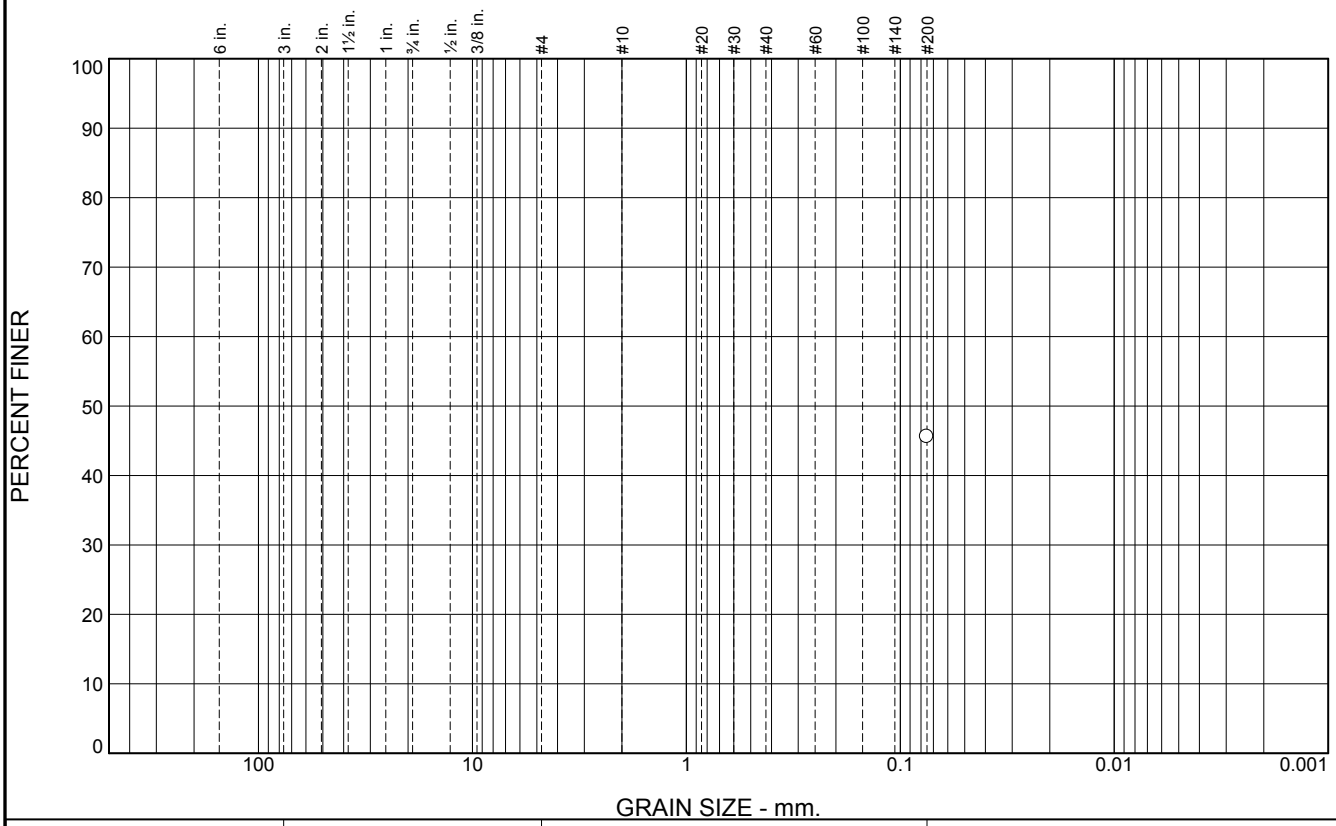
W. Sacramento, CA

Client: Stantec
Project: McKinley Park

Project No: 3237.P **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						46	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	46		

* (no specification provided)

Material Description

CLAYEY SAND, dark yellowish brown

Atterberg Limits

PL= 17 LL= 28 PI= 11

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Source of Sample: B-2 **Depth:** 35'

Date: 4/7/17

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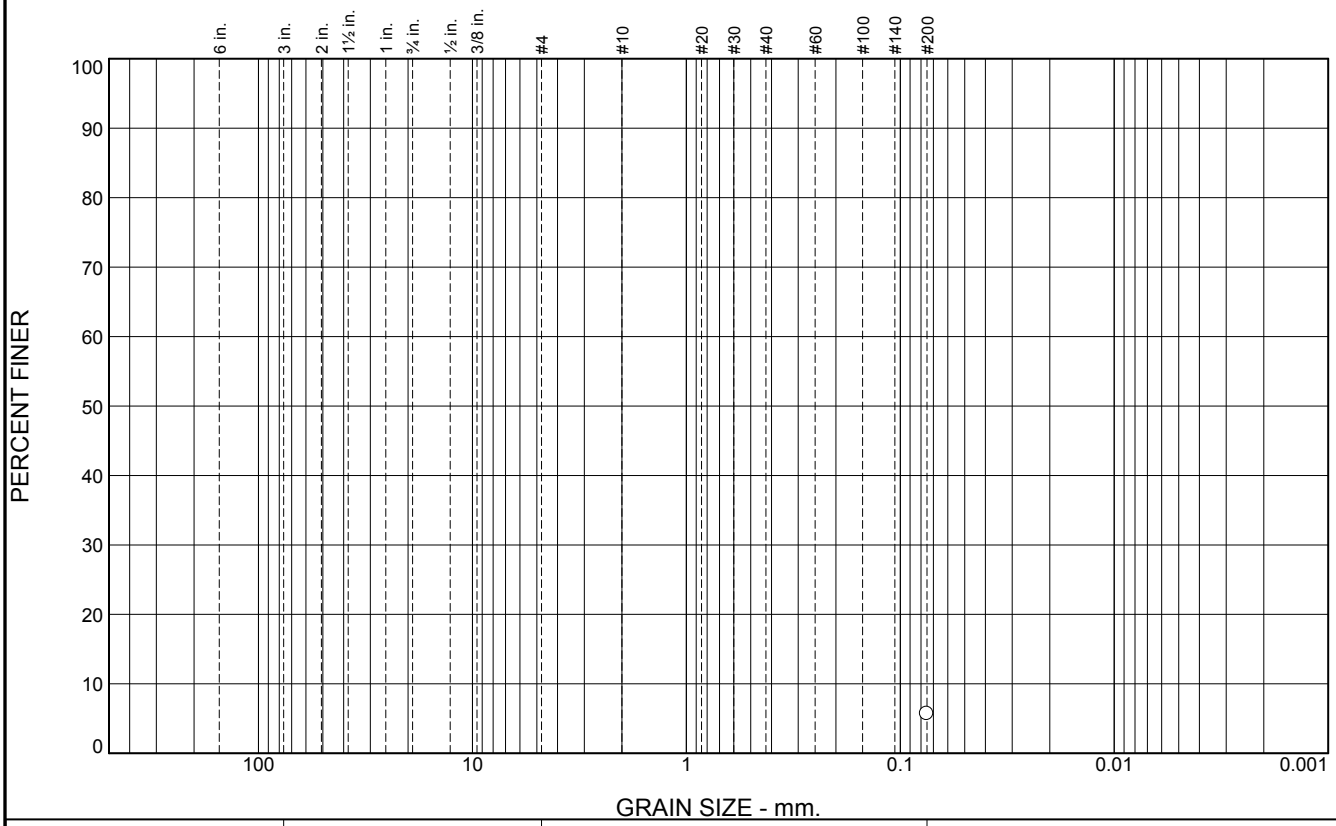
Client: Stantec
Project: McKinley Park
Project No: 3237.P **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	5.7		

