MISSION CLAY PRODUCTS SOIL REMEDIATION PROJECT

Final Initial Study/Mitigated Negative Declaration

Prepared for
City of Fremont

August 2018

ESA

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ENVIRONMENTAL CHECKLIST

Initial Study

1. Introduction

This document evaluates the potential environmental effects of the proposed Mission Clay Products (MCP or Mission Clay) Soil Remediation Project (proposed project). The proposed project includes the excavation of 152,000 cubic yards of soil and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill at 1601 Dixon Landing Road in City of San Jose, an off-site landfill that can accept the soil. The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The treated water would then be used for on-site applications (e.g., dust control, watering the erosion control plantings, etc.). A more detailed description of the proposed project is provided in *Section 2, Project Description*.

This document is an Initial Study (IS) prepared pursuant to the California Environmental Quality Act (CEQA). The City of Fremont (City) is the lead agency for the proposed project pursuant to CEQA. As specified in the California Code of Regulations (CCR) Section 21067, the lead agency is the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment. As provided in Section 15063 of the CEQA Guidelines, a lead agency shall prepare an IS to determine if the project may have a significant effect on the environment. This document will assist the lead agency in determining whether additional environmental review is necessary.

This IS and a proposed Mitigated Negative Declaration (MND) was circulated for a 20-day public and agency review pursuant to the requirements of CEQA Guidelines Section 15073 from July 13, 2018 to August 1, 2018. One comment was received by the City of Fremont during the review period for the Public Draft IS/MND. The comment was provided via email from the State of California San Francisco Bay Regional Water Quality Control Board. The comment and the City's response to the comment are provided in **Appendix E.** Text revisions to the Public Draft IS/MND that have been made in response to the comment are identified in Appendix E and have been incorporated into this Final IS/MND.

Where a CEQA document has identified significant environmental effects, Public Resources Code Section 21081.6 requires adoption of a "reporting or monitoring program for the changes to the project which it has adopted or made a condition of a project approval to mitigate or avoid significant effects on the environment." A public agency is required to ensure that the measures are fully enforceable, through permit conditions, agreements, or other means (Public Resources

Code Section 21081.6(b)). The Mitigation Monitoring and Reporting Program (MMRP) must be designed to ensure project compliance with mitigation measures during project implementation. The MMRP that has been prepared to provide for the monitoring of mitigation measures required of the proposed project is provided in **Appendix F** of this Final IS/MND.

The organization and format of this document is stipulated by the CEQA Guidelines. Section 4 of this IS, the "Environmental Checklist," includes 18 specific elements (e.g., air quality, cultural resources, transportation and traffic, etc.), which must be addressed. The four levels of impact are: "Potentially Significant Impact," "Less Than Significant with Mitigation Incorporated," "Less than Significant Impact," and "No Impact." A discussion relating to the anticipated impacts to each of the CEQA issues then follows. If a significant impact is identified, mitigation is presented to offset any potentially significant impacts. Each checklist item includes a reference section, which lists technical studies, agencies, and other resources consulted in this evaluation.

1. Project Title:	Mission Clay Products Soil Remediation Project (PLN2018-00272)
2. Lead Agency Name and Address:	City of Fremont Planning Division 39550 Liberty Street, P.O. Box 5006 Fremont, CA 94537-5006
3. Contact Person and Phone Number:	Bill Roth, Associate Planner Phone: (510) 494-4450 Email: broth@fremont.gov
4. Project Location:	Mission Clay Products 2225 Old Canyon Road Fremont, CA 94536 (APNs: 507-762-1, 507-762-2-2, 507-762-4 and 507-762-6) Republic Services Newby Island Landfill 1601 Dixon Landing Road, Milpitas (San Jose), CA 95035 Haul route between above locations (described in Section 2, *Project Description*)
5. Project Sponsor's Name and Address:	BBG KRG, Inc., P.O. Box 1839, Corona, CA 92878

6. General Plan: Open Space – Hill Face and Open Space – Hillside

7. Zoning: O-S (Open Space)

8. Description of Project:

The proposed project includes the excavation and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose. The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant.

9. Surrounding Land Uses and Setting: The project site is surrounded by open space, located between Vargas Plateau on the south and Alameda Creek and State Route 84 (also known as Niles Canyon Road) on the north. Two active railroad lines also traverse the project site: the Union Pacific-Niles Canyon railroad across the northern property boundary and the Union Pacific railroad across the southern property boundary. Adjacent lands are currently used for open space and cattle grazing. The nearest sensitive receptors are residential uses on Stenhammer Drive located approximately 2,000 feet from the project site.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

- San Francisco Bay Area Regional Water Quality Control Board (RWQCB)
- Alameda County Water District (ACWD)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

The City of Fremont has initiated tribal consultation regarding the proposed project with California Native American tribes pursuant to Public Resources Code section 21080.3.1. The consultation that has occurred to date is described in Section 4.17, *Tribal Cultural Resources*, of this Initial Study.

2. Project Description

2.1 Project Background

The Mission Clay Products (MCP or Mission Clay) property consists of approximately 87 acres on the south side of Alameda Creek in Niles Canyon in the City of Fremont (see **Figures 1** and **2**). The property has a long history of intensive mining and manufacturing uses. In 1907, a clay mine and brick manufacturing plant were built on-site to manufacture bricks for re-building San Francisco and other parts of the Bay Area after the 1906 earthquake. The California Pressed Brick Company (CPB) constructed 14 kilns, the largest being a Yougren Gas-Fired continuous kiln made of over one million bricks with a chimney 125 feet tall and installed a bunker fuel vault and oil house.

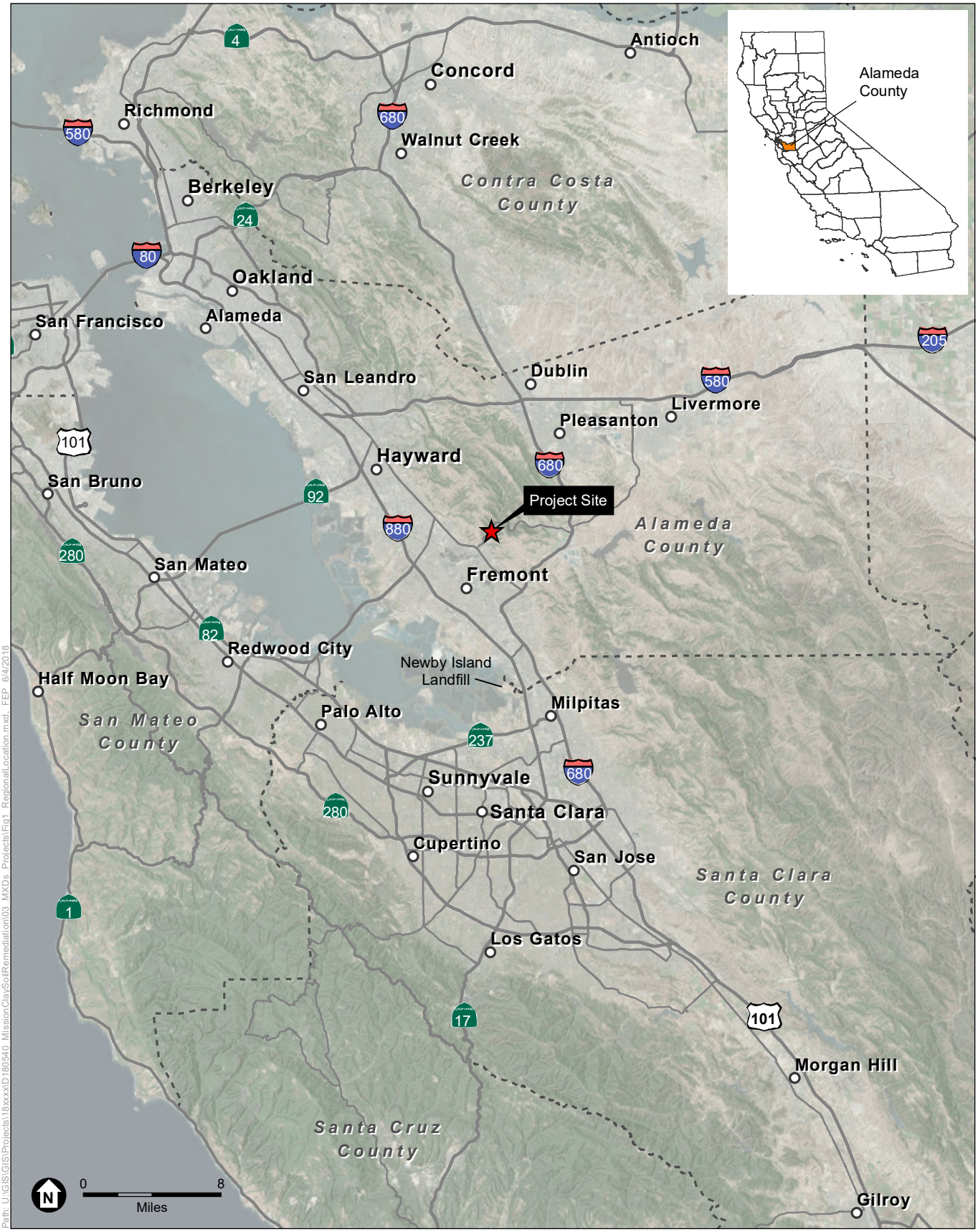
From 1910 to the 1930s, the kilns and other facilities used a variety of heavy oil (Bunker C and crude oil) to fuel manufacturing. Evidently these fuels were stored in earthen pits that allowed large amounts of the oil to seep into the ground. Over the next 70 to 80 years, the oil continued to move down through about 30 feet of soil until it reached bedrock. Today there are two thin (two-foot- thick) deposits of the oil resting on bedrock about 30 to 35 feet below the ground surface.

Mission Clay bought the property in 1960 and renovated the manufacturing plant. By that time, crude oil and similar fuels had been replaced by gasoline and diesel and no one associated with the property knew of the past oil leakage. Mission Clay shut down the plant in 1992 and began a clean-up operation. The bunker fuel oil vaults in the northeastern part of the developed area were removed in 2000, along with about 16,000 tons of soil below these vaults contaminated by leakage. To ensure that no additional contaminants occurred on-site, Mission Clay, working with the City of Fremont, the Regional Water Quality Control Board (RWQCB), and the Alameda County Water District (ACWD) completed several exploratory wells at depth. Those wells were the first evidence of this deep layer of oil contamination. Over the next decade, Mission Clay installed a number of wells and borings to try to define the extent and character of the contamination in consultation with the agencies. That effort has identified two areas of contamination, both about 32 feet below the surface and resting on bedrock.

Mission Clay then attempted to develop a solution to the contamination. The greatest concerns have been the magnitude of the contaminant release and potential impact to Alameda Creek, which is utilized as a groundwater recharge source for drinking water supply and is an important wildlife habitat. Off-site migration of the contaminant plume was recently documented in the Remedial Action Plan (RAP) prepared for the proposed project, which is posted on the California State Water Resources Control Board's GeoTracker website at the address provided below.[1]

http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600165351

[1] Haley Aldrich, 2018, *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California*, May 2018.



SOURCE: Esri, 2015; ESA, 2018

Mission Clay Products Soil Remediation Project

Figure 1
Regional Location

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SOURCE: Esri, 2012; USDA, 2016; ESA, 2018

Mission Clay Products Soil Remediation Project

Figure 2
Project Location

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Approved Ongoing Reclamation Activities

Mission Clay and its successor in interest BBG KRG, Inc. (the current landowner) have reclaimed large parts of the site in conformance with the State Mining and Reclamation Act (SMARA) since the mine was terminated. In 2005 and 2010, Mission Clay processed Reclamation Plans with the City of Fremont in accordance with SMARA. A Mitigated Negative Declaration (MND) was adopted by the City for the 2010 Reclamation Plan. Subsequently, much of the mining and manufacturing facilities were demolished and removed. A large part of the property was stripped of vegetation and much of the surface debris removed as well.

In 2017, the State Mining and Geology Board (SMGB) approved an Amended Reclamation Plan (ARP) for the property, approving the separation between the soil remediation work and reclamation. SMGB determined that the soil remediation work would not be included within the ARP and adopted an MND.

Pursuant to the ARP, Mission Clay has completed or is in the process of completing the following activities:

1. Clearing and reinforcing the entry access from Old Canyon Road up to the site, including creating a new access way into the site south of the existing access.

2. Removing a number of mature and young native and non-native trees to allow access and reclamation work.

3. Stripping and clearing the reclamation work area of all surface vegetation.

4. Removing and, where practicable, recycling decades of stored and dumped debris, including asphalt, clay pipe, concrete, etc.

5. Removing the remnants of aqueduct on the eastern edge of the site.

These activities have resulted in the reclamation work area (which includes the soil remediation work area) being stripped of all vegetation, stockpiled materials, debris and other mine and manufacturing artifacts with the exception of mature native trees that can be preserved. Once the soil remediation work is finished, the final grading required by the ARP will be completed and the required erosion control measures implemented.

2.2 Proposed Project

The proposed project includes the excavation of 152,000 cubic yards of soil and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil.[2] The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The treated water will be used on-site and not allowed to run-off to Alameda Creek.

[2] The landfill address is 1601 Dixon Landing Road, Milpitas. Although the address and public street access to the site are both in the City of Milpitas, the landfill property is entirely within the City of San Jose.

Soil Remediation Areas

There are two sites on the property with impacted soils and where remedial excavation activities would occur (see **Figure 3**).

Bunker Fuel Vault Area

The former bunker oil fuel vault area is in the northeastern corner of the former manufacturing area, which is near the center of the site. This area is impacted by Bunker C fuel originating from the former fuel vaults. Bunker C fuel was found in the soil during the original closure efforts and much of the soil in this area was removed in 2000. Only a small area of free product remains.

Oil House Area

The former oil house area is in the southwestern part of the former manufacturing area. The contaminant identified in this area is unrefined crude oil. Crude oil was phased out by the 1950s but an oil-fired kiln in the former oil house area dating from the early 1900s has been identified as the likely source for the crude oil in the soil. The unrefined crude oil free product extends over an area of approximately 400 feet by 100 feet, or approximately one acre.

Both areas of affected soil rest just above underlying bedrock as defined by the borings and other work described in the RAP; groundwater including traces of the oil extends approximately 350 feet downgradient proximate to Alameda Creek, west of the source area.

Soil Remediation

Soil remediation would be completed through a combination of excavation, disposal of the contaminated soils, and dewatering and treatment of the impacted groundwater.

The former bunker fuel vault area would be excavated first. This excavation would not be dewatered due to the limited size of the excavation. Instead it would be backfilled with course aggregate within the water table and backfilled with overburden (e.g., soil free of contaminant) above the water table.

The former oil house area would be excavated second. Overburden would be excavated first, progressing from east to west, deepening the excavation area at the same time. After the overburden layer is excavated, unsaturated soils with visible impacts would be excavated and segregated. Dewatering trenches would be installed once the water table is reached. Once dewatering is completed the remaining soil would be excavated to bedrock.

Excavation at the site would be completed by segregating the material in three different stockpiles. The overburden soil with no visible impacts above the water table would be stockpiled and sampled to determine if the soil can be reused on-site for backfill. The soils with visible impacts both within and above the water table would be stockpiled in lined cells and allowed to dry within the cells until the moisture content is low enough that the material may be shipped off-site for disposal at Newby Island. The soil within the water table with no visible impacts would be stockpiled in separate lined cells and free water within the cells would be allowed to evaporate

SOURCE: Haley Aldrich, 2017

Mission Clay Products Soil Remediation Project

Figure 3
Soil Remediation Areas

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or pumped to the water treatment plant. The soil within the water table with no visible impacts would be analyzed to determine if the soil (all or portions) may be applicable for reuse on-site.

Groundwater within the trenches and any pumped from the holding cells would be treated in the on-site treatment plant and then used for on-site applications (e.g., dust control, watering the erosion control plantings, etc.).

Once remediation is complete, stockpiled soils and those requiring excavation and movement for the completion of the Reclamation Plan would be used to backfill the pits and contour the site in accordance with the proposed Preliminary Grading Plan.

The need for additional groundwater cleanup efforts would be evaluated with a groundwater monitoring program after the proposed project is fully implemented and completed. For example, further investigation of soil and groundwater would be required characterize the extent and nature of the aforementioned contaminant plume that extends approximately 350 feet downgradient of the project site approximate to Alameda Creek. The monitoring program would consist of sampling the creek and interstitial (near-creek groundwater) waters periodically over the course of the remediation at the leading edge of the plume near the creek to evaluate the effectiveness of the proposed project cleanup actions and would be developed in coordination with RWQCB and ACWD.[3] Groundwater would be analyzed for contaminants associated with the known impacts at the site as appropriate. Depending on their physical nature and extent, additional cleanup actions could be subject to environment review pursuant to CEQA. Because these subsequent cleanup actions have not been determined necessary and therefore the physical extent of the actions is not known, the actions are not evaluated in this Initial Study.

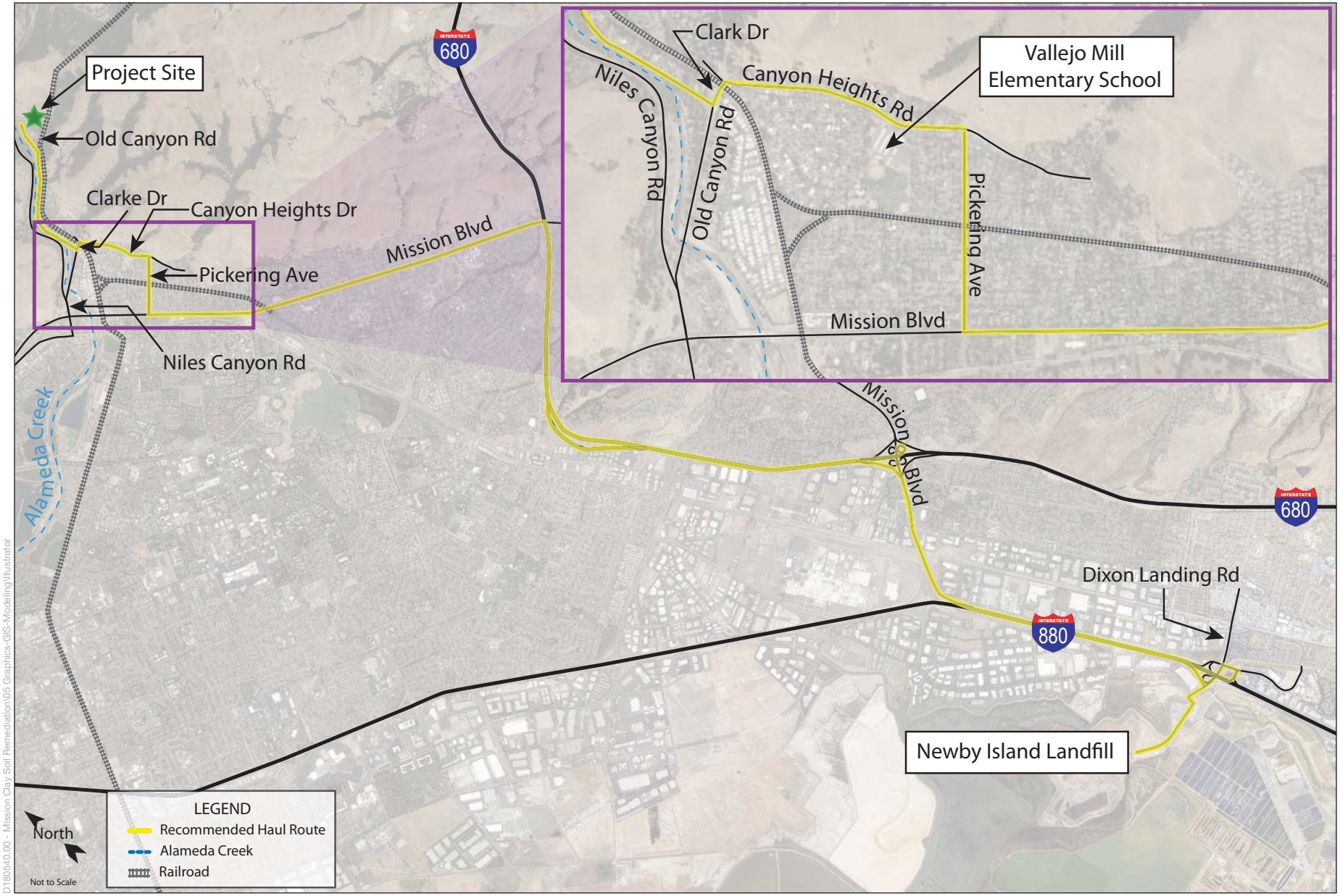
Transport of Soil to Newby Island

The proposed project includes the excavation of 152,000 cubic yards of soil. The proposed soil remediation would require hauling up to 20,693 cubic yards (CY) of contaminated soil. This includes a 10 percent contingency; the actual estimated soil volume to haul is 18,000 CY. Mission Clay anticipates that hauling would use trucks with a 15-CY capacity for a total of 1,380 haul loads. Each truck would complete up to four round-trips per day between the project site and Newby Island for a total of up to 80 round-trips per day. With a stated goal of completing the haul in approximately 30 working days, this means that 20 trucks would be used.

Several haul routes were considered. The selected route is along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, Mission Boulevard (SR-238), I-680, Mission Boulevard (SR-262), I-880, and Dixon Landing Road (see **Figure 4**). This route was recommended based on bridge weight limitations, right-of-way concerns, and route efficiency.

On a typical weekday, there is less congestion along the recommended route between 9:00 a.m. and 3:00 p.m. than during the peak commuting periods. Before 9:00 a.m., there is an increased chance for heavy traffic on southbound I-880 towards the landfill, and after 3:00 p.m., there is an increased chance for heavy traffic on northbound I-680 towards Mission Boulevard and the

[3] Haley Aldrich, 2018, Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California, May 2018.



SOURCE: W-Trans, 2018

Mission Clay Products Soil Remediation Project

Figure 4
Proposed Haul Route

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project site. While trucks may need to operate during peak periods, Mission Clay would run as many trips during the off-peak midday time period as possible, to both reduce the chance for trucks to encounter heavy traffic, and to mitigate the impact of the trucks on heavy traffic conditions.

Project Personnel and Schedule

The project would require up to 18 temporary employees for the excavation and hauling of the contaminated soil. Soil excavation would occur over a period of approximately 60 days. The timing for the haul has been designed to minimize or eliminate disruptions to local school operations. Approximately 30 days would be needed to haul the contaminated soil to Newby Island, which is estimated to be completed prior to the first day of the 2018–2019 academic year on August 29, 2018, but would be completed no later than the first week of September 2018.

2.3 Project Approvals

The project would require the following approvals and discretionary actions from the City:

- Preliminary Grading Plan

Other approvals may be required from the following agencies:

- San Francisco Bay Area Regional Water Quality Control Board (RWQCB)
- Alameda County Water District (ACWD)

3. Environmental Factors Potentially Affected

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

- ☐ Aesthetics
- ☐ Agriculture and Forestry Resources
- ☐ Air Quality
- ☐ Biological Resources
- ☐ Cultural Resources
- ☐ Geology/Soils
- ☐ Greenhouse Gas Emissions
- ☐ Hazards & Hazardous Materials
- ☐ Hydrology/Water Quality
- ☐ Land Use/Planning
- ☐ Mineral Resources
- ☐ Noise
- ☐ Population/Housing
- ☐ Public Services
- ☐ Recreation
- ☐ Transportation/Traffic
- ☐ Tribal Cultural Resources
- ☐ Utilities/Service Systems
- ☐ Mandatory Findings of Significance

DETERMINATION:

On the basis of this Initial Study:

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

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

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

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

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

Signature: [signature] Date: 7/11/2018

Printed Name: Bill Roth

4. Environmental Checklist

4.1 Aesthetics

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion

a, b) **Less than Significant.** The project site consists of an approximately 87-acre property located in Niles Canyon that previously housed a clay quarry and brick and clay pipe manufacturing plant operated by Mission Clay Products. The project site is surrounded by open space, located between Vargas Plateau on the south and Alameda Creek and State Route 84 (also known as Niles Canyon Road) on the north. The nearest sensitive receptors are residential uses on Stenhammer Drive located approximately 2,000 feet from the project site. The project site is not within a designated scenic vista, but it does contain portions of visible hill face area and is located within Niles Canyon, which is designated as a natural gateway in the City of Fremont General Plan. In addition, portions of the project site are briefly visible from State Highway 84 (Niles Canyon Road), which is designated as a scenic highway by the City of Fremont[4] and the California Department of Transportation.[5]

The proposed project includes the excavation and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. Hauling of the contaminated soil would entail 20 trucks completing up to four round-trips per day between the project site and Newby Island for a total of 80 round-trips per day over a period of approximately 30 working days. The haul route would be along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, Mission Boulevard (SR-238), I-680, Mission Boulevard (SR-262), I-880, and Dixon Landing Road. The haul route is shown on **Figure 4** in Section 2, *Project Description.*

The project would not alter the hill face or otherwise substantially degrade the existing visual character or quality of the site and its surroundings. The project would result in

4 City of Fremont, 2011. City of Fremont General Plan. Adopted December 2011.

5 California Department of Transportation (Caltrans), 2017. Officially Designated State Scenic Highways and Historic Parkways. Available: www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed June 4, 2018.

truck traffic along the identified haul route between the Mission Clay property and the Newby Island Landfill in the City of San Jose over a period of approximately 30 working days. While the truck traffic would be visible along the identified route, the visual effect of moving trucks would be temporary and would not result in a substantial adverse effect to a scenic resource. Neither excavation nor hauling of the contaminated soils would have a substantial adverse effect on a scenic vista or substantially damage scenic resources, including resources within a state scenic highway. The impact would be less than significant.

c) **Less than Significant.** The proposed project includes the excavation and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. Hauling of the contaminated soil would entail 20 trucks completing up to four round-trips per day between the project site and Newby Island for a total of 80 round-trips per day over a period of approximately 30 working days.

The project would not alter the hill face or otherwise change the visual character of the site or its surroundings. The project would result in truck traffic along the identified haul route between the Mission Clay property and the Newby Island Landfill in the City of San Jose over a period of approximately 30 working days. While the truck traffic would be visible along the identified route, the temporary visual effect of moving trucks would not substantially degrade the existing visual character or quality of the site and its surroundings. The impact would be less than significant.

d) **No Impact.** The proposed project does not include lighting or new construction of surfaces that could produce glare. The proposed project would result in no impact related to the creation of a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

References

California Department of Transportation (Caltrans), 2017. Officially Designated State Scenic Highways and Historic Parkways. Available: www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed June 4, 2018.

City of Fremont, 2011. *City of Fremont General Plan*. Adopted December 2011.

4.2 Agricultural and Forest Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a–d) **No Impact.** The proposed project includes the excavation and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. The project site does not contain Farmland as shown on the California Resource Agency's Farmland Mapping and Monitoring Program Maps for Alameda County.[6] The project site does not contain forest land. The Fremont General Plan land use designation for the project site is Open Space, and the zoning for the project site is Open Space – Hill Face and Open Space – Hillside. The site is not zoned for agricultural use, and no land on the project site is under a Williamson Act contract. Consequently, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide to non-agricultural use; conflict with existing zoning for agricultural use or a Williamson Act contract; or result in the loss of forest land or conversion of forest land to non-forest use

References

City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010.

[6] City of Fremont, 2010. Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080). December 14, 2010. Page 7.