* (no specification provided)

Material Description

Poorly-graded SAND with CLAY, olive

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: B-2 **Depth:** 45'

Date: 4/7/17

Blackburn Consulting

W. Sacramento, CA

Client: Stantec
Project: McKinley Park
Project No: 3237.P **Figure**

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 04/21/2017
Date Submitted 04/18/2017

To: Ben Lokteff
Blackburn Consulting
2491 Boatman Ave
W. Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 3237.X STANTEC-MCKIN Site ID : B2-17.
Thank you for your business.

* For future reference to this analysis please use SUN # 74019-154392.

EVALUATION FOR SOIL CORROSION

Soil pH	6.95		
Minimum Resistivity	0.56 ohm-cm (x1000)		
Chloride	179.7 ppm	00.01797	%
Sulfate	82.8 ppm	00.00828	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Amount of Material Finer than No. 200 (75-µm) Sieve in Soils by Washing, ASTM D1140, Method A

Sample No.	Depth	Sample Description	Material Finer than No. 200 Sieve, %
B-3	22.0-23.5'	Olive Brown Sandy CLAY	55.9
B-3	23.5-25.0'	Brown Clayey SAND	31.8
B-4	20.0-21.5'	Brown Sandy CLAY	69.4
B-4	24.5-26.0'	Brown Clayey SAND	48.6

Notes: Stantec Project No. 184030954

Date Sampled: 5/2/2018

Date Test Started: 5/10/2018

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Building Innovative Solutions
30 YEARS
1234 Glenhaven Court, El Dorado Hills, CA 95762
ph 916.933.0633 • fx 916.933.6482 • www.youngdahl.net

Project: **McKinley Park, Stantec**

Project No.: **E16163.015**

Figure

Reviewed By: JLC

Date: 5/17/2018

Moisture Content of Soil, ASTM D2216, Method B

Sample No.	B-3	B-3	B-4	B-4				
Depth	22.0-23.5'	23.5-25.0'	20.0-21.5'	24.5-26.0'				
Moisture Content, %	23.4	13.9	26.2	21.5				
Soil Description	Olive Brown Sandy CLAY	Brown Clayey SAND	Brown Sandy CLAY	Brown Clayey SAND				

Notes: Stantec Project No. 184030954

Date Sampled: 5/2/2018

Date Test Started: 5/10/2018

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Project: **McKinley Park, Stntec**

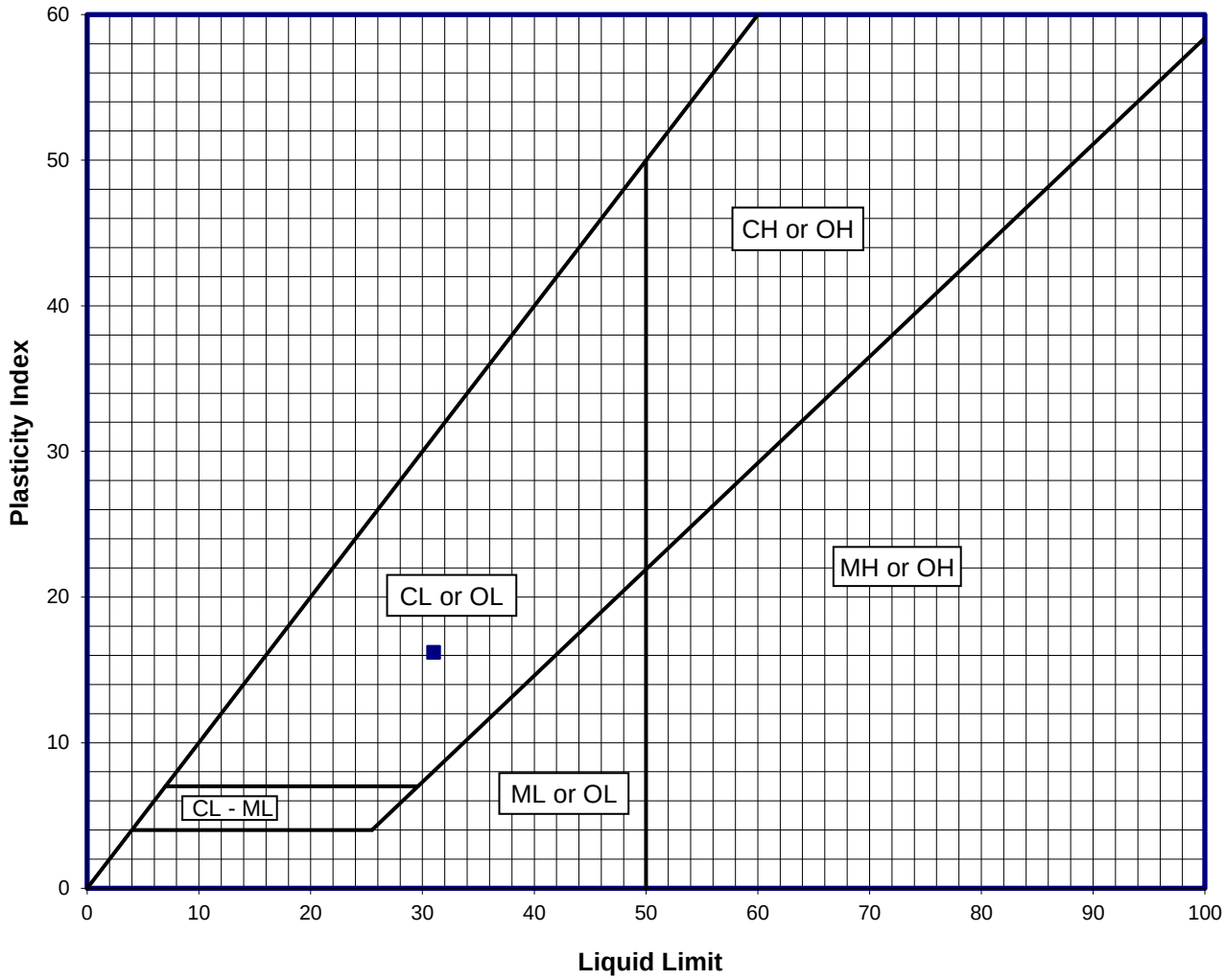
Project No.: **E16163.015**

Figure

Reviewed By: JLC

Date: 5/11/2018

Liquid Limit, Plastic Limit, and Plasticity Index of Soils, ASTM D4318, Method A



Liquid Limit	Plastic Limit	Plasticity Index	Unified Soil Classification, ASTM D2487
31	15	16	CL