4.3 Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

Under amendments to the Federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has classified air basins or portions thereof as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. The California CAA, which is patterned after the Federal CAA, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. Thus, areas in California have two sets of attainment/non-attainment designations: one set with respect to the national standards and one set with respect to the state standards. The San Francisco Bay Area Air Basin (Bay Area) is currently designated as a nonattainment area for state and national ozone standards, state particulate matter (PM_{10} and $PM_{2.5}$) standards, and federal $PM_{2.5}$ (24-hour) standard.

The Bay Area Air Quality Management District (BAAQMD) is the regional air quality authority in the project area. In April 2017, BAAQMD adopted the *2017 Clean Air Plan*[7]. The plan’s primary goals are to protect public health and protect the climate. The plan includes a wide range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent greenhouse gases (GHGs).

7 BAAQMD, 2017. *2017 Clean Air Plan, Spare the Air, Cool the Climate*, www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd_2017_cap_draft_122816-pdf.pdf?utm_campaign=CAP+2017+Draft&utm_medium=email&utm_content=article3_link1, accessed January 13, 2018.

The *2017 Clean Air Plan* contains 85 measures to address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and/or GHGs. These control strategies can be grouped into the following categories:

- Stationary source measures;
- Transportation control measures;
- Energy Control Measures;
- Building Control Measures;
- Agricultural Control Measures;
- Natural and Working Lands Control Measures;
- Waste Management Control Measures;
- Water Control Measures; and
- Super GHG Control Measures

BAAQMD updated *CEQA Air Quality Guidelines*, including new thresholds of significance in June 2010, and revised them in May 2011. The *CEQA Air Quality Guidelines* advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance. BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012.[8] In May 2012, BAAQMD updated its *CEQA Air Quality Guidelines* to continue to provide direction on recommended analysis methodologies, but without recommended quantitative significance thresholds (BAAQMD, 2012).

On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA thresholds (*California Building Industry Association v. Bay Area Air Quality Management District*, Case No. A135335 & A136212 [Court of Appeal, First District, August 13, 2013]).

The California Supreme Court granted review of the appeal, but only to address whether or not CEQA requires an analysis of how existing environmental conditions will impact future residents or users of a proposed project and did not review or address the adequacy of specific thresholds adopted by BAAQMD in 2011. On December 17, 2015, the Supreme Court concluded that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents, reversing the Court of Appeal's judgment on that issue. However, the court did acknowledge that when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.

8 The thresholds BAAQMD adopted were called into question by a minute order issued January 9, 2012 in *California Building Industry Association v. BAAQMD*, Alameda Superior Court Case No. RGI0548693. The minute order states that "The Court finds [BAAQMD's adoption of thresholds] is a CEQA project, the court makes no further findings or rulings." The claims made in the case concerned the CEQA impacts of adopting the thresholds, particularly, how the thresholds would affect land use development patterns. Petitioners argued that the thresholds for Health Risk Assessments encompassed issues not addressed by CEQA.

The case was then remanded back to the Court of Appeal on August 12, 2016, which concluded that "the challenged thresholds are not invalid on their face, but may not be used for the primary purpose envisioned by District, namely, to routinely assess the effect of existing environmental conditions on future users or occupants of a project" (CBIA v. BAAQMD [2016] 1 Cal.App.5th 715).

In May 2017, BAAQMD released its 2017 update to the Guidelines[9] which once again contains the thresholds of significance formally presented in the 2011 Guidelines for the consideration of lead agencies in assessing air quality impacts. The 2017 *CEQA Air Quality Guidelines* specify that, under CEQA, the receptor thresholds (the analysis of exposing new receptors to existing sources of toxic air pollution and odors) should not be applied to "routinely assess the effect of existing environmental conditions on future users or occupants of a project."

Sensitive Receptors

For the purposes of this air quality analysis, sensitive receptors are defined as facilities and land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers. Residential areas are also considered sensitive to poor air quality because people usually stay home for extended periods of time, which results in greater exposure to ambient air quality.

There are no sensitive receptors within 1,000 feet of the remediation site for the proposed project. BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site.[10] However, haul trucks carrying contaminated soil would travel through an existing residential neighborhood that includes Vallejo Mill Elementary School on Canyon Heights Drive and the Hillside Senior Care facility at the corner of Pickering Avenue and Mission Boulevard, and would travel past Mission San Jose High School on Mission Boulevard. The selected route would be along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, and Mission Boulevard (see **Figure 4**).

Approach to Analysis

To determine the potential impacts of the project, the air quality impact analysis below uses thresholds of BAAQMD republished it its 2017 *CEQA Air Quality Guidelines*. These thresholds are nonetheless based on substantial evidence identified in BAAQMD's 2009 *Justification Report*[11]and are, therefore, used within this document. (See CEQA Guidelines Section 15064.7 [thresholds of significance must be based on substantial evidence].)

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9 Bay Area Air Quality Management District (BAAQMD), *BAAQMD CEQA Guidelines, California Environmental Quality Act Air Quality Guidelines,* www.baaqmd.gov/pln/ceqa/ceqa_guide.pdf, 2017.

10 Bay Area Air Quality Management District (BAAQMD), *BAAQMD CEQA Guidelines, California Environmental Quality Act Air Quality Guidelines,* www.baaqmd.gov/pln/ceqa/ceqa_guide.pdf, 2017.

11 Bay Area Air Quality Management District (BAAQMD), 2009. *Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance*, October.

a) **Less than Significant.** The most recently adopted air quality plan in the Bay Area is the BAAQMD's *2017 Clean Air Plan* (CAP).[12] BAAQMD guidance states that "if approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project would be considered consistent" with the CAP. As indicated in the discussion of criteria "b" and "c" below, the project would not result in significant air quality impacts. This impact is less than significant.

b) **Less than Significant with Mitigation Incorporated.**

Construction Emissions – Criteria Air Pollutants

The proposed project would generate construction emissions from a variety of sources, including off-road construction equipment and on-road worker, vendor, and hauling vehicles. Because construction can fluctuate from month to month, emissions from construction activity are assessed relative to average daily emissions over the entirety of the construction period, consistent with BAAQMD guidance. Emissions from all of the construction emission sources were estimated using the CalEEMod emission estimator model version 2016.3.2. Model output reports are provided in **Appendix A**. **Table AQ-1** summarizes the project's construction emissions. BAAQMD's thresholds for PM_{10} and $PM_{2.5}$ are for exhaust emissions only. BAAQMD construction thresholds represent average daily emissions. Construction emissions would be less than significant for all pollutants, except for emissions of NOx which would exceed 54 pounds per day. This would be a significant impact.

TABLE AQ-1
AVERAGE CONSTRUCTION DAILY CRITERIA POLLUTANT EMISSIONS (POUNDS/DAY)

Emissions Category	ROG	NOx	PM10	PM2.5
Unmitigated Emissions				
Average Daily Construction Emissions	5.37	63.35	2.21	2.04
BAAQMD Thresholds	54	54	82	54
Exceed Thresholds?	No	**Yes**	No	No
Mitigated Emissions				
Average Daily Construction Emissions	3.87	44.66	1.30	1.20
BAAQMD Thresholds	54	54	82	54
Exceed Thresholds?	No	No	No	No

NOTE: Pounds per day estimates are based on CalEEMod annual emissions in tons per year divided by 110 days of construction. BAAQMD's threshold for PM_{10} and $PM_{2.5}$ are for exhaust emissions only.

[12] Bay Area Air Quality Management District (BAAQMD), 2017. *2017 Clean Air Plan, Spare the Air, Cool the Climate*, www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd_2017_cap_draft_122816-pdf.pdf?utm_campaign=CAP+2017+Draft&utm_medium=email&utm_content=article3_link1. Accessed January 13, 2018.

To mitigate potential impacts from NOx, higher emission off-road equipment would need to be equipped with EPA certified Tier 4 engines. While state regulations require all new off-road equipment to have engines that meet Tier 4 (low emission) standards, the existing statewide fleet of construction equipment contains a mixture of engine tiers and the unmitigated scenario assumes what is expected to be the current statewide mix of equipment. Construction equipment with Tier 4 engines comprised 22 percent of the statewide construction equipment fleet in 2014.

A mitigated scenario was run that assumed all off-road equipment except off-highway trucks were fitted with Tier 4 engines, as required in **Mitigation Measure AIR-1**. Using equipment with Tier 4 engines would reduce daily construction-related NOx emissions by 30 percent compared to the current statewide fleet mix. Implementation of Mitigation Measure AIR-1 would reduce impacts to less than significant.

> **Mitigation Measure AIR-1: Enhanced Exhaust Emissions Reduction Measures.** The project proponent shall implement the following measures during construction to further reduce construction-related exhaust emissions:
>
> All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements:
>
> a. All off-road equipment shall have engines that meet or exceed either USEPA or CARB Tier 4 off-road emission standards.

Construction Emissions – Fugitive Dust

Demolition, excavation, grading, and other construction activities under the project may cause wind-blown dust that could contribute PM into the local atmosphere. Construction-related dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, dust generated from construction activities may result in significant adverse impacts on a temporary and intermittent basis during the construction period.

BAAQMD's approach to analysis of construction-related particulate impacts (other than exhaust PM) is to emphasize implementation of effective and comprehensive dust control measures rather than detailed quantification of emissions. BAAQMD considers construction-related fugitive dust impacts of projects to be less than significant if a suite of recommended dust-control measures are implemented.

The proposed project would comply with the City of Fremont's standard development requirements for resource protection (Fremont Municipal Code [FMC] Chapter 18.218), including the measures described below to address construction-related fugitive dust impacts.

> The following construction measures, as periodically amended by BAAQMD, are required for all proposed development projects to reduce construction-related fugitive dust and exhaust emissions:

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times daily.

b. All haul trucks transporting soil, sand, or other loose material off site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations (CCR)). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation of the City of Fremont standard development requirements would reduce impacts associated with fugitive dust emissions to less than significant.

Operation

Once the site is remediated there would be no operational emissions associated with the project site. Consequently, there would be no impact with respect to operational emissions of criteria air pollutants.

c) **Less than Significant with Mitigation Incorporated.** According to BAAQMD, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards for regional criteria pollutants. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Many projects throughout the Bay Area have been identified as having significant and unavoidable operational and construction-related regional pollutant impacts. Consequently, for assessment of cumulative regional pollutant impacts, BAAQMD has developed a methodology of assessing whether a project would have a cumulatively considerable contribution. According to the BAAQMD *Justification Report*, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable,

resulting in significant adverse air quality impacts to the region's existing air quality conditions.[13]

As described in criterion "b" above, the project would not exceed the BAAQMD's ROG, NOx, PM_{10}, or $PM_{2.5}$ significance thresholds with implementation of **Mitigation Measure AIR-1** and the City's standard development requirements. Thus, the project would have a less-than-significant cumulative impact in relation to ROG, NOx, PM_{10}, and $PM_{2.5}$.

d) **Less than Significant.** Site preparation activities, such as demolition, excavation, grading, foundation construction, and other ground-disturbing construction activity, would affect localized air quality during the construction phases of the proposed project. Short-term emissions from construction equipment during these site preparation activities would include directly emitted PM ($PM_{2.5}$ and PM_{10}) and TACs such as diesel particulate matter (DPM). BAAQMD identifies a 1,000-foot zone of influence from a TAC source such as a generator or construction activity, beyond which the impact to a given sensitive receptor is assumed to be less than significant. Sensitive receptors with respect to TAC exposure are defined as residential developments, schools or hospitals. The nearest sensitive receptors are residential uses on Stenhammer Drive located approximately 2,000 feet from the project site. Consequently, receptors are located sufficiently distant from the project site to avoid impacts related to health risk and localized $PM_{2.5}$ exposures from remediation activities on the project site.

However, haul trucks carrying remediated soil would travel through residential neighborhoods. The selected route would be along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, and Mission Boulevard (see **Figure 4**) all of which have residential uses. Additionally, Vallejo Mill Elementary School is located along the haul route on Canyon Heights Drive and Mission San Jose High School is located on Mission Boulevard, and the Hillside Senior Care facility is located at the corner of Pickering Avenue and Mission Boulevard. Consequently, a screening-level health risk assessment (HRA) was performed to estimate the health risks associated with diesel haul truck emissions over the proposed approximately 30-day period. Off-haul of soil is scheduled in August to minimize emission exposures to school children along the haul route and would be completed no later than the first week in September. Due to the short-term nature of haul truck activities, the screening-level approach is appropriate to estimate the worst-case health risks associated with project construction.

The methods and assumptions used in the HRA are consistent with the guidance recommended by the state Office of Environmental Health Hazard Assessment (OEHHA)'s *Air Toxic Hot Spots Program Risk Assessment Guidelines*[14] (OEHHA, 2015). The HRA focuses specifically on residential, daycare, and school sensitive

[13] Bay Area Air Quality Management District (BAAQMD), 2009. *Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance*, October.

[14] Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February. Available: http://oehha.ca.gov/air/hot_spots/hotspots2015.html. Accessed June 2018.

receptors located along the project haul route. Refer to **Appendix B** for a full details of methodology, assumptions and sources. Although the project proposes to haul the majority, if not all, of the soils during the summer months when school is not in session, it was conservatively assumed that children were present for the elementary school receptor as a worst-case analysis. **Table AQ-2** summarizes the Maximum Annual Average $PM_{2.5}$ Concentration (µg/m3), carcinogenic and non-cancer chronic risk for the maximum impacted sensitive receptors for the unmitigated scenario. For carcinogenic exposures, the cancer risk from DPM emissions for the unmitigated construction scenario is estimated to result in a maximum carcinogenic risk of approximately 0.27 per one million. This value is below BAAQMD's exposure threshold of significance of 10 in one million for increased cancer risk. The non-cancer chronic risk from DPM emissions for the unmitigated construction scenario is estimated to be a maximum hazard index of approximately 0.0016. This value is below BAAQMD's exposure threshold of significance 1.0 (unit-less)[15] for chronic hazards. The highest maximum annual average $PM_{2.5}$ concentration is estimated to be 0.0077 µg/m^3. This value is below BAAQMD's concentration contribution threshold of significance of 0.3 µg/m^3. Consequently, the screening level HRA demonstrates that emissions from diesel haul trucks along haul routes proximate to sensitive receptors would be below exposure thresholds established by BAAQMD and the impact with respect to exposure of sensitive receptors to substantial pollutant concentrations would be ***less than significant***.

TABLE AQ-2
MAXIMUM INCREASE IN HEALTH RISK FROM CONSTRUCTION EMISSIONS FOR OFF-SITE SENSITIVE RECEPTOR

Receptor Type / Threshold	Lifetime Excess Cancer Risk	Maximum Annual Average $PM_{2.5}$ Concentration (µg/m^3)	Maximum Non-Cancer Risk (Chronic Hazard Index)
Maximum Cancer Risk(# in one million)			
Residential Receptor	0.27	0.0075	0.0016
Daycare Receptor	0.22	0.0077	0.0016
Elementary School Receptor	0.03	0.0077	0.0016
Maximum	0.27	0.0077	0.0016
BAAQMD Threshold	10	0.3	1
Exceeds Threshold?	No	No	No

ABBREVIATIONS:
µg/m^3 = microgram per cubic meter
$PM_{2.5}$ =particulate matter less than or equal to 2.5 microns in diameter

SOURCES: CalEEMod modeling, EMFAC2017 modeling, AERSCREEN modeling, and other off-model calculations discussed in the memo and presented in Appendix A.

15 Non-cancer health hazards for chronic and acute diseases are expressed in terms of a hazard index (HI), a ratio of TAC concentration to a chemical-specific reference exposure concentration, below which no adverse health effects are expected, even for sensitive individuals. As such, because both the numerator and denominator of the ratio have the same units, they cancel each other out and the resultant ration is unit-less. OEHHA has defined acceptable concentration levels, and also significant concentration increments, for compounds that pose non-cancer health hazards. If the HI for a compound is less than one, non-cancer chronic and acute health impacts have been determined to be less than significant (BAAQND, 2017).

e) **Less than Significant.** Typical odor sources of concern include: wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist upon project completion. Additionally, the proposed project would not introduce significant sources of new odors in the vicinity as the project does not propose a future land use. Therefore, odor impacts from the proposed project would be less than significant.

References

Bay Area Air Quality Management District (BAAQMD), 2009. *Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance*, October. Accessed June 2018.

BAAQMD, 2017. *2017 Clean Air Plan, Spare the Air, Cool the Climate*, www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd_2017_cap_draft_122816-pdf.pdf?utm_campaign=CAP+2017+Draft&utm_ medium=email&utm_content=article3_link1. Accessed June 2018.

BAAQMD, *BAAQMD CEQA Guidelines, California Environmental Quality Act Air Quality Guidelines,* www.baaqmd.gov/pln/ceqa/ceqa_guide.pdf, 2017, accessed June 2018.

Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February. Available: http://oehha.ca.gov/air/hot_spots/hotspots2015.html. Accessed June 2018.

4.4 Biological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally and state protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) and the Water Quality Control Plan for the San Francisco Bay Basin through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

Information used in preparation of this section includes the following reports: Zentner Planning & Ecology's (2018) *Mission Clay Properties Soil Remediation Biotic Assessment;*[16] Zentner Planning & Ecology's (2018) *Mission Clay Remediation Project Site Description;*[17] and MacKay & Somps et al.'s (2014) *Amended Reclamation Plan;*[18] and the following database queries from the California Department of Fish and Wildlife (CDFW)'s California Natural Diversity Database (CNDDB),[19] and the U.S. Fish and Wildlife Service (USFWS)'s Information for Planning and

16 Zentner Planning & Ecology, 2018. Mission Clay Properties Soil Remediation Biotic Assessment. Project 956 MCP. Zentner Planning Ecology. Prepared for BBG KRG Inc. February 2018.

17 Zentner Planning & Ecology. 2018. Mission Clay Remediation Project Site Description. June 5, 2018.

18 MacKay & Somps, Zentner and Zentner, ENGEO Inc. 2014. Amended Reclamation Plan. Mission Clay Products Quarry, Fremont California. California Mine ID#91-01-0014. October 2014.

19 California Department of Fish and Wildlife (CDFW), 2018. California Natural Diversity Database (CNDDB). Special Status Species Occurrences on the Niles and 8 Surrounding Quadrangles. Accessed May 30, 2018.

Consultation (IPaC) database.[20] A reconnaissance survey of the site was conducted by ESA's senior wildlife biologist, Kelly Bayne on June 21, 2018, after substantial reclamation activities had been completed.

Plant Communities

The soil remediation area has been highly disturbed by recent reclamation activities. These activities have resulted in the reclamation work area (which includes the soil remediation work area) being stripped of all vegetation, stockpiled materials, debris and other mine and manufacturing artifacts. ESA's wildlife biologist noted during the reconnaissance survey that all vegetation, including all trees had been removed from the remediation work area. The area adjacent to the project site supports disturbed upland, annual grassland, coyote bush scrub, seasonal wetland, oak woodland, riparian forest, and a perennial stream (Alameda Creek).[21] These plant communities cannot be directly affected by the project, because (with the exception of disturbed upland) they are absent from the project site. Because wildlife species occurring in these adjacent plant communities could potentially be indirectly affected by disturbance from the project activities they are briefly described below.

Annual Grassland

Annual grassland is mainly dominated by nonnative annual grasses including false brome (*Brachypodium distachon*), Italian ryegrass (*Festuca perennis*), wild oats (*Avena fatua*) and soft chess (*Bromus hordeaceous*). Occasionally, native nodding needle grass (*Stipa cernua*) and purple needle grass (*Stipa pulchra*) are also found in the annual grassland.

Coyote Bush Scrub

Coyote bush scrub is a monoculture of coyote bush (*Baccharis pilularis*) growing in patches adjacent to the site, especially on the flat lands north of the main access road. Typically, coyote bush scrub has an understory of annual grassland.

Seasonal Wetland

There are several seasonal wetlands to the southeast of the project site of varying sizes, including a 1.1-acre wetland. Plant species occurring in these wetlands are bulrush (*Schoenoplectus* sp.), tall cyperus (*Cyperus eragrostis*), rabbitsfoot grass (*Polypogon monspeliensis*), and prickly lettuce (*Lactuca serriola*), and a few willows (*Salix* sp.).

Upland Disturbed

These highly disturbed areas are recently excavated or have stockpiles of dirt.

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20 United States Fish and Wildlife Service, 2018. List of Threatened and Endangered Species that may occur in your Proposed Project Location, and/or may be Affected by your Proposed Project. Information for Planning and Consultation (IPaC). Consultation Code: 08ESMF00-2018-SLI-1776. Event Code: 08ESMF00-2018-E-05156. Available at: https://ecos.fws.gov/ipac/. Accessed April 6, 2018.

21 Zentner Planning & Ecology, 2018. Mission Clay Properties Soil Remediation Biotic Assessment. Project 956 MCP. Zentner Planning Ecology. Prepared for BBG KRG Inc. February 2018.

Oak Woodland

Oak woodland forms the northern and southern project site boundaries, and is the most abundant undisturbed plant community in the surrounding area. The oak woodland is dominated by coast live oak (*Quercus agrifolia*) and bay laurel (*Umbellularia californica*), with occasional buckeye (*Aesculus californica*). Native forbs and some native grasses usually dominate the woodland floor.

Riparian Forest

Riparian forest occurs along Alameda Creek near, but not within, the project site. The canopy consists of California sycamore (*Platanus racemosa*), big leaf maple (*Acer macrophyllum*), coast live oak, and willows (*Salix* sp.). A variety of riparian shrub species such as Himalayan blackberry (*Rubus discolor*) occur in the understory.

Sensitive Biological Resources

Several species known to occur in the vicinity of project site are protected pursuant to federal and/or state endangered species laws, or have been designated as Species of Special Concern by the CDFW. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under these terms are collectively referred to as “special-status species.”

Special-status species considered for this analysis are wildlife species based on the CNDDB and USFWS lists. A comprehensive list of special-status wildlife species that were considered in the analysis is provided in **Appendix C**. The list includes the common and scientific names for each species, regulatory status (federal and/or state), habitat descriptions, and a discussion of the potential for occurrence adjacent to the project site. Species were excluded from further analysis due to the area adjacent to the project site lacking suitable habitat, occurring outside of the known extant elevation and geographic ranges. No special-status plant species would be affected by project activities, because no vegetation occurred on the site, and indirect effects on special-status plant species were not considered likely to occur.

Special-Status Wildlife

Of the 39 special-status wildlife species documented on the Niles quadrangle and eight surrounding quadrangles, California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), western pond turtle (*Emy marmorata*), and the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) have the potential to move through the area adjacent to the project site due to proximity of suitable habitat, and burrowing owl (*Athene cunicularia*) have the potential to nest within the project site vicinity.

Birds of prey and migratory birds including white-tailed kite (*Elanus leucurus*) and yellow warbler (*Setophaga petechial*) have the potential to nest in the vicinity of the project site.

Sensitive Natural Communities

Sensitive natural communities are natural communities that are afforded protection by identified in local or regional plans, policies, regulations, or by CDFW or USFWS. These also include federally protected wetlands as defined by Section 404 of the Clean Water Act. Although riparian habitat and seasonal wetlands occur in the vicinity of the project site, none of these sensitive communities occur on the site.

Critical Habitat

Critical habitat is defined as the specific areas that are essential to the conservation of a federally-listed species and that may require special management consideration or protection. There is no federally-designated critical habitat within the proposed project site.

a) **Less than Significant with Mitigation Incorporated**.

Special-Status Amphibians and Reptiles

The project site does not provide habitat for special-status amphibians and reptiles, but several species in these groups have the potential to move through the area adjacent to the project site The area disturbed by reclamation activities is surrounded by exclusionary fencing such that these amphibians or reptiles will not be able to enter the project site. The areas adjacent to the project site would also not be affected by erosion for excavated dirt or other material, because water quality protection measures excavated dirt from eroding into the project area (see Section *4.9. Hydrology and Water Quality*).

If California red-legged frog, California tiger salamander, Alameda whipsnake, and western pond turtle would enter the project site, the project could have a substantial adverse effect on these species through direct mortality, noise, dust, or disturbance caused by the operation of construction equipment. This would be a significant impact on special-status amphibians and reptiles. This impact would be reduced to less than significant by implementing **Mitigation Measures BIO-1, BIO-2,** and **BIO 3.**

Mitigation Measure BIO-1: Worker Environmental Awareness Training. Before the beginning of work, a qualified biologist shall conduct preconstruction training for all personnel working within the project boundaries, before conducting any work on-site. The training shall consist of a presentation from the biologist that includes a description of the biology of the special-status species with potential to occur at the project site. The biologist shall also include information about the distribution and habitat needs of any special-status species that may be present, legal protection of those species, penalties for violations, and project-specific protective measures. A handout that summarizes the education program, including images of special-status species, shall also be distributed to all personnel working at the site. These materials shall be filed at the worksite office and be available on request.

Mitigation Measure BIO-2: Exclusionary Fencing. Exclusionary fencing that surrounds the project site boundaries, was installed as part of the reclamation project, immediately following the conclusion of the vegetation and debris clearing. The fencing is standard silt fencing at least 36 inches high that was

trenched six inches into the soil. The soil was then compacted against both sides of the fence to prevent wildlife from gaining access underneath the fence. No gaps or holes shall be allowed in the fence, except for pedestrian and vehicle entry points. The fence shall be inspected weekly by a qualified biologist starting before the initiation of remediation activities for holes, gaps, or access points, which shall be repaired on discovery. The area inside the fence shall also be inspected by the qualified biologist for trapped wildlife before the initiation of remediation activities and daily thereafter. Trapped wildlife shall be relocated outside the fence. No additional fencing shall be necessary.

Mitigation Measure BIO-3: Construction Site Surveys. A qualified biologist shall conduct weekly surveys for California red-legged frog, California tiger-salamander, Alameda whipsnake, western pond turtle, and San Francisco dusky-footed woodrat, throughout the project site for the duration of the project. If an individual of these species is discovered at any time within the project site, any work within 100 feet of the occurrence shall stop and not continue until the animal has left the site or CDFW and USFWS has been consulted. A biological monitor shall conduct daily surveys for native wildlife before the beginning of the day's construction work. Any native wildlife discovered shall be encouraged to leave the site. Any special-status species shall be allowed to leave on their own after consultation with a qualified biologist.

San Francisco Dusky-Footed Woodrat

Potential nests of dusky-footed woodrats have been found near the project site boundary.[22] Riparian habitats along Alameda Creek are likely movement corridors, although the species has not been found on-site. Remediation activities could have a substantial adverse effect on dusky-footed woodrats by direct mortality, physical harm or disturbance, in the unlikely event that one would venture into the project site or into its immediate proximity. This would be a significant impact on San Francisco dusky-footed woodrat. This impact would be reduced to less than significant by implementing **Mitigation Measures BIO-1, BIO-2, and BIO-3**.

Nesting Raptors, Burrowing Owls, and Migratory Birds

Potential nesting habitat for several raptor species, including white-tailed kite among other species, and migratory birds, including yellow warbler among other species is present adjacent to the project site. These species are protected under the Migratory Bird Treaty Act (50 CFR 10.13) and their nest, eggs, and young are protected under California Fish and Game Code Sections 3503, 3505.5, 3515, and 3800. Construction activities and a general increase in noise and visual disturbance in the vicinity of the project site during these activities may adversely affect nesting success of these birds within 0.25 mile of the project site during the nesting season (February 1 – August 31). Although burrowing owls are not known from the direct vicinity of the project site, potential nesting and foraging habitat occurs adjacent to the project area, and the species is known to occur in the region. Potential impacts from the proposed project include loss of nesting habitat,

22 City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010. Page 18.

disturbance to nesting birds, and possibly death of adults, young, or eggs. This would be a significant impact to nesting birds. These impacts would be mitigated to less than significant by implementing the City's standard development requirement for nesting birds (FMC Section 18.218.050(b)(2)) as follows:

i. **Nesting Birds**. New development projects with the potential to impact nesting birds through tree or shrub removal shall implement the following measures prior to removal of any trees/shrubs, grading, or ground disturbing activities:

ii. **Avoidance**. Proposed projects shall avoid construction activities during the bird nesting season (February 1st through August 31st).

iii. **Preconstruction Surveys**. If construction activities are scheduled during the nesting season, a qualified biologist shall conduct a preconstruction survey to identify any potential nesting activity. The biologist shall determine the number and time frame (prior to construction) of surveys to be conducted.

iv. **Protective Buffer Zones**. If the survey indicates the presence of nesting birds, protective buffer zones shall be established around the nests. The size of the buffer zone shall be recommended by the biologist in consultation with the CDFW depending on the species of nesting bird and level of potential disturbance.

v. **Initiation of Construction Activities**. The buffer zones shall remain in place until the young have fledged and are foraging independently. A qualified biologist shall monitor the nests closely until it is determined the nests are no longer active, at which time construction activities may commence within the buffer area.

b) **Less than Significant.** No sensitive natural communities occur on the project site. However, riparian habitat occurs along Alameda Creek, to the west of the project site, and the area to the east of the project site supports several seasonal wetlands. These sensitive natural communities could be indirectly affected by erosion of the excavated material at the project site; however, because of implementation of water quality control measures, including implementation of a Storm Water Pollution Prevention Plan (SWPPP) (see Section 4.9 *Hydrology and Water Quality*), no substantial effects on water quality would occur. This indirect impact of the project on sensitive natural communities would be less than significant.

c) **Less than Significant.** The seasonal wetlands occurring adjacent to the project site could be under jurisdiction of the U.S. Army Corps of Engineers, although they may be considered isolated, in which case the would not be under federal jurisdiction. These seasonal wetlands are also waters of the state. These wetlands could be indirectly affected by erosion of the excavated material at the project site, however, because of implementation of water quality control measures, including implementation of a SWPPP (see Section 4.9 *Hydrology and Water Quality*), no substantial effects on water quality would occur. This indirect impact of the project on wetlands would be less than significant.

d) **No Impact**. The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Therefore, no impact would result.

e) **No Impact.** There are no trees within the remediation work area and, therefore, the project would not affect any trees protected by the City's Tree Preservation Ordinance.

f) **No Impact.** The project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan as none exist that affect the project site. Therefore, no impact would result.

References

California Department of Fish and Wildlife (CDFW), 2018. California Natural Diversity Database (CNDDB). Special Status Species Occurrences on the Niles and 8 Surrounding Quadrangles. Accessed May 30, 2018.

City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010.

MacKay & Somps, Zentner and Zentner, ENGEO Inc. 2014. Amended Reclamation Plan. Mission Clay Products Quarry, Fremont California. California Mine ID#91-01-0014. October 2014.

United States Fish and Wildlife Service, 2018. List of Threatened and Endangered Species that may occur in your Proposed Project Location, and/or may be Affected by your Proposed Project. Information for Planning and Consultation (IPaC). Consultation Code: 08ESMF00-2018-SLI-1776. Event Code: 08ESMF00-2018-E-05156. Available: https://ecos.fws.gov/ipac/. Accessed April 6, 2018.

Zentner Planning & Ecology, 2018. Mission Clay Properties Soil Remediation Biotic Assessment. Project 956 MCP. Zentner Planning Ecology. Prepared for BBG KRG Inc. February 2018.

Zentner Planning & Ecology. 2018. Mission Clay Remediation Project Site Description. June 5, 2018.

4.5 Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

a) **No Impact.** Environmental review conducted for the reclamation plan and grading plan for the former Mission Clay Products quarry and brick and clay pipe manufacturing plant addressed the potential for reclamation and grading activities to result in adverse impacts to built-environment historical resources on the project site, including the Mission Clay Products manufacturing plant and a non-operational segment of the Sunol Aqueduct. Mitigation of impacts to built-environment historical resources on the project site was subsequently completed and demolition permits were issued in June 2000.[23]

The proposed project includes the excavation and relocation of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. No built-environment historical resources are located on the project site or would be otherwise affected by the proposed project. Therefore, the project would not cause a substantial adverse change in the significance of a historical resource.

b) **Less than Significant with Mitigation Incorporated.** A cultural resources survey completed by LSA Associates as part of the 1985 Environmental Impact Report prepared for the quarry identified one archaeological site (Ala-4), a prehistoric habitation village on the western portion of the Mission Clay Products quarry site. The archaeological site was originally recorded in 1910, and no evidence of the site was encountered during the 1985 survey. The exact location and extent of the site was not identified in the original documentation of the site.[24] The *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)* that was approved in 2010 (referred to hereafter in this section as the 2010 IS/MND) determined that ground-disturbing reclamation and grading activities could result in inadvertent damage

[23] City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010. Page 11.

[24] Archaeor Archeological Consultants, 2000. *Historic Resources Inventory, Mission Clay Products, 2225 Old Canyon Road, City of Fremont, Alameda County*, California. December. Page 13.

to Ala-4 and included Mitigation #6, which required Mission Clay Products to retain a qualified archaeologist to assess the status and condition of archaeological site Ala-4 and recommend appropriate protection of the site during ground-disturbing reclamation activities and recovery of any discovered resources in compliance with applicable laws and policies. No evidence of Ala-4 has been encountered during approved and ongoing reclamation activities.

Ground-disturbing remediation activities (e.g., excavation of contaminated soils) that would occur with implementation of the proposed project have the potential to inadvertently damage archaeological site Ala-4, other unknown subsurface archaeological resources within the project site, and human remains (a discussion of potential impacts to human remains is provided below under impact discussion d).

The proposed project would comply with the City of Fremont's standard development requirements for resource protection (FMC Chapter 18.218), including the measures to address impacts to cultural resources (FMC Section 18.218.050(c)) as follows.

(2) **Accidental Discovery of Cultural Resources**. The following requirements shall be met to address the potential for accidental discovery of cultural resources during ground disturbing excavation:

(A) The project proponent shall include a note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources.

(B) The project proponent shall retain a professional archaeologist to provide a preconstruction briefing to supervisory personnel of any excavation contractor to alert them to the possibility of exposing buried cultural resources, including significant prehistoric archaeological resources. The briefing shall discuss any cultural resources, including archaeological objects, that could be exposed, the need to stop excavation at the discovery, and the procedures to follow regarding discovery protection and notification of the project proponent and archaeological team.

(C) In the event that any human remains or historical, archaeological or paleontological resources are discovered during ground disturbing excavation, the provisions of CEQA Guidelines Sections 15064[.5](e) and (f) requiring cessation of work, notification, and immediate evaluation shall be followed. (Ord. 27-2016 § 37, 12-6-16.)

Implementation of **Mitigation Measure CUL-1,** which implements Mitigation #6 from the 2010 IS/MND, and **Mitigation Measure CUL-2,** which implements a request for monitoring of remedial excavation activities by the Northern Valley Yokuts Tribe (see section 4.17, *Tribal Cultural Resources* for a description of Native American consultation conducted for the proposed project), combined with the proposed project's required compliance with the City's standard development requirements for protection of cultural

resources, would ensure that impacts to archeological resources would be less than significant.

> **Mitigation Measure CUL-1: Determine Status of Archaeological Site Ala-4 and Implement Protection Measures if Necessary.** Prior to implementing any ground disturbing activities associated with remediation activities, the project proponent shall retain a qualified archaeologist to update previous investigations in order to determine the present status and condition of archaeological site Ala-4, and to recommend appropriate procedures, if necessary, to ensure protection and/or recovery of resources in compliance with applicable laws and policies. Grading and other activities associated with the remediation plan that could adversely affect the archaeological site shall be avoided until clearance is received by the archaeologist and granted by the City.
>
> **Mitigation Measure CUL-2: Monitoring on Excavation Activities.** Monitoring during all excavations and other earth-moving operations associated with remediation activities shall be performed by a tribal monitor from the Northern Valley Yokuts Tribe. The tribal monitor shall have the authority to temporarily divert, redirect, or halt the ground disturbance activities to allow for recovery of cultural resources in coordination with the project archaeologist identified in Mitigation Measure CUL-1 and the City of Fremont.

c) **Less than Significant.** Paleontological resources are the physical remains or other physical evidence of plants and animals preserved in soils and sedimentary rock formations. Rock formations that are considered of paleontological sensitivity are those rock units that have yielded significant vertebrate or invertebrate fossil remains. This includes, but is not limited to, sedimentary rock units that contain significant paleontological resources anywhere within its geographic extent. As described in the Remedial Action Plan (RAP), the project area is underlain by 10 to 39 feet of surficial deposits consisting of alluvial clay, silt, sandy silt, and silty sand, underlain by the bedrock of the Panoche Formation consisting of claystone, siltstone, and sandstone.[25] Given the previous disturbance in the project area, paleontological resources are not expected to be uncovered during ground-disturbing remediation activities. In the unlikely event that paleontological resources are uncovered, the significance of resource would be unknown until examined by a qualified paleontologist. This would be a potentially significant impact on paleontological resources. Any such potential significant impacts would be reduced to a less-than-significant level with implementation of the City's standard development requirement for accidental discovery of cultural resources, including paleontological resources, as described above.

d) **Less than Significant with Mitigation Incorporated.** As described above under impact discussion b, a cultural resources survey completed by LSA Associates as part of the 1985 Environmental Impact Report prepared for the quarry identified one archaeological site (Ala-4), a prehistoric habitation village on the western portion of the Mission Clay

[25] Haley Aldrich, 2018, *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California*, May 2018.

Products quarry site. The archaeological site was originally recorded in 1910, and no evidence of the site was encountered during the 1985 survey.

As discussed above, ground-disturbing remediation activities (e.g. excavation of contaminated soils) that would occur with implementation of the proposed project have the potential to inadvertently damage archaeological site Ala-4, other unknown subsurface archaeological resources, and human remains, including human remains associated archaeological site Ala-4. In combination with Mitigation Measures CUL-1, CUL-2, and the City's standard development requirement for protection of cultural resources, potential impacts to human remains would be reduced to a less-than-significant level by implementing **Mitigation Measure CUL-3.**

> **Mitigation Measure CUL-3: Accidental Discovery of Human Remains.** In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the City of Fremont for the appropriate means of treating the human remains and any grave goods. The procedures identified on Public Resources Code section 5097.98 (and reiterated in State CEQA Guidelines section 15064.5(e) and (f)) which identifies steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery shall be followed.

References

Archaeor Archeological Consultants, 2000. *Historic Resources Inventory, Mission Clay Products, 2225 Old Canyon Road, City of Fremont, Alameda County*, California. December.

City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010.

Haley Aldrich, 2018, *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California*, May 2018.

Natural Resources Conservation Service (NRCS), 2017. Web Soil Survey. Available online at: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed November 2, 2017.

4.6 Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
6. GEOLOGY and Soils — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in 24 CCR 1803.5.3 of the California Building Code, creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion

a) **No Impact.** The project site is not located on an active earthquake fault. The nearest active earthquake fault is the Hayward Fault, located about two miles to the southwest. Additionally, the project does not include the construction of structures that could be damaged due to seismic shaking or seismic-related ground failure including liquefaction or landslides. No impacts would occur.

b) **Less than Significant.** As described below in Section 4.9, *Hydrology and Water Quality*, impact a, the project would be required to obtain coverage under the NPDES Construction General Permit because the area of ground disturbance would exceed one acre. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of best management practices (BMPs) to control runon and runoff from the site. A SWPPP has been prepared for the project.[26] The SWPPP includes erosion and stormwater control

[26] Stormwater Specialists, 2018. Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation, June 11.

measures that would be implemented onsite, which would reduce this impact to less than significant.

c, d) **No Impact.** The project does not include the construction of structures that could be damaged due to landslides, lateral spreading, subsidence, liquefaction, collapse, or expansive soils. No impacts would occur.

e) **No Impact.** The project does not include septic tanks or alternative waste water disposal systems. No impacts would occur.

References

Stormwater Specialists, 2018, Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation, June 11.

4.7 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Greenhouse gases (GHGs) trap heat by preventing some of the solar radiation that hits the earth from being reflected back into space. Some GHGs occur naturally and are needed to keep the earth's surface habitable. Over the past 100 years, human activities have substantially increased the concentration of GHGs in our atmosphere. This has intensified the natural greenhouse effect, increasing average global temperatures.

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are the principal GHGs associated with land use projects. CO_2, CH_4, and N_2O occur naturally, and through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion and CH_4 results from off gassing[27] associated with agricultural practices and landfills.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas contributes to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHGs than CO_2, with 100-year GWPs of 28 and 265 times that of CO_2, respectively.

In emissions inventories, GHG emissions are typically reported as metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e.

Approach to Analysis

Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts (BAAQMD, 2012; CAPCOA,

[27] Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

2008).[28] Therefore, assessment of significance is based on whether a project's GHG emissions represent a cumulatively considerable contribution to the global atmosphere.

BAAQMD, in its 2009 *Justification Report*, formulated thresholds using AB 32 and California Climate Change Scoping Plan GHG reduction targets.[29] The scoping plan included several strategies to reduce GHG emissions statewide. Consequently, a project cannot exceed a numeric BAAQMD threshold without also conflicting with AB 32 and the scoping plans on which it is based. Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

BAAQMD has established no construction-related emission thresholds. BAAQMD has developed two thresholds of significance for operational emissions, the first for permitted stationary sources (typically defined as sources that require air permits) of 10,000 metric tons per year and the second for land use development projects. BAAQMD developed the "bright-line" screening threshold for land use development projects of 1,100 metric tons per year of CO_2e. GHG emissions above this level may be considered significant. If the project operational GHG emissions would exceed the 1,100 metric tons per year screening threshold then, consistent with BAAQMD Guidelines, it may be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate.

Additionally, the City of Fremont has developed a climate action plan that contains measures to reduce GHG emissions. The *City of Fremont Climate Action Plan* includes an estimate of community-wide GHG emissions of 1,660,000 metric tons of CO_2e in the base year of 2005. In addition, the Climate Action Plan includes the goal of reducing GHG emissions in the City by 25 percent below this 2005 baseline by 2020. Implementation actions for reducing GHGs are in the sectors of Energy Efficiency and Green Building, Transportation and Land Use, Waste Reduction and Recycling, Education and Promotion, and Municipal Operations. The plan's measures were developed to ensure that Fremont's GHG emissions would not conflict with AB 32 or CARB's Scoping Plans.[30]

a) **Less than Significant.**

Construction

Construction of the proposed project would generate GHG emissions from a variety of sources, including off-road construction equipment and on-road worker, vendor, and hauling vehicles. Emissions from all of the construction emission sources were estimated using the CalEEMod emission estimator model version 2016.3.2. Peak construction-

[28] California Air Pollution Control Officers Association (CAPCOA), 2008. *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from projects Subject to the California Environmental Quality Act*, January.

[29] Bay Area Air Quality Management District (BAAQMD), *Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance*, October 2009.

[30] California Air Resources Board (CARB), *Climate Change Scoping Plan*, 2008.
California Air Resources Board (CARB), First Update to the Climate Change Scoping Plan, 2014.
California Air Resources Board (CARB), Second Update to the Climate Change Scoping Plan, 2017.

related GHG emissions would occur in 2018 and would total 541 metric tons of CO_2e. These emissions are below the 1,100 metric ton threshold developed for this analysis to assess operational emissions (if they were to apply to construction emissions) and would represent a less than significant cumulative GHG impact.

Operation

Once the site is remediated and the reclamation plan implemented there would be no operational emissions associated with the project site. Consequently, there would be no impact with respect to operational emissions of GHGs.

b) **Less than Significant.** As discussed above, Fremont has adopted a Climate Action Plan that identifies a number of measures for the City to undertake to ensure compliance with the GHG reduction mandates of AB32. A majority of these measures direct the City to take various actions or encourage specific actions.

As discussed above in (a), the proposed project's GHG emissions would be below significance thresholds that were developed to ensure compliance with the GHG reduction mandates of AB32. The project would also comply with Measure SW-A5 of the Climate Action Plan which strives to increase the amount of construction and demolition debris recycled from private-sector projects by recycling excavated concrete materials. Therefore, the proposed project would be consistent with the City's Climate Action Plan program and policies to reduce construction debris from entering the land fill. The project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This would be a less-than-significant impact.

References

California Air Pollution Control Officers Association (CAPCOA), 2008. *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from projects Subject to the California Environmental Quality Act*, January.

Bay Area Air Quality Management District (BAAQMD), *Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance*, October 2009.

California Air Resources Board (CARB), 2008. *Climate Change Scoping Plan*.

California Air Resources Board (CARB), 2014. *First Update to the Climate Change Scoping Plan*.

California Air Resources Board (CARB), 2017. *Second Update to the Climate Change Scoping Plan*.

4.8 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

a, b) **Less than Significant.** The remediation activities of the proposed project would require the use of certain hazardous materials for equipment (e.g., excavators, trucks), such as fuels, oils, and lubricants in limited quantities. The routine use or an accidental spill of hazardous materials could result in inadvertent releases that could adversely affect construction workers, the public, and the environment.

The remediation activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials would be transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies. Contractors would be required to prepare and implement Hazardous Materials Business Plans (HMBPs) that would require that hazardous materials used for remediation activities would be used

properly and stored in appropriate containers with secondary containment to contain a potential release. The California Fire Code would also require measures for the safe storage and handling of hazardous materials. In addition, the transportation of hazardous materials would be regulated by the U.S. Department of Transportation (USDOT), California Department of Transportation (Caltrans), and California Highway Patrol (CHP). Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release.

As described below in Impact 3.9a in Section 3.9, *Hydrology and Water Quality*, the project would be required to obtain coverage under the Construction General Permit because the area of ground disturbance would exceed one acre. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires the identification of all hazardous materials to be used during construction, the storage locations with a description of secondary containment measures, and spill prevention and response measures in the event of a spill. A SWPPP has been prepared for the project.[31] In addition, industry practices would include standard protection measures around any hazardous materials used during construction to reduce the risk associated with inadvertent releases to a less than significant level.

In the event of a spill that releases hazardous materials, a coordinated response would occur at the state and local levels, including the City of Fremont. The Fremont Fire Department is the local hazardous materials response team. In the event of a hazardous materials spill, the Police and Fire Departments would be simultaneously notified and sent to the scene to respond and assess the situation.

The remediation activities would include the extraction of contaminated groundwater; the proposed dewatering trench location is shown on Figure 3. This groundwater would be treated onsite as described in the discharge permit request.[32] Groundwater would be treated using an onsite treatment system consisting of a combination of an oil/water separator, mud removal tanks, sand filter and granular activated carbon filter. Upon treatment, the water would be used for dust control, with excess water to be discharged to land under RWQCB approval in a manner so as to not flow directly to Alameda Creek.[33] With the treatment, the impact of discharging the groundwater would be reduced to less than significant.

The remediation activities would involve the excavation of contaminated soil, as shown on Figure 3. The removal of this soil could result in exposing workers, the public, and the environment to hazardous materials. As described in the RAP, contractors would be required to prepare a Health and Safety Plan (HASP) in accordance with the most current requirements of State and Federal Standards for Hazardous Waste Operations and

31 Stormwater Specialists, 2018. *Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation*, June 11.

32 Haley Aldrich, 2018. *Discharge Permit Waiver Request for Dewatering System at Mission Clay Property, 2225 Old Canyon Road, Fremont, CA*, February 7.

33 San Francisco Bay Regional Water Quality Control Board (RWQCB), 2018. *Mission Clay Products Onsite Reuse and Discharge of Treated Groundwater, 2225 Old Canyon Road, Fremont, Alameda County*, May 22.

Emergency Response (CCR, Title 8, Section 5192; 29 CFR 1910.120). Onsite personnel would be responsible for operating in accordance with applicable regulations of Occupational Safety and Health Administration (OSHA) outlined in the State General Industry and Construction Safety Orders (CCR, Title 8) and Federal Construction Industry Standards (29 CFR 1910 and 1926), as well as other applicable federal, state and local laws and regulations. Onsite personnel would operate in compliance with all California OSHA requirements. In addition, California OSHA's Construction Safety Orders (especially CCR, Title 8, sections 1539 and 1541) will be followed as appropriate. Specific requirements are identified below:

- Designation of a trained, experienced site safety and health supervisor who has the responsibility and authority to develop and implement the site HASP
- A summary of all potential risks to remediation workers and maximum exposure limits for all known and reasonably foreseeable site chemicals
- Specified personal protective equipment and decontamination procedures; the minimum required personal protective equipment (PPE) would be Level D, which includes hardhat, safety toe boots, coveralls, safety vest, along with respiratory protection from particulates, hearing protection, and protective eyewear as deemed necessary by the HASP
- Emergency procedures, including route to the nearest hospital
- Drinking water and a cool down station

A Draft RAP was submitted to the RWQCB and ACWD for their review and comment. Both the RWQCB and the ACWD provided comments to enable the RAP to be consistent with and comply with their requirements. The RAP was revised and incorporated the RWQCB and ACWD comments.[34] The RAP provides details of the procedures to be used to remove, handle, transport, and dispose of all excavated materials in a safe, appropriate, and lawful manner. The RAP includes worker health and safety procedures, and requires that the contractor to prepare a HASP. In addition, the RAP includes procedures for dust suppression and control that include monitoring requirements to ensure that the excavated soil is secured and dust is controlled. Consequently, in addition to controlling contaminated materials within the site, trucks leaving the site would be required to have secured loads to prevent incidental spillage or the generation of dust along the route to Newby Landfill, the designated licensed disposal facility permitted to accept the waste. Compliance with the procedures and provisions in the RAP are required by the ACWD and the RWQCB as a condition of project approval.

The required compliance with the numerous laws and regulations, and implementation of the procedures required in the RAP discussed above that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of

[34] Haley Aldrich, 2018. *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California, CA*, May 25.

hazardous conditions due to the use or accidental release of hazardous materials, and would render this impact less than significant.

c) **Less than Significant.** Vallejo Mill Elementary School is located along the transportation route from the site to the Newby Island Landfill, as shown on Figure 4. As discussed in the truck route memorandum prepared for the proposed project, several routes were analyzed and the proposed route resulted in the least impacts.[35] As discussed above in impacts a and b, the required compliance with the numerous laws and regulations, and implementation of the waste management and health and safety procedures required in the RAP would prevent spillage. In addition, the remediation is purposely scheduled in the summer so that school would not be in session, further reducing exposing the school to hazardous emissions, materials, or substances.

The required compliance with the numerous laws and regulations, and implementation of the RAP discussed above that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials, and would render this impact less than significant.

d) **Less than Significant.** The project site is listed on the State Water Resources Control Board (SWRCB) GeoTracker website and is under the jurisdiction of the San Francisco Bay RWQCB. The purpose of the RAP and this project is to remediate contaminants from the historical site use. Depending on the results of the RAP activities, additional remediation efforts may be required by RWQCB to complete the site cleanup. Upon successful remediation of the site, RWQCB will issue a No Further Action letter. The site would then no longer be listed as an active site, and impacts would be less than significant.

e, f) **No Impact.** The project site is not located within two miles of any public airport or in the vicinity of a private airstrip. Hayward Executive Airport, located about 10 miles to the northwest, is the closest airport to the project site. As such, there are no associated airport land use plans and the project would not result in a safety hazard for people residing or working in the project site. No impacts would occur.

g) **Less than Significant.** All remediation work would occur within the site; no public roads would be affected by the excavation and groundwater treatment work. Trucks transporting the excavated soil to the Newby Island landfill would use the route shown on the figure in the truck route memorandum (W-Trans, 2018). Therefore, no lane closures would be required, the impact on emergency routes would be negligible, and the impact would be less than significant.

h) **Less than Significant.** The project site is located within the Fremont High Fire Hazard Severity Zone (City Ordinance No. 33-2007) (City of Fremont, 2007). The site consists of and is surrounded by open space with grass and trees in an area

[35] W-Trans, 2018. *Mission Clay Haul Route Traffic Analysis*, May 4.

serviced by the Fremont Fire Department. Although much of the areas requiring cleanup are in areas with minimal vegetation, vehicles may need to move through areas with brush or grass to gain access to excavation and/or treatment areas. Consequently, the potential exists for sparks to ignite wildfires. However, California Vehicle Code Section 38366 requires spark-arresting equipment on vehicles that travel off-road. This code applies to the project, because vehicles that work in off-road areas would be required to have spark-arresting equipment to reduce the risk of wildfires. Therefore, the potential for wildland fires would be negligible and the impact would be less than significant.

References

Haley Aldrich, 2018. *Discharge Permit Waiver Request for Dewatering System at Mission Clay Property, 2225 Old Canyon Road, Fremont, CA*, February 7.

Haley Aldrich, 2018. *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California, CA*, May 25.

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2018. *Mission Clay Products Onsite Reuse and Discharge of Treated Groundwater, 2225 Old Canyon Road, Fremont, Alameda County*, May 22.

Stormwater Specialists, 2018. Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation, June 11.

W-Trans, 2018. *Mission Clay Haul Route Traffic Analysis*, May 4.

4.9 Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a, f) **Less than Significant.** The project remediation activities would require the use of certain hazardous materials for equipment (e.g., excavators, trucks), such as fuels, oils, and lubricants in limited quantities. The routine use or an accidental spill of hazardous materials could result in inadvertent releases that could adversely affect water quality, given the close proximity to Alameda Creek. As discussed in Section 4.8, Impacts a and b, the remediation activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream-receiving water bodies.

The project would be required to obtain coverage under the NPDES Construction General Permit because the area of ground disturbance would exceed one acre. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of best management practices (BMPs) to control runon and runoff from the site. The SWPPP is required to include specific elements such as erosion and stormwater control measures that would be implemented onsite. Examples of typical construction BMPs include installing sediment barriers such as silt fencing and fiber rolls, maintaining equipment and vehicles used for construction, and tracking controls such as stabilization of construction access points. The development and implementation of BMPs such as overflow structures designed to capture and contain any materials that are inadvertently released from storage containers on the construction site is also required. The SWPPP is required to include a monitoring program, which would require inspections of the construction site to be conducted prior to anticipated storm events and after the actual storm events. The inspections would be conducted to: identify areas contributing to stormwater discharge; evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, were properly installed, and are functioning in accordance with the Construction General Permit; and determine whether additional control practices or corrective measures are needed. A SWPPP has been prepared for the project.[36] The mandatory compliance with the Construction General Permit requirements would prevent significant construction-related impacts on water quality during construction activities.