Material Description: **Olive Brown Sandy CLAY**

Source:

Notes: Stantec Project No. 184030954

Sample No./Depth:	B-3 @ 22.0-23.5'			USCS Class.	Liquid Limit	Plasticity Index	% Greater than No. 4	% Less than No. 200
Date Sampled:	5/2/2018	Date Test Started:	5/14/2018	CL	31	16	0	55.9

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Project: **McKinley Park, Stantec**

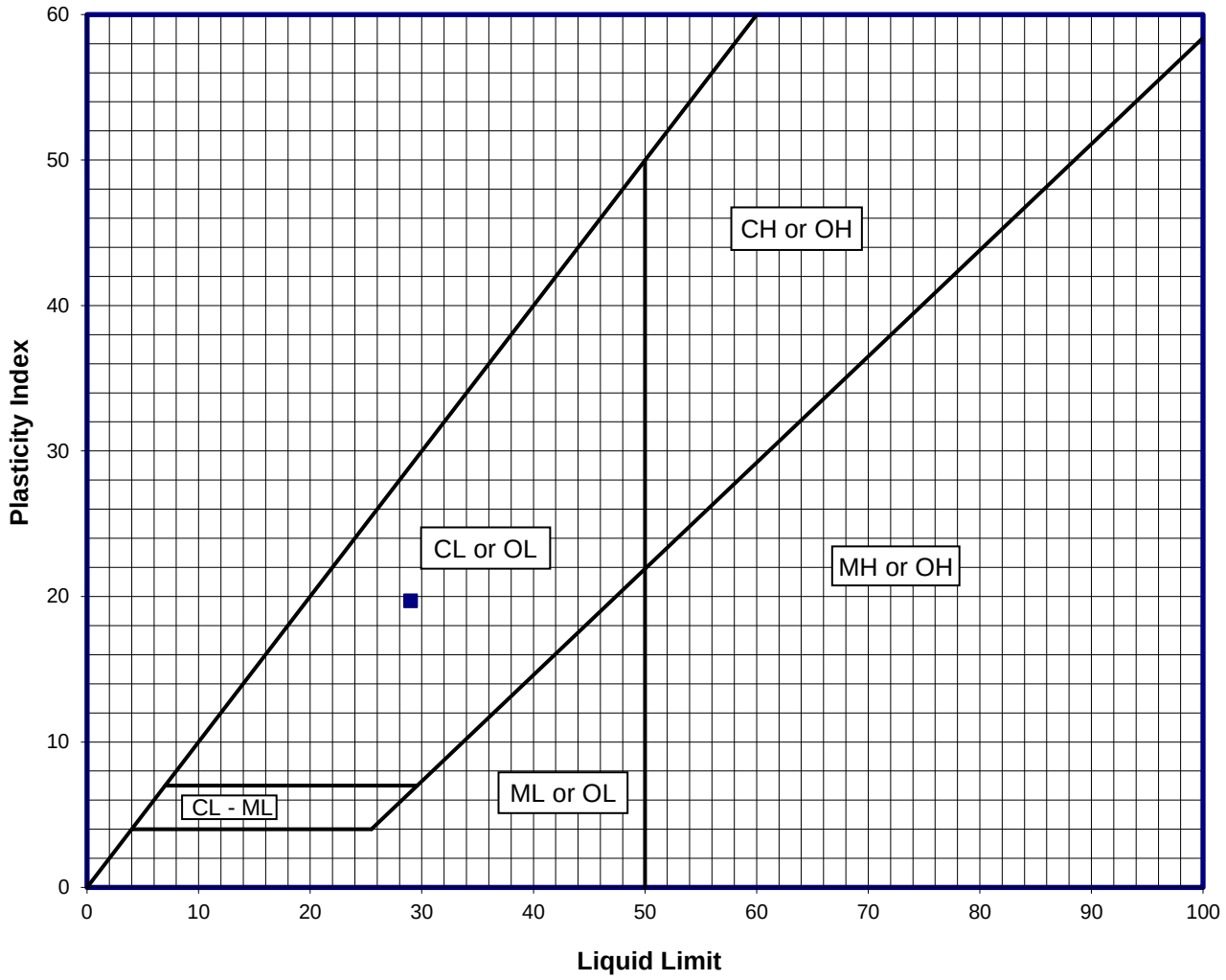
Project No.: **E16163.015**

Figure 1

Reviewed By: JLC

Date: 5/18/2018

Liquid Limit, Plastic Limit, and Plasticity Index of Soils, ASTM D4318, Method A



Liquid Limit	Plastic Limit	Plasticity Index	Unified Soil Classification, ASTM D2487
29	9	20	SC

Material Description: **Brown Clayey SAND**

Source:

Notes: Stantec Project No. 184030954

Sample No./Depth:	B-3 @ 23.5-25.0'			USCS Class.	Liquid Limit	Plasticity Index	% Greater than No. 4	% Less than No. 200
Date Sampled:	5/2/2018	Date Test Started:	5/14/2018	SC	29	20	0	31.8

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Project: **McKinley Park, Stantec**