The remediation activities would include the extraction and treatment of contaminated groundwater, as described in the RAP; the proposed dewatering trench location is shown on Figure 3. This groundwater would be treated onsite as described in the discharge permit request. Groundwater would be treated using an onsite treatment system consisting of a combination of an oil/water separator, mud removal tanks, sand filter and granular activated carbon filter. Upon treatment, the water would be used for dust control, with excess water discharged to land for irrigation under RWQCB approval in a manner so as to not flow directly to Alameda Creek, as requested by the Alameda County Water District.[37]

With the treatment and use for dust control and irrigation, and the required compliance with the numerous laws and regulations, the impact would be less than significant.

b) **Less than Significant.** As discussed in the Project Description, contaminated groundwater would be pumped from the shallow aquifer to facilitate excavation and removal of contaminated soil. The dewatered groundwater would be treated to standards listed in the RWQCB letter approving the reuse and discharge of the treated water.[38] The water would then be returned to the environment by use for dust control and irrigation.

36 Stormwater Specialists, 2018, *Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation*, June 11.

37 Haley Aldrich, 2018, *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California*, CA, May 25.

38 Haley Aldrich, 2018, *Discharge Permit Waiver Request for Dewatering System at Mission Clay Property, 2225 Old Canyon Road, Fremont, CA*, February 7.

The volume of water pumped from the aquifer would depend on the groundwater level at the time and on formation yield. Note that because of the contamination, the groundwater at the site is not currently directly usable for water supply without treatment. While some water would evaporate and some water would be used by plants, all of the water would be returned to the environment, resulting in a less than significant impact.

c, d) **Less than Significant.** The excavations to remove contaminated soil would be backfilled with clean soil and imported fill and recontoured to match the existing grade. Therefore, upon completion of the project, the site drainage pattern would be consistent with the existing grade to prevent increases in erosion, siltation, or flooding, and the impact would be less than significant.

e) **No Impact.** The project site does not currently and would not upon completion contribute water to an existing or planned stormwater drainage system. No impacts would occur.

g, h) **No Impact.** The project does not include the construction of housing or other structures that would be affected by or impede or redirect flooding. No impacts would occur.

i) **No Impact.** The project site would be restored to open space with no man-made or occupied structures. Therefore, the project would not expose people or structures to risk involving levee or dam failure. No impacts would occur.

j) **No Impact.** The project site is not located in an area subject to seiche, tsunami, or mudflows. No impacts would occur.

References

Alameda County Water District (ACWD), 2017. *Mission Clay Products Corporation, 2225 Old Canyon Road, Fremont (ACWD Site # 0234)*, November 7.

Haley Aldrich, 2018. *Discharge Permit Waiver Request for Dewatering System at Mission Clay Property, 2225 Old Canyon Road, Fremont, CA*, February 7.

Haley Aldrich, 2018. *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California, CA*, May 25.

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2017. *Comments on the July 31, 2017 Remedial Action Plan, Mission Clay Products*, August 11.

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2018. *Mission Clay Products Onsite Reuse and Discharge of Treated Groundwater, 2225 Old Canyon Road, Fremont, Alameda County*, May 22.

Stormwater Specialists, 2018. Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation, June 11.

4.10 Land Use and Land Use Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
10. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a–c) **No Impact.** The project site consists of and approximately 87-acre property located in Niles Canyon that previously housed a clay quarry and brick and clay pipe manufacturing plant operated by Mission Clay Products. The project site is surrounded by open space, located between Vargas Plateau on the south and Alameda Creek and State Route 84 (also known as Niles Canyon Road) on the north. The nearest sensitive receptors are residential uses on Stenhammer Drive located approximately 2,000 feet from the project site. The Fremont General Plan land use designation for the project site is Open Space, and the zoning for the project site is Open Space – Hill Face and Open Space –Hillside.

The proposed project includes the excavation and relocation of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. The project does not include development of buildings, structures, roads, or physical elements that could physically divide an established community. The proposed project would not include changes to the existing general plan land use designation or zoning on the project site or conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. There is no adopted Habitat Conservation Plan or Natural Community Conservation Plan for this area and, therefore, no conflict with such plans would occur under the proposed project.

4.11 Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a, b) **No Impact**. The quarry has been closed since 1992. Much of the clay onsite has been quarried and used for brick and piping over the years, but some clay resources still remain on the project site. However, there has been a decline in the demand for this resource, and the remaining resource is no longer of high value to the region. Remediation activities would not result in the loss of availability of this resource.[39] In addition, there are no operational mineral recovery sites in the project area. The project would, therefore, have no impact on a designated locally important mineral resource.

References

City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010.

[39] City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010. Page 18.

4.12 Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
12. NOISE — Would the project result in:				
a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. Given that the typical human ear is not equally sensitive to all frequencies of the audible sound spectrum, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes low and extremely high frequencies, referred to as A-weighting, and is expressed in units of A-weighted decibels (dBA).[40]

Noise Exposure and Community Noise

Noise levels rarely persist consistently over a long period of time. Rather, noise levels at any one location vary with time. Specifically, community noise is the result of many distant noise sources that constitute a relatively stable background noise exposure where the individual contributors are unidentifiable. Throughout the day, short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) that are readily identifiable to the individual add to the existing

[40] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

background noise level. The combination of the slowly changing background noise and the single-event noise events give rise to a constantly changing community noise environment.

To legitimately characterize a community noise environment and evaluate cumulative noise impacts, community noise levels must be measured over an extended period of time. This time-varying characteristic of environmental noise is described using statistical noise descriptors, including the ones described below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

Ldn: The day-night average sound level (Ldn) is the energy average of the A-weighted sound levels occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by weighting ("penalizing") nighttime noise levels by adding 10 dBA to noise between 10:00 p.m. and 7:00 a.m.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of the decibel system. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Applicable Noise Regulations

Fremont Municipal Code Section 18.160.010 limits weekday construction operational hours for activities within 500 feet of a noise-sensitive receptor to weekday hours of 7:00 a.m. to 7:00 p.m. and Saturday or holiday hours of 9:00 a.m. to 6:00 p.m., while Sunday construction is not allowed. Construction activity for projects not located within 500 feet of residences, lodging facilities, nursing homes or inpatient hospitals are limited to weekday hours of 6:00 a.m. to 10:00 p.m. and weekend or holiday hours of 8:00 a.m. to 8:00 p.m.

Sensitive Receptors

The project site is located in the Niles Community Planning Area on the northeastern portion of the City of Fremont. The surrounding area is largely undeveloped. For the purposes of this noise analysis, sensitive receptors are defined as facilities and land uses that include land uses that are particularly sensitive to the effects of noise pollutants, such as residences, schools, hospitals, and daycare centers.

There are no sensitive receptors within 1,000 feet of the remediation site for the proposed project. BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site.[41] However, haul trucks carrying remediated soil would travel through residential neighborhoods. The selected route would be along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, and Mission Boulevard (see **Figure 4**) all of which have residential uses and are assessed as sensitive receptors in the following analysis.

a, d) **Less than Significant.**

Remediation Noise

The proposed project's construction activities would typically occur during the work week, Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. Therefore, the project would be consistent with the construction hour limitations established in Fremont Municipal Code Section 18.160.010.

Remediation is expected to commence in August 2018 and last for approximately 30 days. Activities occurring during this period would consist of excavation, loading of trucks, and off-hauling materials.

Policy 10-8.5, Construction Noise Levels of the City of Fremont General Plan Safety Element, directs the City to control construction noise at its source to maintain existing noise levels, and in no case to exceed the acceptable noise levels. For residential uses, which are 1,000 feet or more from the project site property line, the General Plan identifies conditionally acceptable noise level to be up to 75 dBA Ldn.

Remediation at the proposed project would generate temporary and intermittent noise at and near the project site. Noise levels would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Typical noise levels generated by the remediation activities that would be required for construction of the proposed project are shown in Table NOI-1. The noisiest construction activity would be expected to range from 78 dBA to 81 dBA at a distance of 50 feet. Given that the nearest residential units would be approximately 1,000 feet from the project remediation activities, remediation activity for the proposed project would be well below acceptable

[41] BAAQMD, 2017. *2017 Clean Air Plan, Spare the Air, Cool the Climate*. Available: www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd_2017_cap_draft_122816-pdf.pdf?utm_campaign=CAP+2017+Draft&utm_ medium=email&utm_content=article3_link1. Accessed January 13, 2018.

noise levels of 75 dBA Ldn. Consequently, remediation noise would be a less than significant impact.

TABLE NOI-1
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Phase	Average Noise Level (dBA, Leq at 50 feet)	Average Noise Level (dBA, Leq at 2,000 feet)
Backhoe	78	46
Loader	79	47
Excavator	81	49

SOURCE: U.S. Department of Transportation, Federal Highway Administration, *FHWA Highway Noise Construction Handbook*, August 2006.

Haul Truck Noise

Haul trucks carrying remediated soil would travel through residential neighborhoods under the proposed remediation plan. The selected route would be along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, and Mission Boulevard (see Figure 4) all of which have residential uses. The Hillside Senior Care facility, which is also residential, is located along Pickering Avenue. Additionally, Vallejo Mill Elementary School is located along the haul route on Canyon Heights Drive and Mission San Jose High School is located on Mission Boulevard. The Traffic Noise Model was used to estimate the localized increases in roadway noise along the proposed haul routes.

Off-haul of soil is scheduled from July through August, during the summer recess period for Vallejo Mill Elementary, to reduce exposure to school children along the haul route. Mission Clay anticipates that hauling would use trucks with a 15-CY capacity for a total of 1,380 haul loads or 2,760 one-way trips to and from the project site, which equates to approximately of 160 one-way-trips per day, or 16 trips per hour. Modeling predicts that 16 heavy-duty truck trips per hour would contribute a noise level of 59 dBA hourly Leq at a distance of 33 feet from the roadway center.

The City of Fremont General Plan Safety Element (adopted in 2011) outlines acceptable exterior noise standards for residential development. The City General Plan states that exterior noise levels should not exceed an Ldn of 60 dBA at backyards in single-family housing projects. Because haul truck trips would only occur during daytime hours the hourly Leq is equivalent to the Ldn metric of the General Plan and haul trucks during the 30-day off-hauling period would have a less than significant impact on receptors adjacent to roadways along the haul route.

b) **Less than Significant.** Ground-borne vibration from remediation activities at the project site would produce negligible vibration. The types of construction equipment associated with remediation activities include excavators, loaders and trucks. This type of equipment

is not identified by Caltrans[42] or the Federal Transit Administration (FTA)[43] as associated with generation of notable vibration. Additionally, remediation activities would take place 1,000 feet or more from the nearest residential development which would provide ample separation for attenuation if any vibration were to occur. For example, FTA identifies a reference vibration level of 87 vibration decibels at 25 feet from operations of a large bulldozer. Using vibration attenuation equations, the resultant vibration at 1,000 feet would be 40 vibration decibels. This is a vibration level of 50 to 55 vibration decibels which is considered to be typical background levels.[44] Therefore, vibration associated with proposed remediation activities would be a less than significant impact.

c) **No Impact.** Once the site is remediated and the reclamation plan implemented there would be no operational noise associated with the project site, which would revert to privately owned open space. Consequently, there would be no impact with respect to operational noise and, therefore, there would be no impact with respect to permanent noise increases.

e, f) **No Impact.** The project site is not located within two miles of a public airport or private airstrip, and is not within an airport land use plan area. Hayward Executive Airport, located 9.4 miles to the northwest, is the closest airport to the project site. Therefore, there would be no impact in relation to airports and the project exposing people residing or working in the project area to excessive noise levels.

References

California Department of Transportation (Caltrans), Transportation and Vibration Guidance Manual, September 2013.

U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, April 2006.

42 California Department of Transportation (Caltrans), Transportation and Vibration Guidance Manual, September 2013; page 37.

43 U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, April, 2006; page 12-12.

44 U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, April, 2006; pages 7-5, 12-11, and 12-12.

4.13 Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a, b) **No Impact.** The proposed project includes the excavation and relocation of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. The project would require up to 18 temporary employees for the excavation and hauling of the contaminated soil. The project does not include development of homes, businesses, roads, or infrastructure that would induce population growth. The proposed project would not displace existing housing, necessitating the construction of replacement housing elsewhere. Therefore, no impact would occur.

4.14 Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a) **No Impact.** None of the listed services or facilities listed would be impacted by the remediation plan. With the removal of all abandoned man-made structures and improvements, the need for public services, specifically police and fire services, at the site may actually decrease since there will be less enticements on the property for transients, vandals, and others who might trespass on the property. With 18 temporary employees on site for the excavation and hauling of the contaminated soil, an increase in public services use would be nominal to non-existent.

The project site and proposed project does not include the construction of housing, man-made, or other structures that would be affected by or impede public services. Therefore, the project would not expose people or structures to adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, parks, or other public facilities. No impacts would occur.

In addition, with the project site and proposed project not including the construction of housing, man-made, or other structures, there would be no residents and, therefore, no student generation rates or impacts to public services for schools. As part of the proposed project remediation efforts, off hauling of contaminated soil would occur over an approximately 30-day period. For scheduling purposes and to try and avoid any potential transportation conflicts, the timing for the haul has been designed to avoid to minimize or eliminate disruptions to local school operations. Therefore, the project would not expose people or structures to adverse physical impacts or significant environmental impacts, associated with the proposed project and schools. No impacts would occur.

References

City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010.

4.15 Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
15. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

Discussion

a) **Less than Significant.** The proposed project includes the excavation and relocation of contaminated soil from the Mission Clay property to the Newby Island Landfill in the City of San Jose. The project would require up to 18 temporary employees for the excavation and hauling of the contaminated soil. The project would not involve the use of existing neighborhood and regional parks or other recreational facilities. Implementation of the proposed project could restrict access to local hiking trails, but the restriction would be limited and temporary, and the impact would be less than significant.

4.16 Transportation and Traffic

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. TRANSPORTATION/TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Discussion

a) **Less than Significant with Mitigation Incorporated.** The project site is located on the south side of Alameda Creek in Niles Canyon in the City of Fremont. The Newby Island Landfill, located near the western terminus of Dixon Landing Road in the City of San Jose, is the location where contaminated soil excavated from the project site would be transported. The recommended haul route between the project site and the Newby Island Landfill is along Old Canyon Road, Clarke Drive, Canyon Heights Drive, Pickering Avenue, Mission Boulevard (State Route [SR] 238), Interstate 680 (I-680), Mission Boulevard (SR 262), Interstate 880 (I-880), and Dixon Landing Road. The proposed haul route comprises the study area for the transportation and traffic analysis.

I-680 is an eight-lane freeway running north and south between Interstate 80 (I-80) in Solano County to US 101 in San Jose. I-680 carries an average daily traffic volume of about 158,000 vehicles in the project area.[45] I-880 is a six- to eight-lane freeway running north and south between the San Francisco-Oakland Bay Bridge and Interstate 280

[45] California Department of Transportation (Caltrans), 2017. *2016 Traffic Volumes on California State Highways*.

(I-280) in San Jose. I-880 carries an average daily traffic volume of about 227,000 vehicles in the project area.[46]

Mission Boulevard (SR 238) is an arterial roadway running north-south between Hayward and I-680 in Fremont. The roadway segment between Pickering Avenue and I-680 is four lanes with bicycle lanes and carries about 29,500 vehicles in the project area.[47] Mission Boulevard (SR 262) is a half-mile-long arterial roadway running east-west between I-880 and I-680 in Fremont that carries an average daily traffic volume of about 70,000 vehicles.[48]

Old Canyon Road is a two-lane local roadway running north-south between Niles Canyon Road (SR 84) and the project site. Clarke Drive, Canyon Heights Drive, and Pickering Avenue are all two-lane collector roadways providing access between the project site and Mission Boulevard (SR 238) via the Vallejo Mill residential neighborhood. Dixon Landing Road is a gated two-lane driveway leading to the Newby Island Landfill; it extends east to I-680 as a four-lane arterial roadway with bicycle lanes.

Public transportation in the study area is provided by the Alameda-Contra Costa Transit District (AC Transit) and the Santa Clara Valley Transportation Authority (VTA). AC Transit operates the following routes along Mission Boulevard (SR 238 and/or SR 262): 217 (Fremont – Great Mall), 232 (Fremont – Newark), 239 (Fremont BART – Milpitas), and 624 (Fremont – Mission San Jose High);[49] VTA operates the following routes along Mission Boulevard (SR 238 and I-680 or I-880): 120 (Fremont BART – Lockheed Martin), 140 (Fremont BART – Mission College), and 180 (Fremont BART – Great Mall).[50]

Construction

As described in Chapter 2, Project Description, the project would involve the excavation, removal, and transfer of up to 20,693 cubic yards of soil, which includes a 10 percent contingency, from the project site to the Newby Island Landfill. The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. Construction activities that would generate off-site traffic would include mobilization of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, and the hauling of excavated soil. Based on information provided by the project proponent, mobilization and deliveries would require approximately 20 truck trips annually for the duration of construction activities, which is an average of less than one vehicle trip per day. Construction workers traveling to/from the project site would generate a maximum of 18 round-trips per day, which assumes that each worker would drive alone (i.e., no carpooling). Of the three construction activities

46 California Department of Transportation (Caltrans), 2017. *2016 Traffic Volumes on California State Highways*.
47 California Department of Transportation (Caltrans), 2017. *2016 Traffic Volumes on California State Highways*.
48 California Department of Transportation (Caltrans), 2017. *2016 Traffic Volumes on California State Highways*.
49 Alameda-Contra Costa Transit District (AC Transit), 2018. System Map, May 2018.
50 Santa Clara Valley Transportation Authority (VTA), 2014. Fremont Service Map, July 2014.

that would generate vehicle traffic, the hauling of excavated soils would generate the highest number of daily construction-related vehicle trips. Assuming trucks with a 15-CY capacity, approximately 1,380 haul loads would need to be transferred from the project site to the Newby Island Landfill. Each truck would complete up to four round-trips per day between the project site and the Newby Island Landfill for a total of 80 round-trips per day.[51] Haul trips would be made over an approximately 30-day period, which would occur in summer 2018 and would be timed to coincide with the Fremont Unified School District summer break.

Construction-generated traffic would be temporary and, therefore, would not result in any long-term degradation in operating conditions on any locally used roadways for the project. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of streets in the project area and along the haul route because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a heavy truck. Project construction-related traffic would not be substantial in relation to traffic flow conditions on I-680, I-880, Mission Boulevard (SR 238 and SR 262), or the local roadways serving the project site and the Newby Island Landfill. The project trips (80 truck haul and 18 construction worker round trips-per day) would generate a total of approximately 516 one-way passenger car equivalent (PCE) trips per day.[52] These project-generated vehicle trips would represent less than two percent of traffic volumes on I-680, I-880, and Mission Boulevard, which is within the range of typical daily variation in traffic levels (usually on the order of ± five percent) that might be expected on these facilities, such that roadway operating conditions would remain substantially similar to current conditions. While the traffic generated by construction activities would be more noticeable (i.e., would represent a higher percent increase in traffic volumes) on the local-serving roadways serving the construction site, the effect on daily traffic volumes would be less than significant.

Construction activities would be permitted Monday through Friday from 7:00 a.m. to 7:00 p.m., and on Saturdays or holidays from 9:00 a.m. to 6:00 p.m., pursuant to Chapter 18.160 of the Fremont Municipal Code. On a typical weekday, there is less congestion along the recommended route between 9:00 a.m. and 3:00 p.m. than during the peak commuting periods. Before 9:00 a.m., there is an increased chance for heavy traffic on southbound I-880 towards the landfill, and after 3:00 p.m., there is an increased chance for heavy traffic on northbound I-680 towards Mission Boulevard and the project site. As such, the introduction of project-generated construction trucks traveling between the project site and the Newby Island Landfill could result in a peak period traffic impact. To address this potential impact, Mitigation Measure TR-1: Haul Trip Scheduling, provided below, is proposed. City Transportation staff has reviewed the proposed project and determined that the temporary addition of up to 16 truck trips during peak hours, the

[51] Drivers of the 20 haul trucks used for transporting excavated soils would pick-up and drop-off the haul trucks at an offsite location, and would therefore not contribute any additional vehicle traffic to/from the project site.

[52] A PCE factor of 3.0 was used to simulate the effect of heavy vehicles such as trucks, which are larger, heavier, slower, and less maneuverable than household (personal) automobiles, on traffic flow.

maximum allowed per Mitigation Measure TR-1: Haul Trip Scheduling, would not significantly impact the LOS of the signalized intersections along the proposed truck route.

> **Mitigation Measure TR-1: Haul Trip Scheduling.** The project proponent's contractor shall schedule truck haul trips to occur during the off-peak midday time period (9:00 a.m. to 3:00 p.m.), to the extent feasible, to both reduce the chance for trucks to encounter heavy traffic, and to minimize delays caused by trucks on already heavy traffic conditions. Prior to commencement of construction activities, the contractor shall indicate in writing the number and frequency of any truck haul trips that cannot be performed during off-peak times, and provide a justification as to why they cannot be performed during off-peak times, to the City of Fremont for approval. On a daily basis, no more than 10 percent of the total one-way daily truck trips (i.e., 16 truck trips) shall be permitted to occur outside of the off-peak midday time period.[53]

Operation

Long-term project operation would be similar to the existing traffic and circulation conditions within the project area. The impact would be less than significant.

b) **Less than Significant.** The Alameda County Transportation Commission (Alameda CTC), through its Congestion Management Program (CMP), oversees how roads of regional significance function, and requires local jurisdictions to evaluate the impact of proposed land use changes (i.e., General Plan amendments, and developments with trip-generating potential of more than 100 new peak-hour vehicle trips) on the regional transportation systems.[54] Since the project would not generate any operational trips and would generate fewer than 100 new peak-hour vehicle trips during construction activities, no further analysis was conducted. Therefore, the impact to CMP facility operating conditions would be less than significant.

c) **No Impact.** The proposed project would have no impact on air traffic patterns as there are no airports near the project site. Thus, no impact would result.

d) **No Impact.** Neither project construction nor project operations would alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The project also would not introduce uses that are incompatible with existing uses already served by the road system that serves the project area. There would be no impact.

e) **No Impact.** As described above, neither project construction nor project operations would alter the physical configuration of the existing roadway network serving the area,

53 A maximum of 80 round trip (160 one way) truck trips would occur as a result of project construction activities.

54 Alameda County Transportation Commission (Alameda CTC), 2017. *Congestion Management Program*, December 2017.

and would have no effect on access to local streets or adjacent uses (including access for emergency vehicles). There would be no impact.

f) **Less than Significant.** Implementation of the project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, bus turnouts, etc.), include changes in policies or programs that support alternative transportation, nor construct facilities in locations in which future alternative transportation facilities are planned. The project would not conflict with adopted policies, plans and programs supporting alternative transportation. The performance or safety of AC Transit and VTA operations could be temporarily affected by additional truck traffic along Mission Boulevard (SR 238) and Mission Boulevard (SR 262). In addition, increased truck traffic on Mission Boulevard (SR 238) and Dixon Landing Road could temporarily affect the performance or safety of bicycle facilities on these roadways. However, these affects would be of limited duration, and the impact would be less than significant.

References

Alameda-Contra Costa Transit District (AC Transit), 2018. System Map, May 2018.

Alameda County Transportation Commission (Alameda CTC), 2017. *Congestion Management Program*, December 2017.

California Department of Transportation (Caltrans), 2017. *2016 Traffic Volumes on California State Highways*.

Santa Clara Valley Transportation Authority (VTA), 2014. Fremont Service Map, July 2014.

4.17 Tribal Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
17. Tribal Cultural Resources — Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

4.18 Discussion

a-b) **Less than Significant with Mitigation Incorporated.** Tribal cultural resources are: 1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing in the California Register of Historical Resources (California Register), or local register of historical resources, as defined in PRC Section 5020.1(k); or, 2) a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). For a cultural landscape to be considered a tribal cultural resource, it must be geographically defined in terms of the size and scope of the landscape (PRC Section 21074[b]). Also, an historical resource, as defined in PRC Section 21084.1, unique archaeological resource, as defined in PRC Section 21083.2(g), or non-unique archaeological resource, as defined in PRC Section 21083.2(h), may also be a tribal cultural resource.

The City of Fremont sent a Sacred Lands File search request to the Native American Heritage Commission (NAHC). The City received a response from the NAHC on June 4, 2018. The NAHC indicated that the search of the Sacred Lands File produced negative results and provided a list of Native American contacts to be notified about the proposed project and who might be able to provide information regarding Native American tribal cultural resources that could be present on or near the project site. On June 11, 2018, the City of Fremont sent notice of the proposed project to the Native American tribes named on the NAHC contacts list to allow early consultation with the City. As of the publication of this Initial Study, the City has received one response from Native American tribes identified by the NAHC. Katherine Erolinda Perez of the Northern Valley Yokuts Tribe requested to consult with the City. On June 12, 2018, City staff contacted Ms. Perez to begin the consultation process. On June 26, 2018, City staff, Ms. Perez, and one additional representative of the Northern Valley Yokuts Tribe visited the project site for

the purpose of identifying any concerns pertaining to project impacts on tribal cultural resources. Ms. Perez expressed concern that remedial excavation activities could result in adverse impacts to (Ala-4), a prehistoric habitation village recorded on the project site in 1910, for which no physical evidence has been encountered during subsequent archeological surveys or ongoing and approved reclamation activities (see Section 4.5, *Cultural Resources* for a discussion of Ala-4), as well as impacts to the overall setting of the project site and surrounding natural features, which were identified as having value to the tribe. To address potential impacts to tribal cultural resources, Ms. Perez requested the presence of a monitor from the Northern Valley Yokuts Tribe during remedial excavation activities. The request was granted by the City of Fremont and the project proponent.

Implementation of **Mitigation Measure CUL-1,** which requires the project proponent to retain a qualified archaeologist to determine the present status and condition of archaeological site Ala-4 and to recommend appropriate protection measures if necessary; **Mitigation Measure CUL-2**, which implements Ms. Perez's request for monitoring of remedial excavation activities by the Northern Valley Yokuts; **Mitigation Measure CUL-3**, which identifies procedures to be followed in the event that human remains are encountered; and combined with the proposed project's required compliance with the City's standard development requirements for protection of cultural resources, would ensure that impacts to tribal cultural resources would be less than significant. The aforementioned mitigation measures and standard development requirements are included in Section 4.5, *Cultural Resources.*

4.19 Utilities and Service Systems

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
18. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a, b) **No Impact.** The proposed project would not result in impacts related to wastewater treatment requirements of RWQCB, and the proposed project would not result in the construction of a new wastewater treatment facility onsite for public use. However, as mentioned previously, a temporary dewatering treatment unit would be utilized onsite as part of the remediation effort.

As part of the proposed project, soil remediation would be completed through a combination of excavation, disposal of the contaminated soils, and dewatering and treatment of the impacted groundwater. During remediation activities, the extraction of contaminated groundwater would occur. It is anticipated that groundwater would be treated onsite as described in the discharge permit request.[55] Groundwater would be treated using an onsite treatment system consisting of a combination of an oil/water separator, mud removal tanks, sand filter and granular activated carbon filter. The dewatering treatment unit would be designed and permitted through the Water Board under the VOC and Fuel General Permit. The dewatering system would be designed based on discussions with ACWD relating to allowable pumping rates, previous

[55] Haley Aldrich, 2018, *Discharge Permit Waiver Request for Dewatering System at Mission Clay Property, 2225 Old Canyon Road, Fremont, CA*, February 7.

hydrology data and soil data derived from analytical results and field observations. Upon treatment, the water would be used for dust control, with excess water to be discharged to land under the RWQCB approval[56] in a manner so as to not flow directly to Alameda Creek. With the treatment, the impact of discharging the groundwater would be reduced to less than significant.

The project site does not currently and would not upon completion contribute wastewater to an existing or planned wastewater treatment facility and would not result in impacts related to wastewater treatment requirements of RWQCB. No impacts would occur.

c) **No Impact.** The project would not result in the construction of new stormwater drainage facilities or the expansion of existing facilities but would be required to obtain coverage under the NPDES Construction General Permit because the area of ground disturbance would exceed one acre. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of best management practices (BMPs) to control runon and runoff from the site. A SWPPP has been prepared for the project.[57] The SWPPP includes specific elements such as erosion and stormwater control measures that would be implemented onsite.

Examples of typical construction BMPs include installing sediment barriers such as silt fencing and fiber rolls, maintaining equipment and vehicles used for construction, and tracking controls such as stabilization of construction access points. The development and implementation of BMPs such as overflow structures designed to capture and contain any materials that are inadvertently released from storage containers on the construction site is also required. The SWPPP is required to include a monitoring program, which would require inspections of the construction site to be conducted prior to anticipated storm events and after the actual storm events. The inspections would be conducted to: identify areas contributing to stormwater discharge; evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, were properly installed, and are functioning in accordance with the Construction General Permit; and determine whether additional control practices or corrective measures are needed. The mandatory compliance with the Construction General Permit requirements would prevent significant construction-related impacts on water quality during construction activities.

The project site does not currently and would not upon completion contribute water to an existing or planned stormwater drainage system. No impacts would occur.

d) **No Impact.** As discussed in the *Project Description*, contaminated groundwater would be pumped from the shallow aquifer and treated to standards listed in the RWQCB letter

56 San Francisco Bay Regional Water Quality Control Board (RWQCB), 2018. Mission Clay Products Onsite Reuse and Discharge of Treated Groundwater, 2225 Old Canyon Road, Fremont, Alameda County, May 22.

57 Stormwater Specialists, 2018. Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation, June 11.

approving the reuse and discharge of the treated water.[58] The water would then be returned to the environment by use for dust control and irrigation. The volume of water pumped from the aquifer would depend on the time needed to reduce contaminant levels to below cleanup standards. While some water would evaporate and some water would be used by plants, all of the water would be returned to the environment. Actual pumping rates from dewatering wells are anticipated to average between 10 and 15 gpm, based on verbal information provided by ACWD in a meeting on March 29, 2017. It is anticipated that sufficient water supplies are currently available to serve the project from existing entitlements and resources, resulting in a less than significant impact.

Permits are required by ACWD Ordinance No. 2010−01 (Well Standards), State Water Resources Control Board Order No. 2009−0009−DWQ (Construction General Permit) and Water Board Order No. R2−2012− 0012 (VOC and Fuel General Permit) for the proposed excavation and dewatering, and permits would be obtained prior to starting work.

The project site has sufficient water supplies available to serve the project from existing entitlements and resources, and would not need new or expanded entitlements. No impacts would occur.

e) **No Impact.** As the proposed project does not include development of homes, businesses, roads, or infrastructure, it is anticipated that the proposed project would not have impacts related to wastewater and the proposed project would have the adequate capacity to serve the project's projected demand as part of the soil remediation efforts.

As previously mentioned, the proposed project would not result in the construction of a new wastewater treatment facility onsite for public use. Up to 18 temporary employees would be required for the excavation and hauling of the contaminated soil, and the extensions of existing utilities or municipal service systems at the site would not be necessary. Any wastewater as part of the proposed project is anticipated to be temporary in duration, and removed from the site during implementation of the project and upon completion.

f, g) **No Impact.** As the proposed project does not include development of homes, businesses, roads, or infrastructure, it is anticipated that the proposed project would not have impacts related to solid waste from any know operations at the site. The proposed project includes the excavation and relocation of up to 20,693 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil which is to be shipped as a Class II Non Hazardous Waste Solid.

[58] San Francisco Bay Regional Water Quality Control Board (RWQCB), 2018. Mission Clay Products Onsite Reuse and Discharge of Treated Groundwater, 2225 Old Canyon Road, Fremont, Alameda County, May 22.

The Newby Island Landfill facility is anticipated to have the adequate capacity to serve the project's projected demand. As of February 9, 2015, the Newby Island Landfill facility is permitted as a Solid Waste Facility by CalRecycle and has a permitted capacity of 57.5 million cubic yards and has an estimated closure date of 2041. In addition, the remaining capacity for the facility is estimated at 21,200,000 cubic yards.[59] Based on this information, it is assumed that under the proposed project, the estimated amount of contaminated soil to be excavated and transferred to the Newby Island Landfill would be minimal in comparison to the total amount of available capacity at the landfill. Therefore, the proposed project would utilize a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs and would comply with all regulatory requirements regarding solid waste. No impact would occur.

References

Alameda County Water District (ACWD) 2017. *Mission Clay Products Corporation, 2225 Old Canyon Road, Fremont (ACWD Site # 0234)*, November 7.

CalRecycle, 2018. *Facility/Site Summary Details: Newby Island Sanitary Landfill (43-AN-0003)*. http://www.calrecycle.ca.gov/SWFacilities/Directory/43-AN-0003/Detail/. Accessed June 6, 2018.

City of Fremont, 2010. *Initial Study/Mitigated Negative Declaration for the Mission Clay Quarry Amended Reclamation Plan (PLN2010-00080)*. December 14, 2010.

City of San Jose, 2009. *Draft Environmental Impact Report for the Newby Island Sanitary Landfill* (SCH# 2007122011). September 21, 2009.

Haley Aldrich, 2018. *Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California*, May 2018.

Haley Aldrich, 2018, *Discharge Permit Waiver Request for Dewatering System at Mission Clay Property, 2225 Old Canyon Road, Fremont, CA*, February 7.

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2017. *Comments on the July 31, 2017 Remedial Action Plan, Mission Clay Products*, August 11.

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2018. *Mission Clay Products Onsite Reuse and Discharge of Treated Groundwater, 2225 Old Canyon Road, Fremont, Alameda County*, May 22.

Stormwater Specialists, 2018. Storm Water Pollution Prevention Plan for Mission Clay Products Quarry Soil Remediation, June 11.

[59] CalRecycle, 2018. Facility/Site Summary Details: Newby Island Sanitary Landfill (43-AN-0003). http://www.calrecycle.ca.gov/SWFacilities/Directory/43-AN-0003/Detail/. Accessed June 6, 2018.

4.20 Mandatory Findings of Significance

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

Discussion

a) **Less than Significant with Mitigation Incorporated.** Based on the analysis herein, the proposed project does not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. It is expected that all potential impacts to biological and cultural resources can be reduced to less than significant through compliance with the City of Fremont's standard development requirements and implementation of mitigation measures BIO-1, BIO-2, BIO 3, CUL-1, CUL-2, and CUL-3 identified in Sections 4.4, *Biological Resources*, and 4.5 *Cultural Resources*, respectively.

b) **Less than Significant with Mitigation Incorporated.** Cumulative impacts would be less than significant with implementation of the City of Fremont's standard development requirements and mitigation measures identified in this Initial Study, or the project would result in a less than cumulatively considerable contribution to cumulative impacts.

The need for additional groundwater cleanup efforts would be evaluated with a groundwater monitoring program after the proposed project is fully implemented and completed. For example, further investigation of soil and groundwater would be required characterize the extent and nature of the aforementioned contaminant plume that extends approximately 350 feet downgradient of the project site approximate to Alameda Creek. The monitoring program would evaluate the effectiveness of the proposed project

cleanup actions and would be developed in coordination with RWQCB and ACWD. Groundwater would be analyzed for contaminants associated with the known impacts at the site as appropriate. Depending on their physical nature and extent, additional cleanup actions could be subject to environment review pursuant to CEQA. Because these subsequent cleanup actions have not been determined necessary and therefore the physical extent of the actions is not known, the actions are not evaluated in this Initial Study.

c) **Less than Significant with Mitigation Incorporated.** The proposed project is not anticipated to result in substantial adverse effects on human beings. Short-term impacts related to hazards and hazardous materials and noise would be reduced to less than significant levels through the implementation of the City of Fremont's standard development requirements mitigation measures in this Initial Study.

Appendix A

Air Quality Model Output Reports

Averaging of Construction Emissions

UNMITIGATED

Annual Emission from CalEEMOd:

ROG	Nox	PM10	PM2.5	
0.2954	3.484	0.1215	0.1124	tons/year

Days of Construction = (from CalEEMod input file)

	Days	
Site Preparation =	110	5/1/18 - 10/31/2018
Hauling =	45	7/1/2018-9/1/2018
Total =	110	5/1/18 - 10/31/2018

Average daily Emissions =

ROG	Nox	PM10	PM2.5	
5.37	63.35	2.21	2.04	pound/day

MITIGATED

Annual Emission from CalEEMOd:

ROG	Nox	PM10	PM2.5	
0.2128	2.4561	0.0714	0.066	tons/year

Days of Construction = (from CalEEMod input file)

	Days	
Site Preparation =	110	5/1/18 - 10/31/2018
Hauling =	45	7/1/2018-9/1/2018
Total =	110	5/1/18 - 10/31/2018

Average daily Emissions =

ROG	Nox	PM10	PM2.5	
3.87	44.66	1.30	1.20	pound/day

Mission Clay Remediation

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	61.00	User Defined Unit	61.00	2,657,160.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	4			**Operational Year**	2019
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 - Acreage per applicant.

Construction Phase - Remediation Schedule per applicant.

Off-road Equipment - Equipment list per applicant.

Off-road Equipment - Garding phase just fo off-haul of soil.

Grading -

Trips and VMT - Vendor trips are water trucks. Haul trips adjusted to match PD + 20 for mobilization.

Consumer Products - Operational run only.

Area Coating - Operational run only.

Landscape Equipment - Operational run only.

Construction Off-road Equipment Mitigation - Tier 4 as mitigation.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	110.00	45.00
tblConstructionPhase	NumDays	40.00	110.00
tblConstructionPhase	PhaseEndDate	12/26/2018	9/1/2018
tblConstructionPhase	PhaseEndDate	7/25/2018	10/31/2018
tblConstructionPhase	PhaseStartDate	7/26/2018	7/1/2018
tblConsumerProducts	ROG_EF	2.14E-05	0
tblGrading	AcresOfGrading	0.00	112.50
tblGrading	AcresOfGrading	55.00	82.50
tblGrading	MaterialExported	0.00	18,000.00
tblGrading	MaterialImported	0.00	5,610.00
tblLandUse	LandUseSquareFeet	0.00	2,657,160.00
tblLandUse	LotAcreage	0.00	61.00
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	2,334.00	2,779.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	28.00	36.00

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					
2018	0.2954	3.4840	1.9296	5.8500e-003	0.1444	0.1215	0.2659	0.0223	0.1124	0.1348	0.0000	538.2622	538.2622	0.1295	0.0000	541.4994
Maximum	**0.2954**	**3.4840**	**1.9296**	**5.8500e-003**	**0.1444**	**0.1215**	**0.2659**	**0.0223**	**0.1124**	**0.1348**	**0.0000**	**538.2622**	**538.2622**	**0.1295**	**0.0000**	**541.4994**

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					
2018	0.2128	2.4561	2.0910	5.8500e-003	0.1444	0.0714	0.2159	0.0223	0.0660	0.0883	0.0000	538.2617	538.2617	0.1295	0.0000	541.4989
Maximum	**0.2128**	**2.4561**	**2.0910**	**5.8500e-003**	**0.1444**	**0.0714**	**0.2159**	**0.0223**	**0.0660**	**0.0883**	**0.0000**	**538.2617**	**538.2617**	**0.1295**	**0.0000**	**541.4989**

	ROG	**NOx**	**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	**27.95**	**29.50**	**-8.37**	**0.00**	**0.00**	**41.19**	**18.82**	**0.00**	**41.31**	**34.46**	**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	**5-31-2018**	**8-30-2018**	2.4259	1.7626
2	**8-31-2018**	**9-30-2018**	0.6791	0.4555
		Highest	2.4259	1.7626

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	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0000e-005**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0900e-003**	**1.0900e-003**	**0.0000**	**0.0000**	**1.1600e-003**

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	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0000e-005**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0900e-003**	**1.0900e-003**	**0.0000**	**0.0000**	**1.1600e-003**

	ROG	**NOx**	**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	5/31/2018	10/31/2018	5	110	Earth Movement
2	Grading	Grading	7/1/2018	9/1/2018	5	45	Soil Hauling

Acres of Grading (Site Preparation Phase): 82.5

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	3	8.00	158	0.38
Site Preparation	Crawler Tractors	1	8.00	212	0.43
Site Preparation	Skid Steer Loaders	1	6.00	65	0.37
Grading	Excavators	0	8.00	158	0.38
Site Preparation	Off-Highway Trucks	4	8.00	402	0.38
Site Preparation	Plate Compactors	1	6.00	8	0.43
Site Preparation	Generator Sets	1	4.00	84	0.74
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Graders	0	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48

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
Site Preparation	11	36.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	4.00	2,779.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2018

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					0.0438	0.0000	0.0438	4.7200e-003	0.0000	4.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2724	2.9836	1.7802	4.4800e-003		0.1194	0.1194		0.1104	0.1104	0.0000	407.1897	407.1897	0.1228	0.0000	410.2592
Total	**0.2724**	**2.9836**	**1.7802**	**4.4800e-003**	**0.0438**	**0.1194**	**0.1631**	**4.7200e-003**	**0.1104**	**0.1152**	**0.0000**	**407.1897**	**407.1897**	**0.1228**	**0.0000**	**410.2592**

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	1.0300e-003	0.0282	6.4600e-003	6.0000e-005	1.3100e-003	1.9000e-004	1.5000e-003	3.8000e-004	1.8000e-004	5.6000e-004	0.0000	5.4525	5.4525	3.7000e-004	0.0000	5.4617
Worker	8.3000e-003	6.5100e-003	0.0650	1.6000e-004	0.0157	1.1000e-004	0.0158	4.1600e-003	1.1000e-004	4.2700e-003	0.0000	14.7933	14.7933	4.6000e-004	0.0000	14.8049
Total	**9.3300e-003**	**0.0347**	**0.0715**	**2.2000e-004**	**0.0170**	**3.0000e-004**	**0.0173**	**4.5400e-003**	**2.9000e-004**	**4.8300e-003**	**0.0000**	**20.2459**	**20.2459**	**8.3000e-004**	**0.0000**	**20.2667**

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					0.0438	0.0000	0.0438	4.7200e-003	0.0000	4.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1898	1.9557	1.9417	4.4800e-003		0.0693	0.0693		0.0640	0.0640	0.0000	407.1893	407.1893	0.1228	0.0000	410.2587
Total	**0.1898**	**1.9557**	**1.9417**	**4.4800e-003**	**0.0438**	**0.0693**	**0.1131**	**4.7200e-003**	**0.0640**	**0.0687**	**0.0000**	**407.1893**	**407.1893**	**0.1228**	**0.0000**	**410.2587**

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	1.0300e-003	0.0282	6.4600e-003	6.0000e-005	1.3100e-003	1.9000e-004	1.5000e-003	3.8000e-004	1.8000e-004	5.6000e-004	0.0000	5.4525	5.4525	3.7000e-004	0.0000	5.4617
Worker	8.3000e-003	6.5100e-003	0.0650	1.6000e-004	0.0157	1.1000e-004	0.0158	4.1600e-003	1.1000e-004	4.2700e-003	0.0000	14.7933	14.7933	4.6000e-004	0.0000	14.8049
Total	**9.3300e-003**	**0.0347**	**0.0715**	**2.2000e-004**	**0.0170**	**3.0000e-004**	**0.0173**	**4.5400e-003**	**2.9000e-004**	**4.8300e-003**	**0.0000**	**20.2459**	**20.2459**	**8.3000e-004**	**0.0000**	**20.2667**

3.3 Grading - 2018

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					0.0597	0.0000	0.0597	6.4400e-003	0.0000	6.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0597**	**0.0000**	**0.0597**	**6.4400e-003**	**0.0000**	**6.4400e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0132	0.4541	0.0752	1.1300e-003	0.0235	1.7200e-003	0.0253	6.4800e-003	1.6400e-003	8.1200e-003	0.0000	108.5961	108.5961	5.7200e-003	0.0000	108.7392
Vendor	4.2000e-004	0.0116	2.6400e-003	2.0000e-005	5.3000e-004	8.0000e-005	6.1000e-004	1.5000e-004	8.0000e-005	2.3000e-004	0.0000	2.2306	2.2306	1.5000e-004	0.0000	2.2344
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0137**	**0.4657**	**0.0779**	**1.1500e-003**	**0.0241**	**1.8000e-003**	**0.0259**	**6.6300e-003**	**1.7200e-003**	**8.3500e-003**	**0.0000**	**110.8266**	**110.8266**	**5.8700e-003**	**0.0000**	**110.9735**

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					0.0597	0.0000	0.0597	6.4400e-003	0.0000	6.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0597**	**0.0000**	**0.0597**	**6.4400e-003**	**0.0000**	**6.4400e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0132	0.4541	0.0752	1.1300e-003	0.0235	1.7200e-003	0.0253	6.4800e-003	1.6400e-003	8.1200e-003	0.0000	108.5961	108.5961	5.7200e-003	0.0000	108.7392
Vendor	4.2000e-004	0.0116	2.6400e-003	2.0000e-005	5.3000e-004	8.0000e-005	6.1000e-004	1.5000e-004	8.0000e-005	2.3000e-004	0.0000	2.2306	2.2306	1.5000e-004	0.0000	2.2344
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0137**	**0.4657**	**0.0779**	**1.1500e-003**	**0.0241**	**1.8000e-003**	**0.0259**	**6.6300e-003**	**1.7200e-003**	**8.3500e-003**	**0.0000**	**110.8266**	**110.8266**	**5.8700e-003**	**0.0000**	**110.9735**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.556416	0.041967	0.190895	0.111485	0.018156	0.005234	0.022193	0.041963	0.002079	0.002948	0.005586	0.000300	0.000779

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Unmitigated	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Total	**5.0000e-005**	**1.0000e-005**	**5.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0900e-003**	**1.0900e-003**	**0.0000**	**0.0000**	**1.1600e-003**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Total	**5.0000e-005**	**1.0000e-005**	**5.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0900e-003**	**1.0900e-003**	**0.0000**	**0.0000**	**1.1600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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 B
Health Risk Assessment

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Construction Health Risk Assessment

date	June 18, 2018
to	Bill Roth, City of Fremont
from	Stan Armstrong, ESA
subject	Mission Clay Products Soil Remediation Project – Construction Period Health Risk Assessment

Introduction

The Mission Clay Products Soil Remediation Project (proposed project) includes the excavation and relocation of approximately 20,693 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill at 1601 Dixon Landing Road in City of San Jose. The Project will result in approximately 2,760 one-way trips during soil transport and 20 one-ways associated with the transport of other materials over a 60-day period from July 13, 2018 to August 29, 2018.

The purpose of this construction health risk assessment (HRA) is to determine the potential cancer risks and chronic hazards faced by offsite residences and other sensitive receptors[1] that are located in the vicinity of the Project site. This HRA uses the latest significance threshold found in the Bay Area Air Quality Management District (BAAQMD) Air Quality CEQA guidance when evaluating potential cancer risks, particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$) exhaust concentrations, and chronic hazards. These thresholds are 10 in 1 million for cancer, 0.3 micrograms per cubic meter ($\mu g/m^3$) for $PM_{2.5}$ exhaust concentrations, and the noncancer chronic and acute health hazard index of 1.0 (BAAQMD, 2017).

According to BAAQMD 2017 Air Quality CEQA Guidance, projects that are located beyond 1,000 feet from a sensitive receptor (e.g., residences, hospitals, schools, elderly homes and day-care centers) are not required to evaluate its potential to result in a health risk (BAAQMD, 2017). Since the Project site is located approximately 1,930 feet from the nearest sensitive receptor, any potential health risks associated with use of onsite construction equipment (e.g., backhoe, loaders, etc.) and operation of the site would be screened-out.

Although the Project would not expose nearby sensitive receptors to pollutant emissions that would result in a health risk during onsite construction and operation, there are sensitive receptors within 115 feet from Project-related haul routes between the Project site and the Newby Island Landfill that could be exposed to mobile diesel particulate matter (DPM) concentrations that may result in a potential health risk. Diesel exhaust is a complex

[1] The BAAQMD generally defines a sensitive receptor as a facility or land use that houses or attracts members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include residences, schools, and hospitals.

mixture of pollutants, including more than 40 cancer-causing substances in addition to very small carbon particles, or "soot" coated with numerous organic compounds. In 1998, California identified DPM as a toxic air contaminant (TAC) based on its potential to cause cancer (CARB, 1998). Other agencies, such as the National Toxicology Program, the U.S. Environmental Protection Agency, and the National Institute of Occupational Safety and Health, concluded that exposure to diesel exhaust likely causes cancer (CARB, 2016). The most recent assessment (2012) came from the World Health Organization's International Agency for Research on Cancer (IARC). IARC's extensive literature review led to the conclusion that diesel engine exhaust is "carcinogenic to humans," thereby substantiating and further strengthening California's earlier TAC determination (CARB, 2016).

In March 2015, the Office of Environmental Health Hazard Assessment (OEHHA) adopted a revised guidance manual for use in the Air Toxics Hot Spots Program or for the permitting of existing, new, or modified stationary sources, the *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. Unlike previous iterations of this manual, the revised manual provides considerations for short-term temporary exposure for durations as short as two months, such as during construction activities, while noting that there is "considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime." The revised OEHHA's guidance also considers more conservative assumptions and updated scientific research. Health risk impacts calculated in accordance with the OEHHA's revised manual are approximately two to ten times higher than those calculated in accordance with the previous methodology.

A screening-level HRA was conducted to estimate the potential health risk impacts associated with the Project-related haul truck route. The methodology used to evaluate the potential health risks from on-road heavy truck haul trips is summarized below, along with the results of the HRA. Due to the short-term nature of haul truck activities, the screening-level approach is appropriate to estimate the worst-case health risks associated with Project construction.

Methods

The methods and assumptions used in this HRA are consistent with the guidance recommended by OEHHA's *Air Toxic Hot Spots Program Risk Assessment Guidelines* (OEHHA, 2015). This HRA also follows the approach recommended by the Bay Area Air Quality Management District (BAAQMD) *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAQMD, 2012) and the BAAQMD's *Air Toxics NSR Program Health Risk Assessment Guidelines* (BAQMD, 2016). The HRA also uses technical information from California Air Pollution Control Officer's Association (CAPCOA), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (USEPA). The OEHHA methodology used in this assessment uses a dose-response assessment to characterize risk from cancer due to inhaled TACs. Refer to Attachment A for the calculation and modeling files used in the screening HRA.

Based on the OEHHA guidance, the evaluation of potential health risks uses the following standard four-step risk assessment process:

1. hazard identification;
2. exposure assessment;
3. dose-response assessment; and

4. risk characterization.

Each step is described in detail below.

Hazard Identification

The hazard identification process is undertaken to determine what TACs would potentially be present in the assessment area, and if present, identifies what the pollutants of concern are along with their potential adverse health effects. In this HRA, the primary hazard is DPM emissions from operation of on-road haul trucks. DPM from off-road construction equipment was not considered, since the off-road construction emissions would occur outside of the BAAQMD screening distance of 1,000 feet from the nearest sensitive receptor.

DPM historically has been used as a surrogate measure of exposure for whole diesel exhaust emissions. Diesel exhaust is a complex mixture of thousands of gases and fine particles (commonly known as soot). Diesel exhaust particles and gases are suspended in the air due to thermal buoyancy and the small size of the particles. The composition of diesel exhaust varies depending on engine type, operating conditions, fuel composition, lubricating oil, and presence of an emission control system. One of the main characteristics of diesel exhaust is the release of particles at a relative rate approximately 20 times greater than from gasoline exhaust, on an equivalent fuel basis. Diesel particulates are mainly aggregates of spherical carbon particles coated with inorganic and organic substances. The inorganic fraction primarily consists of small carbon (elemental carbon) particles ranging from 0.01 to 0.08 micron in diameter. The organic fraction consists of soluble organic compounds (CARB, 1998).

Exposure Assessment

The degree of the residences exposure to DPM emissions from Project on-road construction haul trips was evaluated under the exposure assessment portion of the HRA. This assessment involves the quantification of DPM emissions and dispersion modeling. The amount of DPM and entrained fugitive dust emissions generated by construction activities was determined using particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM_{10}) from diesel exhaust as a surrogate. OEHHA guidance indicates that the cancer potency factor to be used to evaluate cancer risks were developed based on whole (gas and particulate matter) diesel exhaust, and that the surrogate for whole diesel exhaust is DPM, with PM_{10} serving as the basis for the potential risk calculations (OEHHA, 2003). In addition to evaluating the effects of TAC concentrations and associated cancer risk, this screening HRA also evaluates non-cancer chronic risk. This is consistent with BAAQMD's CEQA Guidelines (BAAQMD, 2017).

The greatest potential for TAC emissions would be related to DPM emissions associated with off-road heavy equipment operations during demolition, grading and excavation, and construction activities. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for DPM are not known for these pathways (CARB, 1998). OEHHA developed necessary data to evaluate carcinogenicity of DPM through the inhalation pathway only. Once determined, the dose is multiplied by the compound-specific inhalation cancer potency factor to derive the cancer risk estimate. The dose takes into account the concentration at a sensitive receptor. The cancer potency factor is compound-specific.

Emissions Inventory

Emissions analyzed in the HRA were based on the air quality emissions estimates for the Project prepared for the Initial Study (IS). The on-road construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) (version 2016.3.2). The air quality analysis prepared for the IS estimated heavy truck emissions using emission factors obtained from CARB's 2017 EMission FACtors model (EMFAC2017) for the year 2018. Total DPM and $PM_{2.5}$ emissions for all years of construction for each component and site are presented in **Table 1, Total Construction DPM and $PM_{2.5}$ Emissions along Haul Route**.

TABLE 1
TOTAL ANNUAL DPM AND $PM_{2.5}$ EMISSIONS FROM HAUL TRUCKS

Source	Total Annual Emissions (pounds)	
	DPM	$PM_{2.5}$ (exhaust)
Construction		
On-road truck travel [a]	66.3	63.4

NOTES:
[a] The roadway segment modeled in AERSCREEN (see Table 5) was represented only by the anticipated traveled road length that would directly impact nearby receptors, which is 200 meters (0.124 miles) in length. Thus, total estimated emissions from haul trucks were multiplied by scaling factors to determine emissions associated with trucks operating near the proposed project site. This scaling is necessary to estimate the actual on-road emissions to which nearby sensitive receptors would be exposed. The scaling factor = 0.12 miles ÷ 35 miles = 0.004.

Emission calculations are provided in Attachment A.

ABBREVIATIONS:
DPM = diesel particulate matter
$PM_{2.5}$ =particulate matter less than or equal to 2.5 microns in diameter

Emission Rates

Haul truck DPM and $PM_{2.5}$ (exhaust) concentrations were modeled using AERSCREEN (see section below) using a unitized emission rate of 1 gram/second (g/s). The modeled concentration at each receptor ([μ/m^3]/[g/s]) represents a "dispersion factor," which was then multiplied by the actual emission rate to determine actual concentrations, and the final result was superimposed. This approach is called the "Summation Concept," where the concentration and deposition fluxes at each receptor are the linear addition of the resulting values from a particular source.