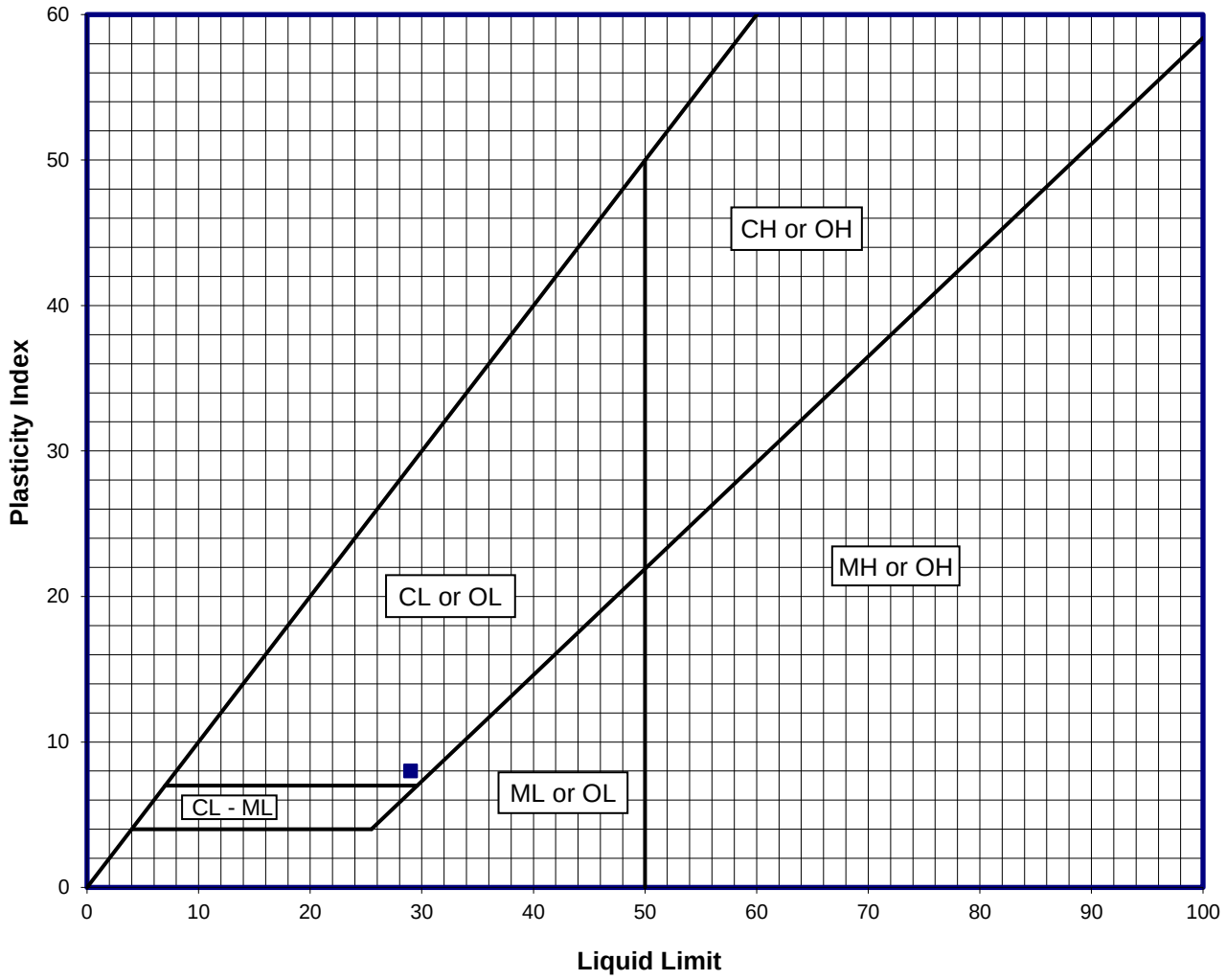
Project No.: **E16163.015**

Figure 1

Reviewed By: JLC

Date: 5/18/2018

Liquid Limit, Plastic Limit, and Plasticity Index of Soils, ASTM D4318, Method A



Liquid Limit	Plastic Limit	Plasticity Index	Unified Soil Classification, ASTM D2487
29	21	8	CL

Material Description: **Brown Sandy CLAY**

Source:

Notes: Stantec Project No. 184030954

Sample No./Depth:	B-4 @ 20.0-21.5'			USCS Class.	Liquid Limit	Plasticity Index	% Greater than No. 4	% Less than No. 200
Date Sampled:	5/2/2018	Date Test Started:	5/14/2018	CL	29	8	0	69.4

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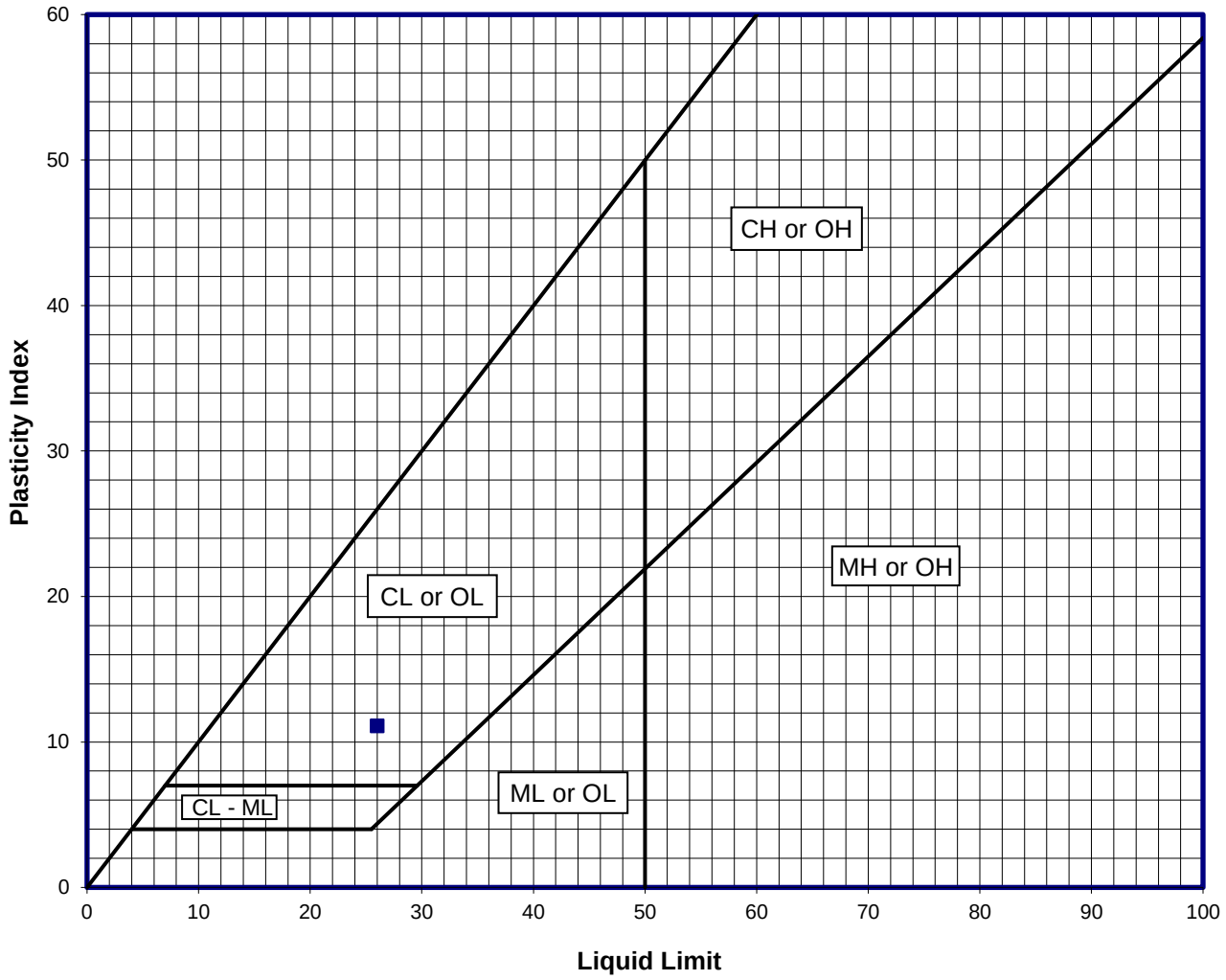
Project: **McKinley Park, Stantec**

Project No.: **E16163.015**

Figure 1

Reviewed By: JLC Date: 5/18/2018

Liquid Limit, Plastic Limit, and Plasticity Index of Soils, ASTM D4318, Method A



Liquid Limit	Plastic Limit	Plasticity Index	Unified Soil Classification, ASTM D2487
26	15	11	SC

Material Description: **Brown Clayey SAND**

Source:

Notes: Stantec Project No. 184030954

Sample No./Depth:	B-4 @ 24.5-26.0'			USCS Class.	Liquid Limit	Plasticity Index	% Greater than No. 4	% Less than No. 200
Date Sampled:	5/2/2018	Date Test Started:	5/14/2018	SC	26	11	0	48.6

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Project: **McKinley Park, Stantec**

Project No.: **E16163.015**

Figure 1

Reviewed By: JLC Date: 5/18/2018

APPENDIX C
SEISMIC INFORMATION

Beta - Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Earthquake Hazard and Probability Maps

Input

Edition

Dynamic: Conterminous U.S. 2014 (v4.1.0)

Spectral Period

Peak ground acceleration

Location

Latitude

Decimal degrees

38.575756

Longitude

Decimal degrees, negative values for western longitudes

-121.46094

Choose location using a map

Site Class

537 m/s (Site class C)

Time Horizon

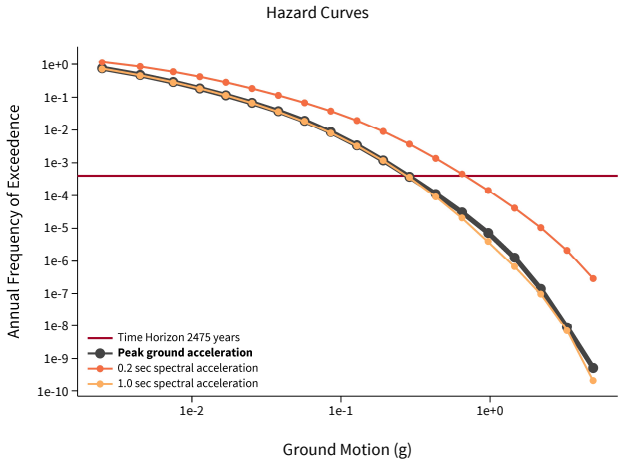
Return period in years

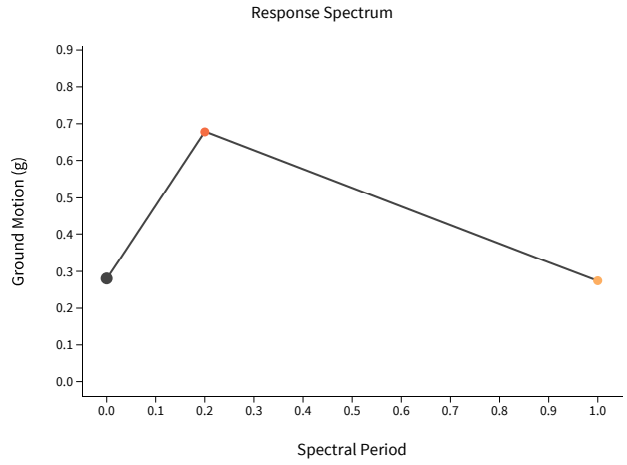
2475

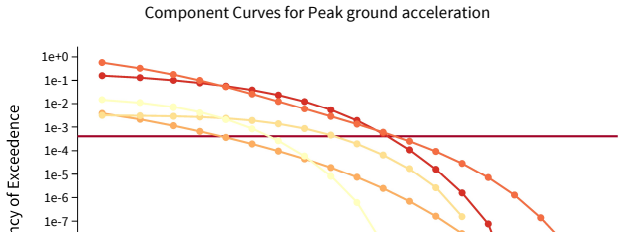
2% in 50 years (2,475 years)

10% in 50 years (475 years)