Actual emission rates from Project-related on-road haul trucks were based on 111,800 annual miles. A total emission rate in terms of grams per second was calculated for each emission source to multiply with the AERSCREEN dispersion factors to estimate actual concentrations for each source. The emission rates would vary day to day, with some days having no emissions. Since material would be haul from the Project site for a duration of 77 calendar days, the model assumed a constant emission rate for 0.21 years, and is based on the total duration of construction activities, 24 hours per day, and 3,600 seconds per hour, consistent with AERSCREEN dispersion parameters.

Dispersion Modeling

Dispersion modeling predicts the air pollutant concentrations due to emissions from a source at defined receptor point locations. Dispersion modeling was performed using the USEPA approved AERSCREEN model. The

model estimates "worst-case" 1-hour concentrations for a single source. AERSCREEN is based on the American Meteorological Society/USEPA regulatory air dispersion model (AERMOD version 9.3.0). AERSCREEN is intended to produce concentration estimates that are equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data, but the degree of conservatism will vary depending on the application. The AERSCREEN model requires numerous inputs, such as general meteorological data, source parameters, topographical data, and receptor characteristics. Where project-specific information is not available, ESA used default parameter sets that are designed to produce conservative (i.e., overestimates of) air concentrations (USEPA 2016a, 2016b). **Table 2**, **Overall AERSCREEN Modeling Parameters**, summarizes the overall modeling parameters used in AERSCREEN. For values not listed, defaults were used. Refer to Attachment A for the AERSCREEN modeling outputs used in the screening HRA.

TABLE 2
OVERALL AERSCREEN MODELING PARAMETERS

Pathway	Description	Parameter
Control	Rural/Urban	Urban
	Urban Population	234,962 [a]
	Model Version	AERSCREEN v 16216
Receptor	Receptor Height	1.5 m [b]
Meteorology	Minimum ambient temperature	42° F [c]
	Maximum ambient temperature	77° F [c]
	Dominant surface profile	7 (Urban)
	Dominant climate profile	1 (Average Moisture)

NOTES:
[a] For July 1, 2017, Fremont City, California (US Census Bureau, 2018).
[b] From BAAQMD (2012).
[c] From Intellicast (2018).

ABBREVIATIONS: m = meters; F = Fahrenheit

SOURCES:
1. United States Census Bureau. 2018. QuickFacts: Fremont City, California. Available: https://www.census.gov/quickfacts/fact/table/fremontcitycalifornia,US/PST045217. Accessed June 1, 2018.
2. Bay Area Air Quality Management District. 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf. Accessed January 2018.
3. Intellicast. 2018. *Historic Average: Fremont, CA*. Available: http://www.intellicast.com/Local/History.aspx?location=USCA0403. Accessed June 1, 2018.

Source Parameters

Source parameters are required to model the dispersion of emissions. Parameters for on-road truck trips were modeled as single area source with a release height of 2.55 meters. **Table 3**, **Source Modeling Parameters**, summarizes the source modeling parameters used in AERSCREEN for source type. For values not listed, AERSCREEN defaults were used.

TABLE 3
SOURCE MODELING PARAMETERS

Source Type	Source Type	Source Dimension [m] [a]	Release Height [m] [b]	Initial Vertical Dimension [m] [c]	Stack Diameter [m]	Stack Temperature [K]	Exit Velocity (m/s)
On-Road Construction Trucks	Area	200 x 8	2.55	2.37	n/a	n/a	n/a

NOTES:
[a] Based on information from the project sponsor and Google Earth
[b] For on-road construction trucks, the release height is equal to 0.5 * top of plume height, which is equal to 1.7 * the vehicle height, which is equal to 3 meters; equation = 0.5 * 1.7 * 3 = 2.55 (USEPA 2012).
[c] Initial vertical dimension for on-road trucks from the CRRP-HRA (BAAQMD, SF DPH & SF Planning, 2012). Initial vertical dimension for on-road construction trucks and operational loading truck idling is equal to the top of the plume height ÷ 2.15 = 1.7 * 3 / 2.15 = 2.37 (USEPA 2012).

ABBREVIATIONS:
m = meters
K = Kelvin
m/s = meters per second

SOURCES:
1. United States Environmental Protection Agency. 2012. *Haul Road Workgroup Final Report Submission to EPA-OAQPS*. March. Available: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf. Accessed June, 1 2018.
2. Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department. 2012. *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*. December. Available: http://www.gsweventcenter.com/Appeal_Response_References/2012_1201_BAAQMD.pdf. Accessed June 2018.

Sensitive Receptors

Table 4, Sensitive Receptor Locations, presents the sensitive receptors within 1,000 feet of the haul truck route considered in this HRA. Receptor heights were set at 1.5 meters to represent flagpole receptor concentrations, consistent with BAAQMD modeling guidance (BAAQMD, 2012). The Project does not include any residential uses and will not include any sensitive receptors on site. Consequently, no onsite receptors were modeled.

TABLE 4
SENSITIVE RECEPTOR LOCATIONS

Haul Route Segment	Residential Receptors	Daycare Receptors	School Receptors
Canyon Heights Drive, from Pickering Avenue to Orangewood Drive	40 ft. west and east (single-family homes)	100 ft. west (Adventure Time Vallejo Mill Day Care Center)	115 ft. west (Vallejo Mill Elementary School)

ABBREVIATIONS:
ft. = feet

Dose-Response Assessment

The dose-response assessment is the process of characterizing the relationship between exposure to diesel exhaust and the incidence of an adverse health effect in exposed populations.

The estimation of potential inhalation cancer risk posed by exposure to DPM requires a cancer potency factor. Cancer potency factors are expressed as the upper bound probability of developing cancer assuming continuous lifetime exposure to diesel exhaust at a dose of one milligram per kilogram of body weight, and are expressed in units of inverse dose as a potency slope (i.e., $[mg/kg/day]^{-1}$). A cancer potency factor when multiplied by the dose

of a carcinogen gives the associated lifetime cancer risk. OEHHA's recommended cancer potency factor for DPM is 1.1 $(mg/kg/day)^{-1}$. The estimation of potential inhalation chronic non-cancer effects posed by exposure to DPM requires a chronic reference exposure level (REL). A chronic REL is a concentration level (that is expressed in units of $\mu g/m^3$ for inhalation exposures), at or below which no adverse health effects are anticipated following long-term exposure. OEEHA's recommended chronic REL for DPM is 5 $\mu g/m^3$ (CARB & OEHHA, 2017). The chronic hazard index target organ for DPM is the respiratory system.

Risk Characterization

Risk characterization combines the maximum annual average ground-level DPM concentration from the exposure assessment and the cancer potency factor and chronic REL from the dose-response analysis to estimate the potential inhalation cancer risk from exposure to DPM emissions.

In performing health risk calculations, carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. Incremental health risks associated with exposure to carcinogenic compounds is defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. Under a deterministic approach (i.e., point estimate methodology), the cancer risk probability is determined by multiplying the chemical's annual concentration by its unit risk factor (URF). The URF for DPM recommended by the Scientific Review Panel[2] is 3.0×10^{-4} $\mu g/m^3$ (CARB, 1998). This value corresponds to a Cancer Potency Factor (CPF) of 1.1 per milligram/ kilogram (body weight) per day (mg/kg(bw)-day) (CARB & OEHHA, 2017). The URF for DPM means that for receptors with an annual average concentration of 1 $\mu g/m^3$ in the ambient air, the probability of contracting cancer over a 70-year lifetime of exposure is 300 in 1 million. The URF also assumes that a person is exposed continuously for a 70-year lifetime. This approach for calculating cancer risk is intended to result in conservative (i.e., health protective) estimates of health impacts and is used for assessing risks to sensitive receptors. The estimation of cancer risk generally uses the following algorithms (OEHHA, 2015):

$$\textbf{Cancer Risk} = \textbf{Dose inhalation} \times \textbf{Inhalation CPF} \times \textbf{ASF} \times \textbf{ED/AT} \times \textbf{FAH} \qquad \textbf{(Equation 1)}$$

Where:

Cancer Risk = residential inhalation cancer risk

$$\textbf{Dose inhalation (mg/kg-day)} = C_{AIR} \times \textbf{DBR} \times \textbf{A} \times \textbf{EF} \times 10^{-6} \qquad \textbf{(Equation 2)}$$

Inhalation CPF = inhalation cancer potency factor ($[mg/kg/day]^{-1}$)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years)

AT = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

[2] The Scientific Review Panel is charged with evaluating the risk assessments of substances proposed for identification as toxic air contaminants by CARB, OEHHA, and the Department of Pesticide Regulation (DPR), and the review of guidelines prepared by OEHHA.

Where:

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10^{-6} = micrograms to milligrams conversion, liters to cubic meters conversion

The OEHHA-recommended values for the parameters listed above were used in the HRA analysis. The daily breathing rate (DBR) used in the analysis was based on OEHHA recommendations, which vary depending on age, as shown in **Table 5, Daily Breathing Rates, Fraction of Time at Home, and Age Sensitivity Factors**. The recommended residential exposure frequency (EF) is 350 days per year, which is equivalent to 0.96 (350 days/365 days a year). The recommended daycare exposure frequency (EF) is 250 days per year, which is equivalent to 0.68 (250 days/365 days a year). The recommended school exposure frequency (EF) is 180 days per year, which is equivalent to 0.49 (180 days/365 days a year). The inhalation absorption factor (A) is assumed to be 1 for inhalation based risk assessment. As indicated in Equation 1 above, each age group has different exposure parameters that require cancer risk to be calculated separately for each age group. Values for fraction of time at home (FAH) also vary depending on age, as shown in Table 5. Once dose is calculated, cancer risk is calculated by accounting for cancer potency of the specific pollutant, and the age sensitivity factor (ASF), which also varies by age as shown in Table 5.

TABLE 5
DAILY BREATHING RATES, FRACTION OF TIME AT HOME, AND AGE SENSITIVITY FACTORS

Parameter	Age Group		
	3rd Trimester	Age 0 to < 2	Age 2 to < 9
Daily Breathing Rate (DBR) (L/kg-body weight/day)			
Residential Child Receptor [a]	361	1,090	631
Day Care Center Child Receptor [b]	n/a	1,200	640
School Receptor [b]	n/a	n/a	640
Exposure Frequency (EF)			
Residential Child Receptor [c]	0.96	0.96	0.96
Day Care Center Child Receptor [d]	n/a	0.68	0.68
School Receptor [e]	n/a	n/a	0.49
Exposure Duration (ED) (years)			
Residential Child Receptor [f]	0	0.21	0
Day Care Center Child Receptor	n/a	0.21	n/a
School Receptor	n/a	n/a	0.21
Fraction of Time at Home (FAH) for residential receptors [g]	1	1	1
Age Sensitivity Factor (ASF) [h]	10	10	3

TABLE 5
DAILY BREATHING RATES, FRACTION OF TIME AT HOME, AND AGE SENSITIVITY FACTORS

NOTES:

[a] Daily breathing rate for residential receptors are based on the OEHHA 95th percentile values (Table 5.6).
[b] Daily breathing rate for school and daycare receptor is based on the OEHHA 95th percentile 8-hour moderate intensity breathing rates (Table 5.8). School receptor assumed to start exposure as early as age 5 (e.g. Kindergarten) and day care center is assumed to start exposure as early as 4 months.
[c] The recommended residential exposure frequency (EF) is 350 days per year, which is equivalent to 0.96 (350 days / 365 days a year).
[d] The recommended day care EF is 250 days per year, which is equivalent to 0.68 (250 days / 365 days a year).
[e] The recommended school EF is 180 days per year, which is equivalent to 0.49 (180 days / 365 days a year).
[f] Assumed all of the residential exposure would occur in the 0-2 age group, which would result in higher heath risks.
[g] Fraction of time at home is set to 1.0 for residential since the nearest school has a cancer risk of greater than one million (see Table 9 below), per OEHHA Table 5.8. FAH is not applicable to other receptors.
[h] ASF is the same for all receptors.

ABBREVIATIONS:
DBR = daily breathing rate
EF = exposure frequency
ED = exposure duration
FAH = fraction of time at home
ASF = age sensitivity factor
n/a = not applicable

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February. Available at http://oehha.ca.gov/air/hot_spots/hotspots2015.html. Accessed June 1, 2018.

The estimation of non-cancer inhalation chronic risk uses the following algorithm (OEHHA, 2015):

$$\textbf{Hazard Quotient} = C_{air} / \textbf{REL} \qquad \textbf{(Equation 3)}$$

Where:

Hazard Quotient = chronic non-cancer hazard

C_{AIR} = concentration of compound in air in micrograms per cubic meter ($\mu g/m^3$)

REL = Chronic non-cancer Reference Exposure Level for substance ($\mu g/m^3$)

As noted above, the REL for DPM is 5 $\mu g/m^3$ (CARB & OEHHA, 2017). The chronic hazard index target organ for DPM is the respiratory system.

Health Risk Calculations

The resulting health risk calculations were performed using a spreadsheet tool consistent with the OEHHA guidance. The spreadsheet tool incorporates the algorithms, equations, and the variables described above as well as in the OEHHA guidance, and incorporates the results of the AERSCREEN dispersion model.

Table 6, Maximum Increase in Health Risk from Construction Emissions for Off-Site Sensitive Receptors - Unmitigated summarizes the Maximum Annual Average $PM_{2.5}$ Concentration (µg/m3), carcinogenic and non-cancer chronic risk for the maximum impacted sensitive receptors for the unmitigated scenario.

TABLE 6
MAXIMUM INCREASE IN HEALTH RISK FROM CONSTRUCTION EMISSIONS FOR OFF-SITE SENSITIVE RECEPTORS

Receptor Type / Threshold	Lifetime Excess Cancer Risk	Maximum Annual Average $PM_{2.5}$ Concentration ($\mu g/m^3$)	Maximum Non-Cancer Risk (Chronic Hazard Index)
Maximum Cancer Risk(# in one million)			
Residential Receptor	0.27	0.0075	0.0016
Daycare Receptor	0.22	0.0077	0.0016
Elementary School Receptor	0.03	0.0077	0.0016
Maximum	0.27	0.0077	0.0016
BAAQMD Threshold	10	0.3	1
Exceeds Threshold?	No	No	No

ABBREVIATIONS:
$\mu g/m^3$ = microgram per cubic meter
$PM_{2.5}$ =particulate matter less than or equal to 2.5 microns in diameter
BAAQMD = Bay Area Air Quality Management District

SOURCES: CalEEMod modeling, EMFAC2017 modeling, AERSCREEN modeling, and other off-model calculations discussed in the memo and presented in Attachment A.

For carcinogenic exposures, the cancer risk from DPM emissions for the unmitigated construction scenario is estimated to result in a maximum carcinogenic risk of approximately 0.27 per one million. The non-cancer chronic risk from DPM emissions for the unmitigated construction scenario is estimated to be a maximum hazard index of approximately 0.0016. The highest maximum annual average $PM_{2.5}$ concentration is estimated to be 0.0077 $\mu g/m^3$.

As discussed previously, the lifetime exposure under OEHHA guidelines takes into account early life (infant and children) exposure. It should be noted that the calculated cancer risk assumes sensitive receptors (residential uses) would not have any emission controls such as mechanical filtration and exposure would occur with windows open. This HRA focuses specifically on residential, daycare, and school sensitive receptors located along the Project haul route and does not include impacts for on-site workers. On-site workers would be exposed to DPM from off-road construction equipment exhaust during the onsite construction activities, which are not evaluated in this HRA because workers are not considered sensitive receptors by the BAAQMD (BAAQMD, 2017). In addition, on-site workers' intermittent exposure duration would be less than that of a residence (8 hours compared to 24 hours) and adult breathing rates compared to children are also lower (e.g. 261 for age 16<30 versus 1,090 for age 0<2 years). Due to the limited construction period of three months and the limited time construction workers would be exposed to onsite DPM and $PM_{2.5}$ emissions, it is unlikely that the maximum increase in health risk from construction emissions to on-site workers would exceed the BAAQMD thresholds.

The process of assessing health risks and impacts includes a degree of uncertainty. The level of uncertainty is dependent on the availability of data and the extent to which assumptions are relied upon in cases where the data are incomplete or unknown. All HRAs rely upon scientific studies in order to reduce the level of uncertainty; however, it is not possible to completely eliminate uncertainty from the analysis. Where assumptions are used to substitute for incomplete or unknown data, it is standard practice in performing HRAs to error on the side of health protection in order to avoid underestimating or underreporting the risk to the public by assessing risk on the most sensitive populations, such as children and the elderly.

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Attachment A: Modeling Outputs and Emission Calculations

Tables for Tech Memo

Updated: 6/4/2018

Source	SCALED Total Annual Emissions (grams per second)	
	DPM	$PM_{2.5}$
Construction		
On-road truck travel	0.0000161	0.0000154

Receptor Type	SCALED Concentration ($\mu g/m^3$)	
	DPM	$PM_{2.5}$
Residents	0.008	0.008
Daycare	0.008	0.008
Elementary School	0.008	0.008

Receptor Type	Cancer Risk (DPM)	Chronic Hazard Index (DPM)	Maximum Annual PM2.5 Concentration
Residents	0.27	0.00157	0.0075
Daycares	0.22	0.00161	0.0077
Schools	0.03	0.00161	0.0077
Maximum	0.27	0.00161	0.0077
BAAQMD Threshold	10	1	0.3
Exceed Threshold (yes or no)?	No	No	No

On-Road Haul Emissions

Updated	6/6/2018	
Offsite Truck Travel - hauling		
Start Date	6/13/2018	
End Date	8/29/2018	
Total Number of Work Days	56	days
Total Calendar Days	77	days
Total Years	0.21	years
Average One-Way Trips length Soil	20	miles
Average One-Way Trips Length Othe	35	miles
Total One-Way Trips Soil	2760	trips
Total One-Way Trips Other	20	trips
Annual Miles	111,800	miles

EMFAC2017 Emission Factors for year 2018 (g/mi)

	DPM	PM2.5 Exhaust
HHDT	0.2691	0.2574

Emissions

Emissions (tons/year)	**DPM**	**PM2.5 Exhaust**
Onsite Travel	0.033	0.032

HRA - Screening

Updated: 6/4/2018

Emission Rates / Scaling Factors

	Construction On-Road Trucks	NOTES
DPM g/s		
Unmitigated	1.61E-05	
Mitigated	0.00E+00	
PM2.5 g/s		
Unmitigated	1.54E-05	
Mitigated	0.00E+00	

Cancer Risk Calculations

	Construction On-Road Trucks	NOTES
Average Annual Scaler Concentrations (ug/m3)		
Residents:	489.35	
Daycares:	501.22	
Schools	501.22	
Average Annual SCALED Concentrations (ug/m3)		
Unmitigated		
Residents:	0.00786	
Daycares:	0.00805	
Schools	0.00805	
Mitigated		
Residents:	0.00E+00	
Daycares:	0	
Schools	0	
Risk Factors		
Residents:	34.65	
Daycares:	27.25	
Schools	3.14	

	Construction On-Road Trucks
Cancer Risk - Unmitigated	
Residents:	0.27
Daycares:	0.22
Schools	0.03
Cancer Risk - Mitigated	
Residents:	0.00
Daycares:	
Schools	

ESTIMATED PM2.5 Concentrations - Average Annual (ug/m3)

	Construction On-Road Trucks	NOTES
Average Annual Scaler Concentration (ug/m3)		
Residents:	489.35	
Daycares:	501.22	
Schools	501.22	
Average Annual SCALED Concentrations (ug/m3)		
Unmitigated		
Residents:	0.0075	
Daycares:	0.0077	
Schools	0.0077	
Mitigated		
Residents:	0.0000	
Daycares:	0.0000	
Schools	0.0000	

Chronic Hazard Index DPM

Chronic REL (µg/m3) 5.0

California Air Resources Board, "Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values" and "OEHHA/ARB Approved Chronic Reference Exposure Levels and Target Organs," http://www.arb.ca.gov/toxics/healthval/healthval.htm.

Table last updated: February 23, 2017. Downloaded 10/9/17

Chronic Hazard Index	Construction On-Road Trucks	NOTES
Unmitigated		
Residents:	0.00157	
Daycares:	0.00161	
Schools	0.00161	

4.12.2.1 Non-Continuous Sources

When modeling a non-continuously emitting source (e.g., operating for eight hours per day and five days per week), the modeled long-term average concentrations are based on 24 hours a day and seven days per week for the period of the meteorological data set. Even though the emitting source is modeled using a non-continuous emissions schedule, the long-term concentration is still based on 24 hours a day and seven days per week. Thus, this concentration includes the zero hours when the source was not operating. For the offsite worker inhalation risk, we want to determine the long-term concentration the worker is breathing during their work shift. Therefore, the long-term concentration needs to be adjusted so it is based only on the hours when the worker is present. For example, assuming the emitting source and worker's schedules are the same, the adjustment factor is 4.2 = (24 hours per day/8 hours per shift)x(7 days in a week/5 days in a work week). In this example, the long term residential exposure is adjusted upward to represent the exposure to a worker. Additional concentration adjustments may be appropriate depending on the work shift overlap. These adjustments are discussed below.

4.12.2.2 Continuous Sources

If the source is continuously emitting, then the worker is assumed to breathe the long-term annual average concentration during their work shift. Equation 4.1 becomes one and no concentration adjustments are necessary in this situation when estimating the inhalation cancer risk. Note however, if an assessor does not wish to apply the assumption the worker breathes the long-term annual average concentration during the work shift, then a refined concentration can be post-processed as described in Appendix M. All alternative assumptions should be approved by the reviewing authority and supported in the presentation of results.

2.1.3.2 Short Term Projects

In the 2015 HRA Guidelines, OEHHA recommends using actual project duration for short term projects, but cautions that the risk manager should consider a lower cancer risk threshold for very short term projects, because a higher exposure over a short period of time may pose a greater risk than the same total exposure spread over a much longer period of time. To ensure that short-term projects do not result in unanticipated higher cancer impacts due to short-duration high-exposure rates, the Air District recommends that the cancer risk be evaluated assuming that the average daily dose for short-term exposure lasts a minimum of three years for projects lasting three years or less. For residential exposures, the cancer risk calculations should include the most sensitive age groups (beginning with the third trimester of pregnancy) and should use the 95th percentile breathing rates. The Air District recommends following OEHHA guidelines for other aspects of short term projects. In summary, the Air District recommends:

- use of actual emission rates over a minimum 3-year duration for cancer risk assessments involving projects lasting 3 years or less, and
- use of actual project duration for cancer risk assessments on projects lasting longer than 3 years.

8.3.1 ***Calculation of Noncancer Inhalation Hazard Quotient and Hazard Index***

To calculate the acute HQ, the maximum 1-hour ground level concentration (in $\mu g/m^3$) of a substance at a receptor is divided by the acute 1-hour REL (in $\mu g/m^3$) for the substance:

$$\text{Acute Hazard Quotient} = \frac{\text{1-Hour Max Concentration } (\mu g/m^3)}{\text{Acute REL } (\mu g/m^3)}$$

To calculate the chronic HQ, the annual average ground level concentration of a substance is divided by the chronic REL for the substance:

$$\text{Chronic Hazard Quotient} = \frac{\text{Annual Average Concentration } (\mu g/m^3)}{\text{Chronic REL } (\mu g/m^3)}$$

To calculate the 8-hour HQ, the adjusted annual average ground level concentration of a substance (represented as "Adjusted C_{air}" in EQ 5.4.1.4 A) is divided by the 8-hour REL for the substance:

Risk Factors

Updated: 6/4/2018

Notes

Normally, we use a worker adjustment factor to estimate risk for school and daycare receptors, but this is used if AERMOD models sources using a non-continuous emissions schedule (e.g. work hours). However, because we use AERSCREEN, which assumes rate based on the actual construction schedule of 5 days per week and 8 hrs/day (and estimates maximum 1-hr concentrations), concentrations are based on continuous emissions, and we don't need the adjustment factor.

Dose Calculation

NOT USED = grey

Dose Factors	3rd Trimester	Age 0<2 Years	Age 2<9 Years	Notes / Source
Daily Breathing Rate (DBR) [L/kg-day or L/kg-8hrs]				
Residential	361	1090	631	95th percentile 24-hour breathing rates (OEHHA Table 5.6) for 3rd trimester and age 0<2 years and 80th percentile 24-hou
Hospital	361	1090	631	Same as residential
Daycare		1200	640	95th percentile 8-hour moderate intensity breathing rates (OEHHA Table 5.8) for 3rd trimester, age 0<2 years, and age 2<9
School		1200	640	95th percentile 8-hour moderate intensity breathing rates (OEHHA Table 5.8) for age 2<16 years.
Inhalation Absorption Factor (A)	1	1	1	Recommended Factor
Exposure Frequency (EF) [days/365 days]				
Residential	0.96	0.96	0.96	
Hospital	1.00	1.00	1.00	assume 100% in hospital
Daycare		0.68	0.68	250 days/yr
School		0.49	0.49	180 days/yr
Conversion	0.000001	0.000001	0.000001	

Dose Factor (no concentration)	3rd Trimester	Age 0<2 Years	Age 2<9 Years
Residential	0.000346164	0.001045205	0.000605068
Hospital	0.000361	0.00109	0.000631
Daycare	0	0.000821918	0.000438356
School	0	0.000591781	0.000315616

Risk Calculation

Risk Factors	3rd Trimester	Age 0<2 Years	Age 2<9 Years	
Inhalation Cancer Potency Factor (CPF)	1.1	1.1	1.1	
Age Sensitivity Factor (ASF) [unitless]	10	10	3	
Exposure Duration (ED) [years]				
Construction				
Residential	0.00	0.21	0.00	
Daycare		0.21		
School			0.21	
Operation				
Residential	0.25	2		
Hospital	0.25	2		
Daycare		2	7	Only assume 9 years of exposure (probably actually less b/c only goes to kindergarden prep)
School				
Averaging Time (AT) [years]	70	70	70	
Fraction of Time at Home (FAH) [unitless]	1	1	1	
				Fraction of time at home are set to 1.0 for all age groups less than 16 years, since there are potentially schools within cancer risk isopleths of one in a million or greater, per BAAQMD guidance (2016). For age groups greater than 16 years, values from OEHHA (2015) Table 8.4 were used
Chances per Million	1,000,000	1,000,000	1,000,000	

Risk Factor (no concentration)	3rd Trimester	Age 0<2 Years	Age 2<9 Years
Construction			
Residential	0.00	34.65	0.00
Hospital	0.00	0.00	0.00
Daycare	0.00	27.25	0.00
School	0.00	0.00	3.14
Operation			
Residential	13.60	328.49	0.00
Hospital	14.18	342.57	0.00
Daycare	0.00	258.32	144.66
School	0.00	0.00	0.00

Multiply risk factors by concentration to determine risk

Table 8.3 Age Sensitivity Factors by Age Group for Cancer Risk Assessment

Age Group	Age Sensitivity Factor (unitless)
3rd Trimester	10
0<2 years	10
2<9 years	3
2<16 years	3
16<30 years	1
16-70 years	1

8.2.4 *Calculating Residential and Offsite Worker Inhalation Cancer Risk*

Residential Receptors

For residential inhalation exposure, cancer risk must be separately calculated for specified age groups (Eq. 8.2.4A, see Section 8.2.1), because of age differences in sensitivity to carcinogens and age differences in intake rates (per kg body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure. The following equation illustrates the formula for calculating residential inhalation cancer risk. See Appendix I for a detailed example calculation.