Hazard Curve



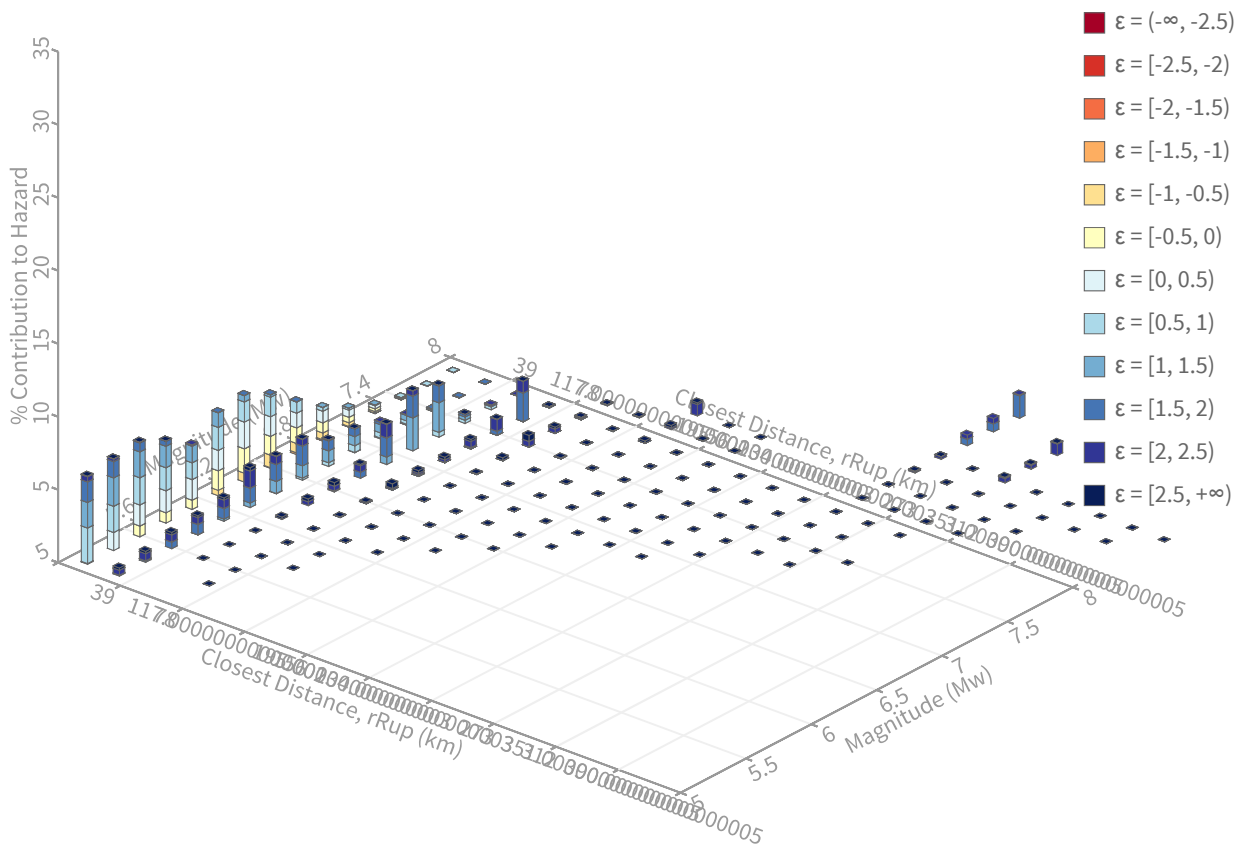




Deaggregation

Component

Total



Download Deaggregation Report

Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
Exceedance IML: 0.28076815 g

Recovered targets

Return period: 2759.6109 yrs
Exceedance rate: 0.00036236993 yr^{-1}

Totals

Binned: 100 %

History New

Dynamic: Conterminous U.S. 2014 (v4.1.0) Delete
(38.576, -121.461): *PGA, WUS, 537*

USGS Design Maps Summary Report

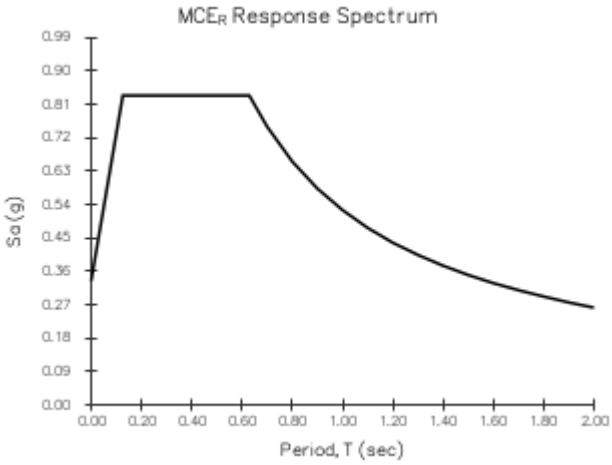
User–Specified Input

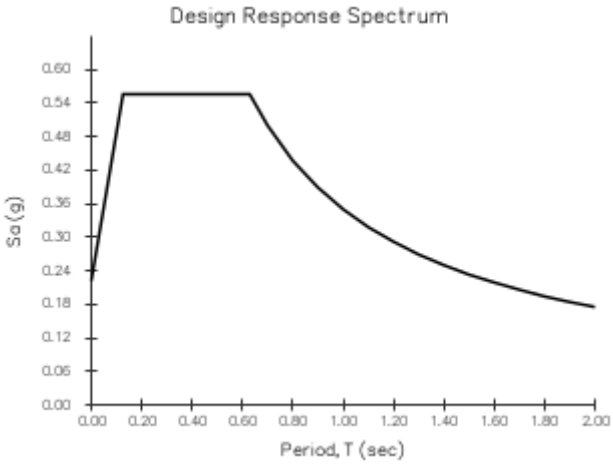
Report Title	McKinley Vault Fri April 28, 2017 20:42:50 UTC
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	38.5756°N, 121.4608°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

USGS–Provided Output

S_S =	0.652 g	S_{MS} =	0.834 g	S_{DS} =	0.556 g
S_1 =	0.288 g	S_{M1} =	0.525 g	S_{D1} =	0.350 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

USGS Design Maps Detailed Report

2012/2015 International Building Code (38.5756°N, 121.4608°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 1613.3.1 — Mapped acceleration parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2012/2015 International Building Code are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 1613.3.3.

From Figure 1613.3.1(1) [1] S_S = 0.652 g

From Figure 1613.3.1(2) [2] S_1 = 0.288 g

Section 1613.3.2 — Site class definitions

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Section 1613.

2010 ASCE-7 Standard – Table 20.3-1
SITE CLASS DEFINITIONS

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 1613.3.3 — Site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters

TABLE 1613.3.3(1)
VALUES OF SITE COEFFICIENT F_a

Site Class	Mapped Spectral Response Acceleration at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_S = 0.652 g, F_a = 1.278

TABLE 1613.3.3(2)
VALUES OF SITE COEFFICIENT F_v

Site Class	Mapped Spectral Response Acceleration at 1–s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.288 g, F_v = 1.825

Equation (16-37): $S_{MS} = F_a S_S = 1.278 \times 0.652 = 0.834$ g

---

Equation (16-38): $S_{M1} = F_v S_1 = 1.825 \times 0.288 = 0.525$ g

---

Section 1613.3.4 — Design spectral response acceleration parameters

Equation (16-39): $S_{DS} = ⅔\ S_{MS} = ⅔ \times 0.834 = 0.556$ g

---

Equation (16-40): $S_{D1} = ⅔\ S_{M1} = ⅔ \times 0.525 = 0.350$ g

---

Section 1613.3.5 — Determination of seismic design category

TABLE 1613.3.5(1)
SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD (0.2 second) RESPONSE ACCELERATION

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 0.556 g, Seismic Design Category = D

TABLE 1613.3.5(2)
SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.350 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 1613.3.5(1) or 1613.3.5(2)" = D

Note: See Section 1613.3.5.1 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 1613.3.1(1)*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(1).pdf
2. *Figure 1613.3.1(2)*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(2).pdf

Appendix E REVISED ARBORIST REPORT TABLE 4

Table 4 Tree Inventory Response to Dryad LLC Report

Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
1	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	40	3.33	Yes	London plane; *Platanus x hispanica*	The species was not in error; the species listed in the Dryad report (*Platanus x hispanica)* is a synonym species to *Platanus × acerifolia*	No error found.
2	red oak	*Quercus rubra*	12.4	1.03	No			
3	Chinese elm	*Ulmus parvifolia*	8.8	0.73	No			
4	~~cork oak~~ blue oak	~~*Quercus suber*~~ *Quercus douglasii*	11.2	0.93	Yes	blue oak; *Quercus douglasii*	Species error noted and revised; same genus	Blue oak is native, so the error is noted that it is a native species.
5	~~American sycamore~~ sweetgum	~~*Platanus occidentalis*~~ *Liquidambar styraciflua*	36.3	3.03	Yes	sweetgum; *Liquidambar styraciflua*	Species error noted and revised	Error in species is not substantial as both are non-native to the region.
6	chestnut oak	*Quercus prinus*	4.4	0.37	Yes	same species		No error found.
7	~~sawleaf zelkova~~ Chinese elm	~~*Zelkova serrata*~~ *Ulmus parvifolia*	27.9	2.33	Yes	Chinese elm; *Ulmus parvifolia*	Species error noted and revised; similar species	Error in species is not substantial as both are non-native to the region.
8	camphor	*Cinnamomum camphora*	37.8	3.15	No			
9	elm	*Ulmus species*	28.7	2.39	No			
10	~~Chinese pistache~~ Chinese elm	~~*Pistacia chinensis*~~ *Ulmus parvifolia*	19.7	1.64	Yes	Chinese elm; Ulmus parvifolia	Species error noted and revised; error in field notes	Error in species is not substantial as both are non-native to the region.
11	~~Chinese pistache~~ Chinese elm	~~*Pistacia chinensis*~~ *Ulmus parvifolia*	27.9	2.33	Yes	Chinese elm; Ulmus parvifolia	Species error noted and revised; error in field notes	Error in species is not substantial as both are non-native to the region.
12	California coast redwood	*Sequoia sempervirens*	32	2.67	No			
13	California coast redwood	*Sequoia sempervirens*	46.7	3.89	Yes	same species		
14	~~American sycamore~~ sweetgum	~~*Platanus occidentalis*~~ Liquidambar styraciflua	9.8	0.82	Yes	sweetgum; Liquidambar styraciflua	Species error noted and revised	Error in species is not substantial as both are non-native to the region.

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
15	~~cork oak~~ red oak	~~*Quercus suber*~~ *Quercus rubra*	11.6	0.97	Yes	red oak; *Quercus rubra*	Species error noted and revised; same genus	Error in species is not substantial as both are non-native to the region.
16	Mexican fan palm	*Washingtonia robusta*	32.9	2.74	No			
17	California coast redwood	*Sequoia sempervirens*	13.3	1.11	No			
18	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	17.6	1.47	No			
19	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	20.3	1.69	No			
20	camphor	*Cinnamomum camphora*	38.9	3.24	No			
21	Australian pine	*Casuarina equisetifolia*	35	2.92	No			
22	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	27.7	2.31	No			
23	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	26.7	2.23	No			
24	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	26.6	2.22	No			
25	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	24.3	2.03	No			
26	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	21	1.75	No			
27	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	30.3	2.53	No			

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
28	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	23.9	1.99	No			
29	~~English oak~~ valley oak	~~*Quercus robur*~~ *Quercus lobata*	14.4	1.2	Yes	valley oak; *Quercus lobata*	Species error noted and revised; same genus	Valley oak is native so the error is noted that this is a native species.
30	~~scarlet oak~~ pin oak	~~*Quercus coccinea*~~ *Quercus palustris*	17.5	1.46	Yes	pin oak; *Quercus palustris*	Species error noted and revised; same genus	Error in species is not substantial as both are non-native to the region.
31	Chinese pistache	*Pistacia chinensis*	10.2	0.85	Yes	siberian elm; *Ulmus pumila*	It is believed that there is an error in location data for this tree and a different tree was evaluated	GPS error in data point
32	black locust	*Robinia pseudoacacia*	41.4	3.45	Yes	siberian elm; Ulmus pumila	It is believed that there is an error in location data for this tree and a different tree was evaluated	GPS error in data point
33	camphor	*Cinnamomum camphora*	30.5	2.54	No			
34	black oak	*Quercus kelloggii*	33.9	2.83	Yes	same species		
35	Chinese pistache	*Pistacia chinensis*	29	2.42	No			
36	English oak	*Quercus robur*	35.4	2.95	No			
37	elm	*Ulmus species*	30.6	2.55	No			
38	Deodar cedar	*Cedrus deodara*	26.9	2.24	No			
39	elm	*Ulmus species*	30.6	2.55	No			
40	Norway spruce	*Picea abies*	7.3	0.61	No			
41	fruitless mulberry	*Morus alba*	24.6	2.05	No			
42	fruitless mulberry	*Morus alba*	32.3	2.69	No			
43	ginkgo	*Ginkgo biloba*	14.3	1.19	No			
44	tulip tree	*Liriodendron tulipfera*	24.3	2.03	No			
45	elm	*Ulmus species*	5.8	0.48	No			
46	Austrian pine	*Pinus nigra*	28.2	2.35	No			
49	coast live oak	*Quercus agrifolia*	40	3.33	No			

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
50	coast live oak	*Quercus agrifolia*	38.5	3.21	No			
51	coast live oak	*Quercus agrifolia*	25.8	2.15	No			
52	southern live oak	*Quercus virginiana*	46.7	3.89	No			
53	southern live oak	*Quercus virginiana*	23.9	1.99	No			
54	black cottonwood	*Populus trichocarpa*	4.3	0.36	No			
55	Chinese pistache	*Pistacia chinensis*	3.1	0.26	No			
56	Chinese pistache	*Pistacia chinensis*	4.4	0.37	No			
57	pear	*Pyrus* species	2.1	0.18	No			
58	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	22.5	1.88	No			
59	California coast redwood	*Sequoia sempervirens*	38.8	3.23	No			
60	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	18.7	1.56	No			
61	California coast redwood	*Sequoia sempervirens*	4.8	0.4	No			
62	California coast redwood	*Sequoia sempervirens*	20.8	1.73	No			
63	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	18.7	1.56	No			
64	California coast redwood	*Sequoia sempervirens*	18.2	1.52	No			
65	cork oak	*Quercus subra*	9.4	0.78	No			
66	camphor	*Cinnamomum camphora*	32.4	2.7	No			
67	camphor	*Cinnamomum camphora*	31.5	2.63	No			
68	elm	*Ulmus species*	34.1	2.84	No			
69	Chinese pistache	*Pistacia chinensis*	29.5	2.46	No			