A. Equation 8.2.4 A: $RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$

7. $RISK_{inh\text{-}res}$ = Residential inhalation cancer risk
8. $DOSE_{air}$ = Daily inhalation dose (mg/kg-day)
9. CPF = Inhalation cancer potency factor (mg/kg-day^{-1})
10. ASF = Age sensitivity factor for a specified age group (unitless)
11. ED = Exposure duration (in years) for a specified age group
12. AT = Averaging time for lifetime cancer risk (years)
13. FAH = Fraction of time spent at home (unitless)

a: Recommended default values for EQ 8.2.4 A:

5. $DOSE_{air}$ = Calculated for each age group from Eq. 5.4.1
6. CPF = Substance-specific (see Table 7.1)
7. ASF = See Section 8.2.1
8. ED = 0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70
9. AT = 70 years*
10. FAH = See Table 8.4

ough AT actually sums to 70.25 years when the 3rd trimester (0.25 years) is ded, OEHHA recommends rounding AT = 70 years (and rounding residential sure durations at 9- and 30-years rather than 9.25- and 30.25-years) to simplify the calculation without causing a significant adjustment. Note that the dose for the 3rd trimester is based on the breathing rate of pregnant women using the assumption that the dose to the fetus during the 3rd trimester is the same as that to the mother.

Table 5.6 Point Estimates of Residential Daily Breathing Rates for 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years (L/kg BW-day)

	3rd Trimester[a]	0<2 years	2<9 years	2<16 years	16<30 years	16<70 years
	L/kg-day					
Mean	225	658	535	452	210	185
95th Percentile	361	1090	861	745	335	290

[a] 3rd trimester **breathing rates** based on breathing rates of pregnant women using the assumption that the dose to the fetus during the 3rd trimester is the same as that to the mother.

Table 5.7 Daily Breathing Rate Distributions by Age Group for Residential Stochastic Analysis (L/kg BW-day)

	3rd Trimester	0<2 years	2<9 years	2<16 years	16<30 years	16-70 years
Distribution	Max extreme	Max extreme	Max extreme	Log-normal	Logistic	Logistic
Minimum	78	196	156	57	40	13
Maximum	491	2,584	1,713	1,692	635	860
Scale	59.31	568.09	125.59		40.92	36.19
Likeliest	191.50	152.12	462.61			
Location				-144.06		
Mean	225	658	535	452	210	185
Std Dev	72	217	168	172	75	67
Skewness	0.83	2.01	1.64	1.11	0.83	1.32
Kurtosis	3.68	10.61	7.88	6.02	5.17	10.83
Percentiles						
5%	127	416	328	216	96	86
10%	142	454	367	259	118	104
25%	179	525	427	331	161	141
50%	212	618	504	432	207	181
75%	260	723	602	545	252	222
80%	273	758	631	572	261	233
90%	333	934	732	659	307	262
95%	361	1090	861	745	335	290
99%	412	1430	1140	996	432	361

Table 7.1 Inhalation and Oral Cancer Potency Factors

Substance	Chemical Abstract Service Number (CAS)	Inhalation Potency Factor (mg/kg-day)$^{-1}$	Oral Slope Factor (mg/kg-day)$^{-1}$
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	$1.3 \times 10^{+3}$	$1.3 \times 10^{+3}$
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	$1.3 \times 10^{+3}$	$1.3 \times 10^{+3}$
1,2,3,4,,6,7,8,9-Octachlorodibenzofuran	39001-02-0	$3.9 \times 10^{+1}$	$3.9 \times 10^{+1}$
Chlorinated paraffins	108171-26-2	8.9×10^{-2}	
Chloroform	67-66-3	1.9×10^{-2}	
4-Chloro-*o*-phenylenediamine	95-83-0	1.6×10^{-2}	
p-Chloro-*o*-toluidine	95-69-2	2.7×10^{-1}	
Chromium (hexavalent)	18540-29-9	$5.1 \times 10^{+2}$	5×10^{-1}
Chrysene BaP	218-01-9	3.9×10^{-2}	1.2×10^{-1}
Creosote	8001-58-9	*	
p-Cresidine	120-71-8	1.5×10^{-1}	
Cupferron	135-20-6	2.2×10^{-1}	
2,4-Diaminoanisole	615-05-4	2.3×10^{-2}	
2,4-Diaminotoluene	95-80-7	$4.0 \times 10^{+0}$	
Dibenz[*a,h*]acridine BaP	226-36-8	3.9×10^{-1}	$1.2 \times 10^{+0}$
Dibenz[*a,j*]acridine BaP	224-42-0	3.9×10^{-1}	$1.2 \times 10^{+0}$
Dibenz[*a,h*]anthracene BaP	53-70-3	$4.1 \times 10^{+0}$	$4.1 \times 10^{+0}$
Dibenzo[*a,e*]pyrene BaP	192-65-4	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
Dibenzo[*a,h*]pyrene BaP	189-64-0	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
Dibenzo[*a,i*]pyrene BaP	189-55-9	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
Dibenzo[*a,l*]pyrene BaP	191-30-0	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
7H-Dibenzo[*c,g*]carbazole BaP	194-59-2	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
1,2-Dibromo-3-chloropropane	96-12-8	$7.0 \times 10^{+0}$	
1,4-Dichlorobenzene	106-46-7	4.0×10^{-2}	
3,3'-Dichlorobenzidine	91-94-1	$1.2 \times 10^{+0}$	
1,1-Dichloroethane	75-34-3	5.7×10^{-3}	
Diesel exhaust [a]	NA	$1.1 \times 10^{+0}$	
Diethylhexylphthalate	117-81-7	8.4×10^{-3}	8.4×10^{-3}
p-Dimethylaminoazobenzene	60-11-7	$4.6 \times 10^{+0}$	
7,12-Dimethylbenz[*a*]anthracene BaP	57-97-6	$2.5 \times 10^{+2}$	$2.5 \times 10^{+2}$
1,6-Dinitropyrene BaP	42397-64-8	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
1,8-Dinitropyrene BaP	42397-65-9	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
2,4-Dinitrotoluene	121-14-2	3.1×10^{-1}	
1,4-Dioxane	123-91-1	2.7×10^{-2}	
Epichlorohydrin	106-89-8	8.0×10^{-2}	
Ethyl benzene	100-41-4	8.7×10^{-3}	1.1×10^{-2}
Ethylene dibromide	106-93-4	2.5×10^{-1}	
Ethylene dichloride	107-06-2	7.2×10^{-2}	
Ethylene oxide	75-21-8	3.1×10^{-1}	

Table 5.8. Eight-Hour Breathing Rate (L/kg per 8 Hrs) Point Estimates for Males and Females Combined[a,b]

	0<2 years	2<9 years	2<16 years	16<30 years	16-70 years
	Sedentary & Passive Activities (METS ≤ 1.5)				
Mean	200	100	80	30	30
95th Percentile	250	140	120	40	40
	Light Intensity Activities (1.5 < METs ≤ 3.0)				
Mean	490	250	200	80	80
95th Percentile	600	340	270	100	100
	Moderate Intensity Activities (3.0 < METs ≤ 6.0)				
Mean	890	470	380	170	170
95th Percentile	1200	640	520	240	230

[a] For pregnant women, OEHHA recommends using the mean and 95th percentile 8-hour breathing rates based on moderate intensity activity of 16<30 year-olds for 3rd trimester.
[b] Breathing rates in the table may be used for worker, school, or residential exposures

Table 8.4 Recommendations for Fraction of Time at Home (FAH) for Evaluating Residential Cancer Risk

Age Range	Fraction of Time at Residence
3rd Trimester, and 0<2 years	0.85[1]
2<16 years[2]	0.72[1]
16-70 years[3]	0.73

[1] Use FAH = 1 if a school is within the 1×10^{-6} (or greater) cancer risk isopleth

pathway in order to avoid underestimating cancer risk to the public, including children. A possible exception for using high-end breathing rates are when there is exposure to multipathway substances and two of the non-inhalation pathways drive the risk, rather than the inhalation pathway (see Chapter 8).

A. Equation 5.4.1.1: $Dose\text{-}air = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Concentration in air (µg/m^3)
3. {BR/BW} = Daily Breathing rate normalized to body weight (L/kg body weight - day)
4. A = Inhalation absorption factor (unitless)
5. EF = Exposure frequency (unitless), days/365 days
6. 10^{-6} = Micrograms to milligrams conversion, liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.1:

1. {BR/BW} = Daily breathing rates by age groupings, see As supplemental information, the assessor may wish to evaluate the inhalation dose by using the mean point estimates in Table 5.6 to provide a range of breathing rates for cancer risk assessment to the risk manager.
2. Table (point estimates) and Table 5.7 (parametric model distributions for Tier III stochastic risk assessment). For Tier 1 residential estimates, use 95th percentile breathing rates in Table 5.6.
3. A = 1
4. EF = 0.96 (350 days/365 days in a year for a resident)

b: Assumption for EQ 5.4.1.1:

1. The fraction of chemical absorbed (A) is the same fraction absorbed in the study on which the cancer potency or Reference Exposure Level is based.

B. Equation 8.2.4 B: $RISK_{inh\text{-}work} = DOSE_{air} \times CPF \times ASF \times ED/AT$

1. $RISK_{inh\text{-}work}$ = Worker inhalation cancer risk

a: Recommended default values for EQ 8.2.4 B:

1. $DOSE_{air}$ = Calculated for workers in Eq. 5.4.1.2
2. CPF = Substance specific (see Table 7.1)
3. ASF = 1 for working age 16-70 yrs (See Section 8.2.1)
4. ED = 25 years
5. AT = 70 yrs for lifetime cancer risk

DPM and PM2.5 Emission Rates

Updated: 6/4/2018

HRA Notes:

BAAQMD recommends short-term projects "use of actual emission rates over a minimum 3-year duration for cancer risk assessments involving projects lasting 3 years or less." This was not done to be conservative.

Since AERSCREEN calculates maximum 1-hr concentration based on continuous emissions (which is then converted to annual), the 1-hr emission rate should be based on the emission rate during the entire construction period (24 hrs/day, 7 days per week).

To estimate annual average PM2.5 concentrations, divided PM2.5 exhaust emissions by the full 24hrs/day and 7 days/week when construction is occurring. This is still conservative because emissions would not occur for 2-4 months of the year (depending on the year). Could divide by the full 365 days/year for the entire year to be less conservative, but did not do this.

DPM Exhaust Emission Rates

	Construction On-Road Trucks	NOTES
DPM Emissions (lbs)		
Unmitigated	66.3	
Scaling Factors for onroad sources		
Hauling	0.004	haul trip = 35 miles one-way trip (35 miles each way, default); assume 200 meter onsite segment
Time Values for Emission Rates		
Total Days	77	Construction: total calendar days (7 days/week); see note above.
Hours per day	24	24 hrs/day; see note above
Emission Rates - Scaling Factors (g/s)		
Unmitigated	1.61E-05	Scaled on-road emissions by the scaling factors

PM2.5 Exhaust Emission Rates

	Construction On-Road Trucks	NOTES
PM2.5 Exhaust Emissions (lbs)		
Unmitigated	63.4	
Emission Rates - Scaling Factors (g/s)		
Unmitigated	1.54E-05	
Mitigated	0.00E+00	

4.12.2.2 Continuous Sources

If the source is continuously emitting, then the worker is assumed to breathe the long-term annual average concentration during their work shift. Equation 4.1 becomes one and no concentration adjustments are necessary in this situation when estimating the inhalation cancer risk. Note however, if an assessor does not wish to apply the assumption the worker breathes the long-term annual average concentration during the work shift, then a refined concentration can be post-processed as described in Appendix M. All alternative assumptions should be approved by the reviewing authority and supported in the presentation of results.

4.12.2.1 Non-Continuous Sources

When modeling a non-continuously emitting source (e.g., operating for eight hours per day and five days per week), the modeled long-term average concentrations are based on 24 hours a day and seven days per week for the period of the meteorological data set. Even though the emitting source is modeled using a non-continuous emissions schedule, the long-term concentration is still based on 24 hours a day and seven days per week. Thus, this concentration includes the zero hours when the source was not operating. For the offsite worker inhalation risk, we want to determine the long-term concentration the worker is breathing during their work shift. Therefore, the long-term concentration needs to be adjusted so it is based only on the hours when the worker is present. For example, assuming the emitting source and worker's schedules are the same, the adjustment factor is 4.2 = (24 hours per day/8 hours per shift)x(7 days in a week/5 days in a work week). In this example, the long term residential exposure is adjusted upward to represent the exposure to a worker. Additional concentration adjustments may be appropriate depending on the work shift overlap. These adjustments are discussed below.

2.1.3.2 Short Term Projects

In the 2015 HRA Guidelines, OEHHA recommends using actual project duration for short term projects, but cautions that the risk manager should consider a lower cancer risk threshold for very short term projects, because a higher exposure over a short period of time may pose a greater risk than the same total exposure spread over a much longer period of time. To ensure that short-term projects do not result in unanticipated higher cancer impacts due to short-duration high-exposure rates, the Air District recommends that the cancer risk be evaluated assuming that the average daily dose for short-term exposure lasts a minimum of three years for projects lasting three years or less. For residential exposures, the cancer risk calculations should include the most sensitive age groups (beginning with the third trimester of pregnancy) and should use the 95th percentile breathing rates. The Air District recommends following OEHHA guidelines for other aspects of short term projects. In summary, the Air District recommends:

- use of actual emission rates over a minimum 3-year duration for cancer risk assessments involving projects lasting 3 years or less, and
- use of actual project duration for cancer risk assessments on projects lasting longer than 3 years.

AERSCREEN Inputs and Outputs

Updated: 6/1/2018

Notes

Concentrations modeled using AERSCREEN worst-case 1-hr, scaled to annual

Input

	Construction On-Road Trucks	Notes
Title	Cons-Onroadv2	
Units	M	
Source Type	A	
DPM emission rate (g/s)	1	Unit emission rate for scaling
Release Height above ground OR stack height (meters)	2.55	On-road construction trucks and operational loading truck idling: the release height is equal to 0.5 * top of plume height, which is equal to 1.7 * the vehicle height, which is equal to 2.5 meters; equation = 0.5 * 1.7 * 3 = 2.55 (USEPA 2012).
Maximum horizontal dimension of area source (meters)	200	Construction trucks: 9m width (USEPA Haul Roads workgroup 2012 = VW [3] + 6m for single lane roadways) by 200m length
Minimum horizontal dimension of area source (meters)	13.4	width = two-lane roadway = Road Width +6 m for two lane roadwasy = 3.17*2+6=13.4m
Initial Vertical Dimension (meters)	2.37	Initial vertical dimension for off-road construction equipment from the CRRP-HRA (BAAQMD, SF DPH & SF Planning, 2012). Initial vertical dimension for on-road construction trucks is equal to the top of the plume height ÷ 2.15 = 1.7 * 3 / 2.15 = 2.37.
Stack diameter (meters)	n/a	From the CRRP-HRA (Table 13) (BAAQMD, SF DPH & SF Planning, 2012)
Stack temperature (K)	n/a	""
Exit velocity (m/s)	n/a	""
rural/urban	urban	Although CRRP uses rural (page 31), AERSCREEN is already exceedingly conservative, so per the AQTR SOW used urban instead.
population of urban area	*234,962*	https://www.census.gov/quickfacts/fact/table/fremontcitycalifornia,US/PST045217
min distance to ambient air (meters)	default	
NO2 chemistry	1	
Include building downwash?	n/a	
Include terrain heights?	n/a	
max distance to probe	default	
include discrete receptors	no	
use flagpole receptors	yes	
flagpole receptor height (meters)	1.5	BAAQMD 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards
source elevation	default	
min ambient temperature (F)	*42*	http://www.intellicast.com/Local/History.aspx?location=USCA0403
max ambient temperature (F)	*77*	http://www.intellicast.com/Local/History.aspx?location=USCA0403
min ambient temperature (K)	279	
max ambient temperature (K)	298	
min wind speed (m/s)	default	
anemometer height (m)	default	
surface characteristics	2	
Dominant surface profile	7	
dominant climate profile	1	
adjust	no	
debug	no	
Output file name	Cons-Onroadv2.out	

"VH" means vehicle height [~3m for typical haul trucks; ~10m for large mining trucks]
"VW" means vehicle width [~3m for typical haul trucks; ~10m for large mining trucks]
"VL" means vehicle length [~10m for typical haul trucks; ~20m for large mining trucks]

Recommended Area Source Configuration

- Length – length of roadway segment (Aspect ratio in AERMOD extended to 100:1 before warning is issued. See Model Change Bulletin #3, Miscellaneous item #10)
- Width – VW + 6m for single lane / Road Width + 6m for two-lane (same comment as for volume, two single-lanes is an option)
- Top of plume height – 1.7 x VH
- Release height – 0.5 x top of plume height
- Sigma Z – Top of Plume height / 2.15
- Emissions input as $g/s/m^2$

Outputs

	Construction On-Road Trucks	
Closest Receptors		
Distance (m)		
Residents:	12	see SensitiveReceptors tab
Daycares:	30	
Schools	35	
Distance for lookup (m)		
Residents:	1	closest whole number from AERSCREEN output distances below
Daycares:	25	
Schools	25	
Concentrations - Maximum 1-hr (ug/m3)		
Residents:	*4,893.5*	
Daycares:	*5,012.2*	
Schools	*5,012.2*	
Concentrations - Average Annual (ug/m3)		
Residents:	489.35	
Daycares:	501.22	
Schools	501.22	

AERSCREEN Output

Distance (m)	oncentration
1	4893.5
25	5012.2
50	5223.4
75	5309.8
100	5382.1
101	5384.9
125	2208.6
150	1280.6
175	959.14
200	759.93
225	624.84
250	527.84
275	455.01
300	398.42
325	353.27
350	316.48
375	285.99
400	260.33
425	238.44
450	219.58
475	203.2
500	188.85

Sensitive Receptors

Updated: 6/1/2018

Type	Description	Address	Distance from Haul Route
Residents:	Single-Family Residences	Nearest Residence to Haul Route	40
Daycares:	Adventure Time Vallejo Mill	38569 Canyon Heights Dr., Fremont, CA	100
Schools	Vallejo Mill Elementary School	38569 Canyon Heights Dr., Fremont, CA	115

Constants

Updated:	12/7/2017	
grams per ton	907,185	
grams per MT	1,000,000	
grams per kg	1,000	
lbs per ton	2,000	
hrs/day	24	
work hrs/day	10	12 hour construciton window per day, but max of 8 hrs of equipment operation: Construction Data Needs - AQ-GHG (BAAQMD)
hrs/min	0.0166667	
seconds/hr	3,600	
grams per lb	453.592	
1hr to annual concentration	0.1	https://www3.epa.gov/ttn/scram/models/screen/aerscreen_userguide.pdf
square feet per acre	43,560	
feet per mile	5,280	
feet per meter	3.28084	
therms per BTU	1.00E-05	

PM Fractions

PM10 Fraction of Total PM - diesel	0.976	Table A - Updated CEIDARS Table with PM2.5 Fractions, INTERNAL COMBUSTION - DISTILLATE AND DIESEL-EXCEPT ELECTRIC GENERATION
PM2.5 Fraction of Total PM - diese	0.967	Table A - Updated CEIDARS Table with PM2.5 Fractions, INTERNAL COMBUSTION - DISTILLATE AND DIESEL-EXCEPT ELECTRIC GENERATION
NMHC frac - diesel	5%	Policy: CARB Emission Factors for CI Diesel Engines – Percent HC in Relation to NMHC + Nox: http://www.baaqmd.gov/~/media/Files/Engineering/policy_and_procedures/Engines/EmissionFactorsforDieselEngines.ashx
NOX frac - deisel	95%	Policy: CARB Emission Factors for CI Diesel Engines – Percent HC in Relation to NMHC + Nox: http://www.baaqmd.gov/~/media/Files/Engineering/policy_and_procedures/Engines/EmissionFactorsforDieselEngines.ashx

Start date and time 06/04/18 16:20:32

AERSCREEN 16216

Cons-Onroadv2

Cons-Onroadv2

---------- DATA ENTRY VALIDATION ----------

	METRIC	ENGLISH
** AREADATA **	----------	----------
Emission Rate:	1.0000 g/s	7.937 lb/hr
Area Height:	2.55 meters	8.37 feet
Area Source Length:	200.00 meters	656.17 feet
Area Source Width:	13.40 meters	43.96 feet
Vertical Dimension:	2.37 meters	7.78 feet
Model Mode:	URBAN	
Population:	234962	
Dist to Ambient Air:	1.0 meters	3. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 279.0 / 298.0 K 42.5 / 76.7 Deg F

```
 Minimum Wind Speed:     0.5 m/s


 Anemometer Height:   10.000 meters


 Dominant Surface Profile: Urban

 Dominant Climate Type:    Average Moisture


 Surface friction velocity (u*): not adjusted


DEBUG OPTION OFF





 AERSCREEN output file:

 Cons-Onroadv2.out




 *** AERSCREEN Run is Ready to Begin




 No terrain used, AERMAP will not be run

**************************************************
```

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...

Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season	Albedo	Bo	zo
Winter	0.35	1.50	1.000
Spring	0.14	1.00	1.000
Summer	0.16	2.00	1.000
Autumn	0.18	2.00	1.000

Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl

Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl

Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl

Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl

Buildings and/or terrain present or rectangular area source, skipping probe

FLOWSECTOR started 06/04/18 16:22:48

****

Running AERMOD

```
 Processing Winter


Processing surface roughness sector  1


****************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   5


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ******************************************


  Running AERMOD

 Processing Spring
```

```
Processing surface roughness sector  1


**************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


**************************************************

Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   5


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ******************************************


  Running AERMOD

 Processing Summer


Processing surface roughness sector  1
```

```
****************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   5


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 *******************************************


  Running AERMOD

 Processing Autumn


Processing surface roughness sector  1


****************************************************

Processing wind flow sector   1
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************
Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   5


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


FLOWSECTOR   ended 06/04/18 16:22:53


REFINE       started 06/04/18 16:22:53


 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


REFINE       ended 06/04/18 16:22:56
```

```
**********************************************

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

**********************************************


Ending date and time  06/04/18 16:22:57
```

Cons-Onroadv2_max_conc_distance

```
 Concentration     Distance Elevation  Diag  Season/Month   Zo sector       Date
 H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS     HT
REF TA     HT
   0.48935E+04         1.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.50122E+04        25.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.52234E+04        50.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.53098E+04        75.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.53821E+04       100.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
*  0.53849E+04       101.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22086E+04       125.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.12806E+04       150.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.95914E+03       175.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.75993E+03       200.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.62484E+03       225.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.52784E+03       250.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.45501E+03       275.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.39842E+03       300.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.35327E+03       325.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.31648E+03       350.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.28599E+03       375.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.26033E+03       400.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.23844E+03       425.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.21958E+03       450.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20320E+03       475.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18885E+03       500.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17588E+03       525.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16468E+03       550.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15468E+03       575.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14569E+03       600.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.13758E+03       625.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.13022E+03       650.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.12353E+03       675.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.11742E+03       700.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.11181E+03       725.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.10665E+03       750.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.10189E+03       775.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.96901E+02       800.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.92887E+02       825.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.89153E+02       850.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.85671E+02       875.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.82419E+02       900.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.79376E+02       925.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.76524E+02       950.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.73845E+02       975.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.71327E+02      1000.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.68955E+02      1025.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.66719E+02      1050.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.64608E+02      1075.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.62612E+02      1100.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.60723E+02      1125.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.58935E+02      1150.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.57238E+02      1175.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.55629E+02      1200.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.54100E+02      1225.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.52646E+02      1250.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.51263E+02      1275.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.49947E+02      1300.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.48693E+02      1325.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.47497E+02      1350.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.46356E+02      1375.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.45268E+02      1400.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.44228E+02      1425.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.43235E+02      1450.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.42285E+02      1475.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.41377E+02      1500.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.40508E+02      1525.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.39675E+02      1550.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.38878E+02      1575.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.38115E+02      1600.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.37382E+02      1625.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.36680E+02      1650.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.36006E+02      1675.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.35359E+02      1700.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.34738E+02      1725.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.34141E+02      1750.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.33568E+02      1775.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.33016E+02      1800.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.32486E+02      1825.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.31976E+02      1850.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.31484E+02      1875.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.31011E+02      1900.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.30556E+02      1924.99      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.30116E+02      1950.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.29693E+02      1975.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.29284E+02      2000.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.28890E+02      2025.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.28509E+02      2050.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.28142E+02      2075.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.27787E+02      2100.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.27444E+02      2125.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.27112E+02      2150.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.26791E+02      2175.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.26480E+02      2200.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.26179E+02      2225.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.25888E+02      2250.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.25606E+02      2275.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.25332E+02      2300.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.25067E+02      2325.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.24810E+02      2350.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.24560E+02      2375.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.24318E+02      2400.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.24082E+02      2425.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.23853E+02      2450.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.23631E+02      2475.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.23414E+02      2500.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.23204E+02      2525.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22999E+02      2550.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22799E+02      2575.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22605E+02      2600.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22416E+02      2625.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22231E+02      2650.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.22051E+02      2675.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.21875E+02      2700.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.21704E+02      2725.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.21537E+02      2750.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.21373E+02      2775.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.21213E+02      2800.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.21057E+02      2825.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20905E+02      2850.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20755E+02      2875.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20609E+02      2900.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20466E+02      2925.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20326E+02      2950.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20189E+02      2975.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.20055E+02      3000.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19923E+02      3025.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19794E+02      3050.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19667E+02      3075.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19543E+02      3100.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19421E+02      3125.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.19302E+02      3150.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19184E+02      3175.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.19069E+02      3200.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18955E+02      3225.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18844E+02      3250.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18735E+02      3275.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18627E+02      3300.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18521E+02      3325.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18417E+02      3350.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18315E+02      3375.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18214E+02      3400.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18115E+02      3425.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.18017E+02      3450.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17921E+02      3475.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17826E+02      3500.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17733E+02      3525.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.17640E+02      3550.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17550E+02      3575.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17461E+02      3600.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17372E+02      3625.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17285E+02      3650.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17200E+02      3675.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17115E+02      3700.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.17032E+02      3725.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16949E+02      3750.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16868E+02      3775.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16788E+02      3800.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16709E+02      3825.00      0.00   5.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16631E+02      3850.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16553E+02      3875.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16477E+02      3900.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16402E+02      3925.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.16327E+02      3950.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16254E+02      3975.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16181E+02      4000.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16109E+02      4025.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.16038E+02      4050.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15968E+02      4075.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15899E+02      4100.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15830E+02      4125.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15762E+02      4150.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15695E+02      4175.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15629E+02      4200.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15563E+02      4225.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15498E+02      4250.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15434E+02      4275.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15370E+02      4300.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15307E+02      4325.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
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   0.15245E+02      4350.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15184E+02      4375.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15123E+02      4400.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15062E+02      4425.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.15002E+02      4450.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14943E+02      4475.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14885E+02      4500.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14827E+02      4525.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14769E+02      4550.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14712E+02      4575.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14656E+02      4600.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14600E+02      4625.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14545E+02      4650.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14490E+02      4675.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14436E+02      4700.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14382E+02      4725.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
```

```
   0.14329E+02      4750.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14276E+02      4775.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14224E+02      4800.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14172E+02      4825.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14121E+02      4850.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14070E+02      4875.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.14019E+02      4900.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.13969E+02      4925.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.13920E+02      4950.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.13871E+02      4975.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
   0.13822E+02      5000.00      0.00   0.0        Winter       0-360   10011001
-1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.50   0.35    0.50   10.0
298.0    2.0
```

Appendix C

Regionally Occurring Special-Status Species

Special-Status Species	Regulatory Status (Federal/State/ Local/S)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Fish				
Hypomesus transpacificus Delta smelt	FT/CT/--	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus mykiss irideus pop. 8 Central California Coast steelhead	FT/--/--	Spawning occurs in heads of riffles or tails of pools with beds of loose gravel (< 15 centimeters average diameter) and deep pools, undercut banks, or logs nearby.	Consult Agency	No. The project site does not provide habitat for this species.
Spirinchus thaleichthys Longfin smelt	--/CT/--	Found close to shore, in bays and estuaries and ascends coastal streams to spawn.	Consult Agency	No. The project site does not provide habitat for this species.
Invertebrates				
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	Found in ephemeral wetland habitats and vernal pools that fill by winter and hold water until June on clay, volcanic, and alluvial soils within grassland communities from 5 to 145 meters.	Wet season: November to April (adults) Dry season: May to October (cysts)	No. The project site does not provide habitat for this species.
Branchinecta lynchi Vernal pool fairy shrimp	FT /--/--	Found commonly in a small swale earth slump or basalt-flow depression basin with grassy or muddy bottom in unplowed grassland from 10 to 290 meters in the Central Valley and up to 1,159 meters in the South Coast Mountains Region.	Wet season: December to May (adults) Dry season: June to November (cysts)	No. The project site does not provide habitat for this species.
Callophrys mossii bayensis San Bruno elfin butterfly	FE/--/--	Found in the fogbelt of steep north facing slopes that receive little direct sunlight. Larval food plant is stonecrop (*Sedum spathulifolium*), which occurs on mainly north-facing slopes at elevations from 61 to 1,524 meters.	February-April (mating flight) Wet Season (larvae)	No. The project site does not provide habitat for this species.
Euphydryas editha bayensis Bay checkerspot butterfly	FT/--/--	Found on shallow, serpentine-derived or similar soils. Larval host plant is dwarf plantain (*Plantago erecta*). If dwarf plantain is unavailable, larvae may also use purple owl's clover (*Castilleja densiflora* or *Castilleja exserta*).	February-May (mating flight) Wet Season (larvae)	No. The project site does not provide habitat for this species.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Found in a variety of natural and artificial, seasonally ponded habitat types including: vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities. Wetland habitats vary in size from 2 square meters to 356,253 square meters and vary in depth from 2 to 15 centimeters.	Wet season: November to April (adults) Dry season: May to October (cysts)	No. The project site does not provide habitat for this species.