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
70	London planetree; American sycamore	*Platanus x acerifolia; Platanus occidentalis*	18.9	1.58	No			
71	sawleaf zelkova	*Zelkova serrata*	7	0.58	No			
72	camphor	*Cinnamomum camphora*	5	0.42	No			
73	crape myrtle	*Lagerstroemia indica*	6	0.5	No			
74	crape myrtle	*Lagerstroemia indica*	5.3	0.44	No			
75	elm	*Ulmus* species	8.2	0.69	No			
76	elm	*Ulmus* species	8	0.66	No			
77	crape myrtle	*Lagerstroemia indica*	9	0.75	No			
78	valley oak	*Quercus lobata*	19.5	1.63	No			
79	valley oak	*Quercus lobata*	11.5	0.96	No			
80	American sycamore	*Platanus occidentalis*	42	3.5	Yes	siberian elm; *Ulmus pumila*	It is believed that there is an error in location data for this tree and a different tree was evaluated	GPS error in data point
81	American sycamore	*Platanus occidentalis*	32	2.67	Yes	siberian elm; *Ulmus pumila*	It is believed that there is an error in location data for this tree and a different tree was evaluated	GPS error in data point
82	gray pine	*Pinus sabiana*	46	3.83	No			
83	London planetree	*Plantanus x acerifolia*	10	0.83	No			
84	sawleaf zelkova	*Zelkova serrata*	29.5	2.46	No			
85	sawleaf zelkova	*Zelkova serrata*	19	1.58	No			
86	sawleaf zelkova	*Zelkova serrata*	43	3.58	No			
87	London planetree	*Platanus x acerifolia*	19.5	1.63	No			
88	London planetree	*Platanus x acerifolia*	17.5	1.46	No			
89	sawleaf zelkova	*Zelkova serrata*	34	2.83	No			

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
90	sawleaf zelkova	*Zelkova serrata*	29	2.42	No			
91	London planetree	*Platanus x acerifolia*	18.5	1.54	No			
92	camphor	*Cinnamomum camphora*	38.5	3.21	No			
93	~~black cottonwood~~ American linden	~~*Populus trichocarpa*~~ *Tilia ameriicana*	20.5	1.71	Yes	American linden; *Tilia ameriicana*	Species error noted and revised	American linden is non-native to the region - error in species noted as such.
94	black cottonwood	*Populus trichocarpa*	19	1.58	No			
95	~~Chinese elm~~ sawleaf zelkova	~~*Ulmus parvifolia*~~ *Zelkova serrata*	27	2.25	Yes	sawleaf zelkova; *Zelkova serrata*	Species error noted and revised; similar species	Error in species is not substantial since both are non-native to the region.
96	~~Chinese elm~~ sawleaf zelkova	~~*Ulmus parvifolia*~~ *Zelkova serrata*	29.5	2.46	Yes	sawleaf zelkova; *Zelkova serrata*	Species error noted and revised; similar species	Error in species is not substantial as both are non-native to the region.
97	~~sawleaf zelkova~~ pecan	~~*Zelkova serrata*~~ *Craya ilinonsis*	31.5	2.63	Yes	pecan; *Craya illinoensis*	Species error noted and revised; similar species	Error in species is not substantial as both are non-native to the region.
98	liquidambar	*Liquidambar styraciflua*	30	2.5	No			
99	Chinese elm	*Ulmus parvifolia*	39	3.25	No			
100	London planetree	*Platanus x acerifolia*	20	1.67	No			
101	California coast redwood	*Sequoia sempervirens*	10	0.83	No			
102	black cottonwood	*Populus trichocarpa*	31	2.58	No			
103	California coast redwood	*Sequoia sempervirens*	53.5	4.46	No			
104	California coast redwood	*Sequoia sempervirens*	32	2.67	No			
105	California coast redwood	*Sequoia sempervirens*	59	4.92	No			
106	California coast redwood	*Sequoia sempervirens*	45	3.75	No			
107	California coast redwood	*Sequoia sempervirens*	17	1.42	No			

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
108	California coast redwood	*Sequoia sempervirens*	35.5	2.96	No			
109	California coast redwood	*Sequoia sempervirens*	47	3.92	No			
110	California coast redwood	*Sequoia sempervirens*	68	5.67	No			
111	California coast redwood	*Sequoia sempervirens*	33.7	2.81	No			
112	ginkgo	*Ginkgo biloba*	9	0.75	No			
113	California coast redwood	*Sequoia sempervirens*	12	1	No			
114	California coast redwood	*Sequoia sempervirens*	19	1.58	No			
115	elm	*Ulmus species*	6.1	0.51	No			
116	English oak	*Quercus robur*	20	1.67	No			
117	California coast redwood	*Sequoia sempervirens*	27	2.25	Yes	same species		No error found.
118	~~Bradford pear~~ Camelia	~~*Pyrus calleryanana 'Bradford'*~~ *Camelia japonica*	2.5	0.21	Yes	Camellia; *Camellia japonica*	species error noted and revised	Error in species is not substantial as both are non-native to the region.
119	~~fruitless mulberry~~ Japanese privet	~~*Morus alba*~~ *Ligustrum japonica*	17.1	1.42	Yes	Japanese privet; *Ligustrum japonica*	species error noted and revised	Error in species is not substantial as both are non-native to the region.
120	~~fruitless mulberry~~ Japanese privet	~~*Morus alba*~~ *Ligustrum japonica*	22.7	1.89	Yes	Japanese privet; *Ligustrum japonica*	species error noted and revised	Error in species is not substantial as both are non-native to the region.
121	valley oak	*Quercus lobata*	14.5	1.21	No			
122	little leaf linden	*Tilia cordata*	31.8	2.65	Yes	flowering ornamental pear; *Pyrus calleryana*	It is believed that there is an error in location data for this tree and a different tree was evaluated	GPS error in data point
123	crape myrtle	*Lagerstroemia indica*	4.5	0.38	No			
124	valley oak	*Quercus lobata*	26	2.17	No			
125	valley oak	*Quercus lobata*	9	0.75	No			

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Tree ID	Common Name	Scientific Name	DSH (inches)	DSH (Feet)	Evaluated by Dryad, LLC	Dryad Species	Comment to Dryad	Error Effect
126	valley oak	*Quercus lobata*	23	1.92	No			
127	scarlet oak	*Quercus coccinea*	12	1	No			
128	scarlet oak	*Quercus coccinea*	13	1.08	No			
129	elm	*Ulmus* species	17	1.42	No			
130	mourning cypress	*Cupressus funebris*	38.7	3.23	No			
131	purple leaf plum	*Prunus cerasifera*	11	0.92	No			