Special-Status Species	Regulatory Status (Federal/State/ Local/S)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Amphibians				
Ambystoma californiense California tiger salamander	FT/CT/--	Ponded water required for breeding. Adults spend summer in small mammal burrows.	Drift fence studies during fall and winter for upland habitats. Aquatic larval surveys from January-June	**Yes.** The area surrounding the project site could provide upland habitat for this species, and the species could enter the site through openings in the exclusion fencing installed for the reclamation project, if the fencing were not maintained.
Rana boylii Foothill yellow-legged frog	--/Candidate T, CSC/ --	Found in shallow flowing streams with some cobble in a variety of habitats including woodlands, riparian forest, coastal scrub, chaparral, and wet meadows from 0 to 1,830 meters. Rarely encountered far from permanent water sources.	March-June	No. While Alameda Creek occurs in the vicinity of the project site; this species is not known to occur outside of permanent water sources. Therefore, this species in unlikely to utilize the project site as overland movement.
Rana draytonii California red-legged frog	FT/--/--	Typically found in or within 300 feet of aquatic habitat. Breed in quiet, slow moving streams, ponds, or marsh communities with emergent vegetation or dense riparian vegetation. May disperse up to two miles between suitable aquatic habitat.	Aquatic surveys of breeding sites between January and September. Optimally after April 15.	**Yes.** The area surrounding the project site could provide upland habitat for this species, and the species could enter the site through openings in the exclusion fencing installed for the reclamation project, if the fencing were not maintained.
Reptiles				
Anniella pulchra pulchra Silvery legless lizard	--/CSC/--	Found in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Lives mostly underground, burrowing in loose sandy soil. Sometimes found on the surface at dusk and at night.	Dawn and dusk	No. The project site does not provide habitat for this species.
Emys marmorata Western pond turtle	--/CSC/--	Found in permanent ponds, lakes, streams, irrigation ditches, permanent pools, and along intermittent streams. Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. Found from 0 to 1,430 meters.	Year round	**Yes.** The area surrounding the project site could provide upland habitat for this species, and the species could enter the site through openings in the exclusion fencing installed for the reclamation project, if the fencing were not maintained.
Masticophis lateralis euryxanthus Alameda whipsnake	FT/CT/--	Found in canyons, rocky hillsides, chaparral, scrublands, open woodlands, pond edges, and stream courses.	Year round	**Yes.** The area surrounding the project site could provide upland habitat for this species, and the species could enter the site through openings in the exclusion fencing installed for the reclamation project, if the fencing were not maintained.

Special-Status Species	Regulatory Status (Federal/State/ Local/S)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Mammals				
Antrozous pallidus Pallid bat	--/CSC/--	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests from 0 to 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges.	Year round	No. The project site does not provide roosting habitat for this species.
Corynorhinus townsendii Townsend's big-eared bat	--/CSC/--	Uses caves, buildings, and tree cavities for night roosts. Maternity and hibernation colonies typically are in caves and mine tunnels.	Year round	No. The project site does not provide roosting habitat for this species.
Eumops perotis californicus Western mastiff bat	--/CSC/--	Found in rugged, rocky areas where suitable crevices are available for day-roosts. Characteristically, day-roosts are located in large cracks in exfoliating slabs of granite or sandstone.	Year round	No. The project site does not provide roosting habitat for this species.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/CSC/--	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees.	Year round	**Yes**. Potential nests have been identified near the project site boundaries.[1] The species could enter the site through openings in the exclusion fencing installed for the reclamation project, if the fencing were not maintained.
Taxidea taxus American badger	--/CSC/--	Found in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, parklands, and cold desert areas. Cultivated lands have been reported to provide little usable habitat for this species.	Year round	No. The project site does not provide habitat for this species.
Reithrodontomys raviventris Salt marsh harvest mouse	FE/CE/--	Requires dense cover including pickleweed (*Salicornia virginica*). Seldom found in cordgrass or alkali bulrush. Found in marshes with an upper zone of peripheral halophytes (salt-tolerant plants).	Year round	No. The project site does not provide habitat for this species.
Sorex vagrans halicoetes Salt-marsh wandering shrew	--/CSC/--	Found in marsh and swamp and wetland.	Year round	No. The project site does not provide habitat for this species.
Vulpes macrotis mutica San Joaquin kit fox	FE/CT/--	Found in alkali sink, valley grassland, and foothill woodland. Hunts in areas with low sparse vegetation that allows good visibility and mobility. Pupping dens are built in loosely textured soils from 110 to 900 meters.	Year round	No. While marginally suitable habitat occurs within the nonnative grassland given the lack of friable soils, no denning habitat occurs within the project site.

Special-Status Species	Regulatory Status (Federal/State/ Local/S)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Birds				
Agelaius tricolor Tricolored blackbird	--/CT/--	Nests in dense blackberry, cattail, tules, bulrushes, sedges, willow, or wild rose within freshwater marshes. Nests in large colonies of at least 50 pairs (up to thousands of individuals).	Nesting	No. Although the nonnative grassland provides foraging habitat, no nesting habitat occurs within the project site.
Aquila chrysaetos Golden eagle	--/FP/--	Generally open country, in prairies, arctic and alpine tundra, open wooded country, and barren areas, especially in hilly or mountainous regions.	February-September	No. The project site does not provide breeding habitat for this species.
Athene cunicularia Burrowing owl	--/CSC/--	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	Year round	**Yes.** The area adjacent to the project site provides habitat for the species and the species is known from the region.
Charadrius alexandrinus nivosus Western snowy plover	FT/CSC/--	Nests on the ground on broad open beaches or salt or dry mud flats, where vegetation is sparse or absent (small clumps of vegetation are used for cover by chicks); nests beside or under objects or in open areas.	Year round	No. The project site does not provide breeding habitat for this species.
Circus cyaneus Northern harrier	--/CSC/--	Known from coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3,000 meters.	Year round	No. The project site does not provide breeding habitat for this species.
Coccyzus americanus Yellow-billed cuckoo	FT/CE/--	Breeds and forages in valley foothill and desert riparian communities. Requires dense riparian thickets (especially willow and salt-cedar) of slow-moving watercourses. This species will also utilize orchards.	June-September	No. The project site does not provide breeding habitat for this species.
Coturnicops noveboracensis Yellow rail	--/CSC/--	Breeds in emergent wetlands, grass or sedge marshes, and wet meadows.	Year round	No. The project site does not provide breeding habitat for this species.
Elanus leucurus White-tailed kite	--/CFP/--	Permanent resident of coastal and valley lowlands. Habitats include savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Nesting occurs in trees.	Year round	**Yes.** Although the project site does not provide nesting habitat, the trees in the oak woodland and riparian habitat in the vicinity of the project site provide nesting habitat for this species.
Falco peregrinus anatum American peregrine falcon	FD/CD, FP/--	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on man-made structures and in the hollows of old trees or open tops of cypress, sycamore or cottonwood trees 50 to 90 feet above the ground.	Year round (some migrate)	No. The project site does not provide breeding habitat for this species.

Special-Status Species	Regulatory Status (Federal/State/ Local/S)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Birds (cont.)				
Geothlypis trichas sinuosa Salt-marsh common yellowthroat	--/CSC/--	Inhabits salt marshes. Nests just above ground or over water, in thick herbaceous vegetation, often at base of shrub or sapling, sometimes higher in weeds or shrubs up to about one meter.	Year round	No. The project site does not provide breeding habitat for this species.
Laterallus jamaicensis coturniculus California black rail	--/CT/--	Nests in or along the edge of marshes, usually in site hidden in marsh grass or at the base of Salicornia.	Year round	No. The project site does not provide breeding habitat for this species.
Melospiza melodia pusillula Alameda song sparrow	--/CSC/--	Commonly found in saltmarsh, brackish marsh, and fringe areas, where marsh vegetation is limited to edges of dikes, landfills, or other margins of high ground bordering salt or brackish water areas.	Year round	No. The project site does not provide breeding habitat for this species.
Rallus longirostris obsoletus California clapper rail	FE/CE/--	Found in salt water and brackish marshes traversed by tidal sloughs. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Year round	No. The project site does not provide breeding habitat for this species.
Riparia riparia Bank swallow	--/CT/--	Colonial breeder found in open and partly open situations, frequently near flowing water. Nests on steep sand, dirt, or gravel banks, in burrows dug near the top of the bank, along the edge of inland water, or along the coast, or in gravel pits or road embankments.	April-September	No. The project site does not provide breeding habitat for this species.
Rynchops niger Black swimmer	--/CSC/--	Found in alkali playa and sand shores.	Year round	No. The project site does not provide breeding habitat for this species.
Setophaga petechial Yellow warbler (nesting)	--/CSC/--	Found in riparian forest, riparian scrub, and riparian woodland.	Year round	**Yes.** The project site does not provide nesting habitat, the trees in the riparian habitat in the vicinity of the project site provide nesting habitat for this species.
Sternula antillarum California least tern	FE/CE/--	Breeds along seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests usually in shallow depression on level ground on sandy or gravelly beaches and banks of rivers or lakes, typically in areas with sparse or no vegetation.	April-May	No. The project site does not provide breeding habitat for this species.

[1]Zentner Planning & Ecology. 2018b. Mission Clay Properties. Soil Remediation Biotic Assessment. Project 956 MCP. Prepared for BBG KRG Inc. February 2018.

Appendix D

Native American Consultation Records

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: ___Misson Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272

County:____Alameda_____

USGS Quadrangle Name: Niles Quad_____

Township:__004s_____ **Range:**___001W__ **Section(s):_____**

Company/Firm/Agency:__City of Fremont, Planning Division

Street Address:___39550 Liberty Street, P.O. Box 5006

City:__Fremont **Zip:___94537-5006**

Phone:___(510) 494-4450

Fax:_____

Email:___broth@fremont.gov

Project Description:

The proposed project involves a Preliminary Grading Plan to allow the the excavation and relocation of approximately 21,000 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose. The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. (APN: 507 076200202)

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

June 4, 2018

Bill Roth

City of Fremont

Sent by Email: broth@fremont.gov

Re: Mission Clay Preliminary Grading Plan, Alameda County

Dear Mr. Roth,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contacts
6/4/2018

Coastanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona , CA 91766
rumsen@aol.com
(909) 524-8041 Cell
(909) 629-6081

Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister , CA 95024
ams@indiancanyon.org
(831) 637-4238

Ohlone/Costanoan

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 851-7747 Office
(650) 332-1526 Fax

Ohlone/Costanoan

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
P.O. Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
(408) 314-1898

(510) 581-5194

Ohlone / Costanoan

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3388
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 Cell

(510) 687-9393 Fax

Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was pr oduced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed
Mission Clay Preliminary Grading Plan, Alameda County

CITY OF
Fremont

June 11, 2018

Coastanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA 91766

RE: <u>Assembly Bill 52 Consultation</u> for Mission Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272), 2225 Old Canyon Road; APN: 507-762-2-2

Dear Mr. Cerda,

This letter is intended to notify you of a proposed project involving the excavation and removal of oil-contaminated soil at the Mission Clay Quarry Site at the northeastern terminus of Old Canyon Road, east of Niles Canyon Road (please see attached aerial map) at 2225 Old Canyon Road (APN: 507-762-2-2) in the Niles Community Planning Area of Fremont. The City of Fremont is the lead agency for the environmental review for this soil remediation project. As the project also involves the excavation and fill of a small wetland (0.097 acres), to remove contaminated soil and groundwater, the San Francisco Regional Water Quality Control Board (SFRWQCB) is a responsible agency. The environmental review for the project is being done in coordination with the SFRWQCB. Removal of the soil is necessary to prevent potential contamination of groundwater.

Assembly Bill 52 (AB 52), which became law January 1, 2015, requires that, as part of the CEQA review process, public agencies provide early notice of a project to California Native American Tribes, and if formally requested in writing by a Tribe, consult with Tribes in regards to the project. With this letter, the City is hereby providing notice per AB 52 and as part of the CEQA process for the project.

The purpose of AB 52 and the consultation, if requested, is to identify and consider potential impacts to a new category of resources called Tribal Cultural Resources (TCRs)[1], and take into account tribal cultural values in addition to scientific and archaeological values when determining possible impacts and mitigation. An impact to a TCR may result in a significant impact under CEQA and require avoidance or minimization of the impacts.

A summary of the proposed project and site background is provided below.

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[1] Public Resources Code (PRC) Section 21074(a) defines Tribal Cultural Resources as either of the following:

• Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either: (1) included or determined to be eligible for inclusion in the California Register of Historical Resources; or (2) included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1; or

• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

Proposed Project – Mission Clay Preliminary Grading Plan

The proposed project includes the excavation and relocation of approximately 21,000 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil.[2] The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The applicant, BBG KRG, Inc., seeks approval of a Preliminary Grading Plan from the City of Fremont, to permit the excavation of the contaminated soil.

Site Background

The Mission Clay Products (MCP or Mission Clay) property consists of approximately 87 acres on the south side of Alameda Creek in Niles Canyon in the City of Fremont (see Figures 1 and 2). The property has a long history of intensive mining and manufacturing uses. In 1907, a clay mine and brick manufacturing plant were built on-site to manufacture bricks for re-building San Francisco and other parts of the Bay Area after the 1906 earthquake. The California Pressed Brick Company (CPB) constructed 14 kilns, the largest being a Yougren Gas-Fired continuous kiln made of over one million bricks with a chimney 125 feet tall and installed a bunker fuel vault and oil house.

From 1910 to the 1930s, the kilns and other facilities used a variety of heavy oil (Bunker C and crude oil) to fuel manufacturing. Evidently these fuels were stored in earthen pits that allowed large amounts of the oil to seep into the ground. Over the next 70 to 80 years, the oil continued to move down through about 30 feet of soil until it reached bedrock. Today there are two thin (two-foot- thick) deposits of the oil resting on bedrock about 30 to 35 feet below the ground surface.

Mission Clay bought the property in 1960 and renovated the manufacturing plant. By that time, crude oil and similar fuels had been replaced by gasoline and diesel and no one associated with the property knew of the past oil leakage. Mission Clay shut down the plant in 1992 and began a clean-up operation. The bunker fuel oil vaults in the northeastern part of the developed area were removed in 2000, along with about 16,000 tons of soil below these vaults contaminated by leakage. To ensure that no additional contaminants occurred on-site, Mission Clay, working with the City of Fremont, the Regional Water Quality Control Board (RWQCB), and the Alameda County Water District (ACWD) completed several exploratory wells at depth. Those wells were the first evidence of this deep layer of oil contamination. Over the next decade, Mission Clay installed a number of wells and similar measures to try to define the extent and character of the contamination in consultation with the agencies. That effort has identified two areas of contamination, both about 32 feet below the surface and resting on bedrock.

Mission Clay then attempted to develop a solution to the contamination. Soil engineers looked at installing containment walls, injecting biologic breakdown agents, extraction pumping and other methods. Each of these options was determined to be infeasible. The greatest concern has been that, while the oil itself is relatively inert and not hazardous, when it mixes with groundwater, it gives off a variety of volatile compounds that could pollute local groundwater. More importantly, that polluted groundwater could reach Alameda Creek, which is a drinking water source. Accordingly, Mission Clay, in consultation with the City, ACWD and RWQCB concluded that the only practicable approach to eliminating the contamination would be to remove the surface soils, excavate the contaminated soil, and truck that material to Newby Island, where it could be used as cover for the trash deposits there.

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[2] The landfill address is 1601 Dixon Landing Road, Milpitas. Although the address and public street access to the site are both in the City of Milpitas, the landfill property is entirely within the City of San Jose.

Proposed Soil Remediation Areas

There are two sites on the property with impacted soils, the Bunker Fuel Vault Area and the Oil House Area (see attached Remediation Grading Plan).

Bunker Fuel Vault Area

The former bunker oil fuel vault area is in the northeastern corner of the former manufacturing area, which is near the center of the site. This area is impacted by Bunker C fuel originating from the former fuel vaults. Bunker C fuel was found in the soil during the original closure efforts and much of the soil in this area was removed in 2000 and only a small area of free product remains.

Oil House Area

The former oil house area is in the southwestern part of the former manufacturing area. The contaminant identified in this area is unrefined crude oil. Crude oil was phased out by the 1950s but an oil-fired kiln in the former oil house area dating from the early 1900s has been identified as the likely source for the crude oil in the soil. The unrefined crude oil free product extends over an area of approximately 400 feet by 100 feet, or approximately one acre.

Prior to implementing any ground-disturbing activity associated with the project, a qualified archaeologist shall be retained to assure protection and recovery of cultural resources, should any be encountered during project work, in compliance with applicable laws and policies. Grading and other activities that could adversely affect cultural resources shall be avoided until clearance to proceed is received by the archaeologist and granted by the City.

To request consultation under AB 52 for the project, please contact me within 30 days of receipt of this letter. Failure to respond within this timeframe means that the City is not required to enter into consultation with you on this matter.

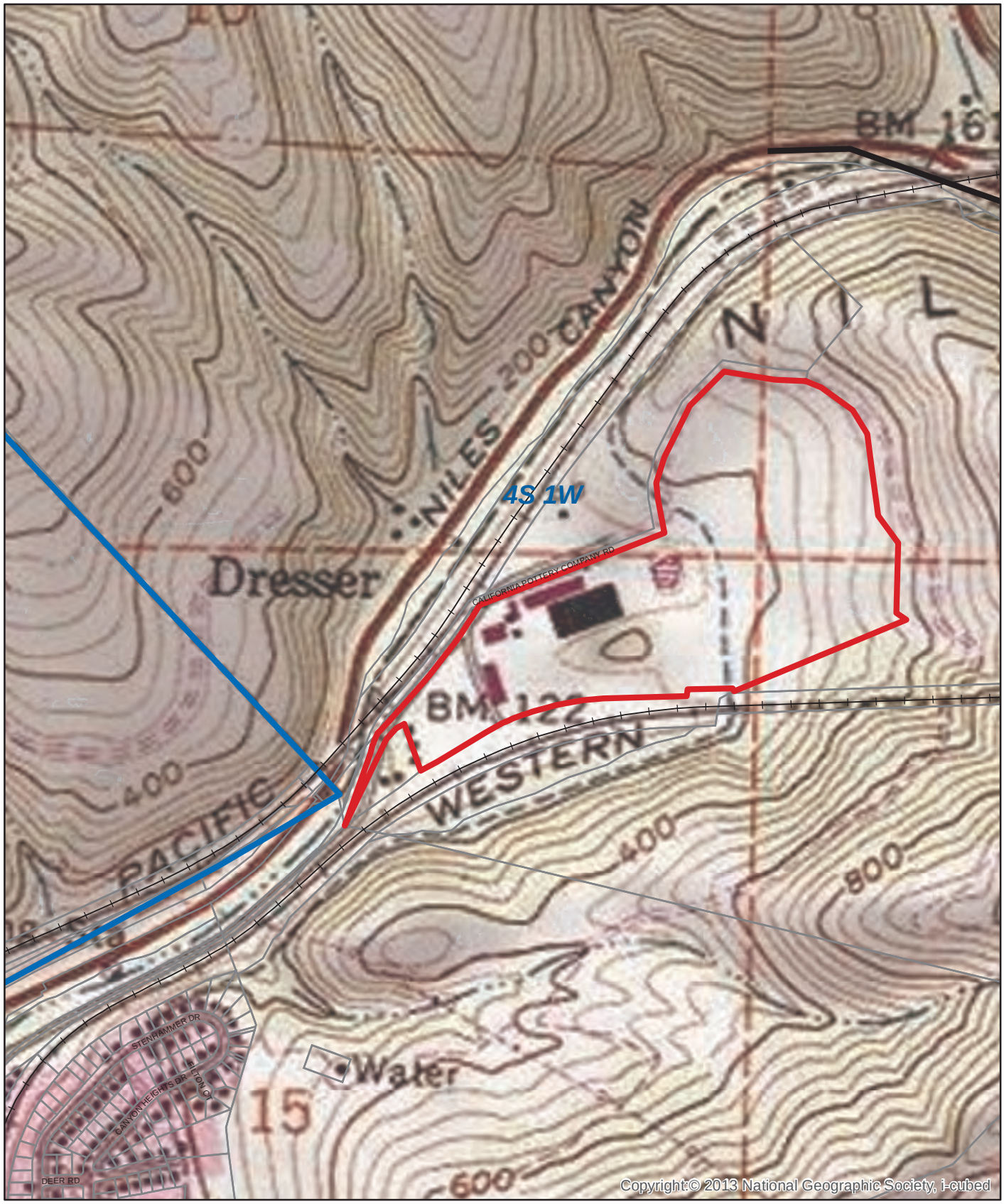
If you have any questions or comments regarding this project, please contact me directly at (510) 494-4450 or broth@fremont.gov.

Sincerely,

Bill Roth
Associate Planner

Attachments: Remediation Grading Plan, GIS-Aerial, B&W Aerial (1930-1940), Quad map

cc: Andrew Galvan, The Ohlone Indian Tribe
Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan
Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista
Katherine Erolinda Perez, North Valley Yokuts Tribe
Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area
Tony Cerda, Costanoan Rumsen Carmel Tribe



PLN2018-00272 Mission Clay PGP
APN(s): 507 076200202
USGS Quad: Niles Township: 004S Range: 001W

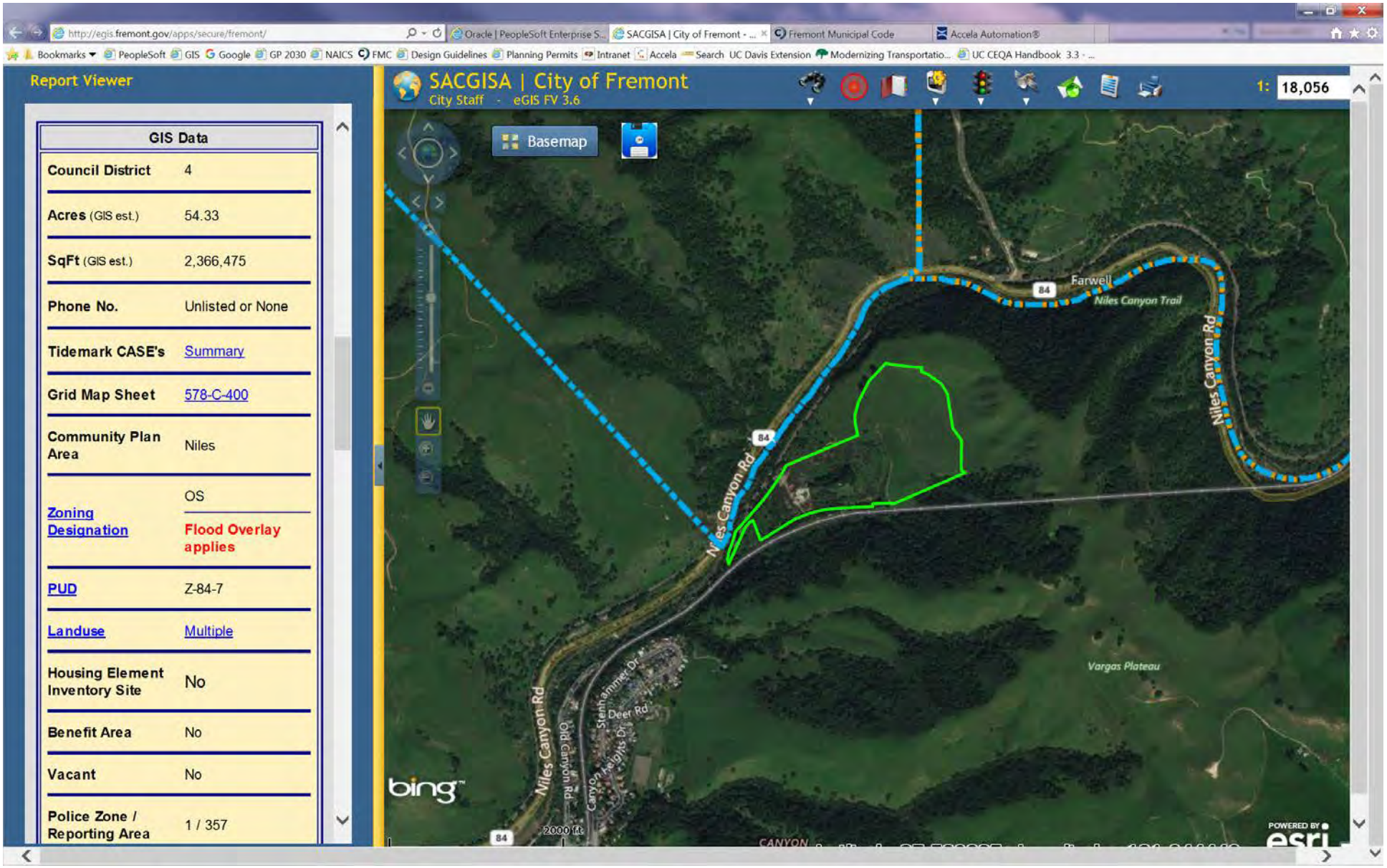
0 250 500 1,000 Feet

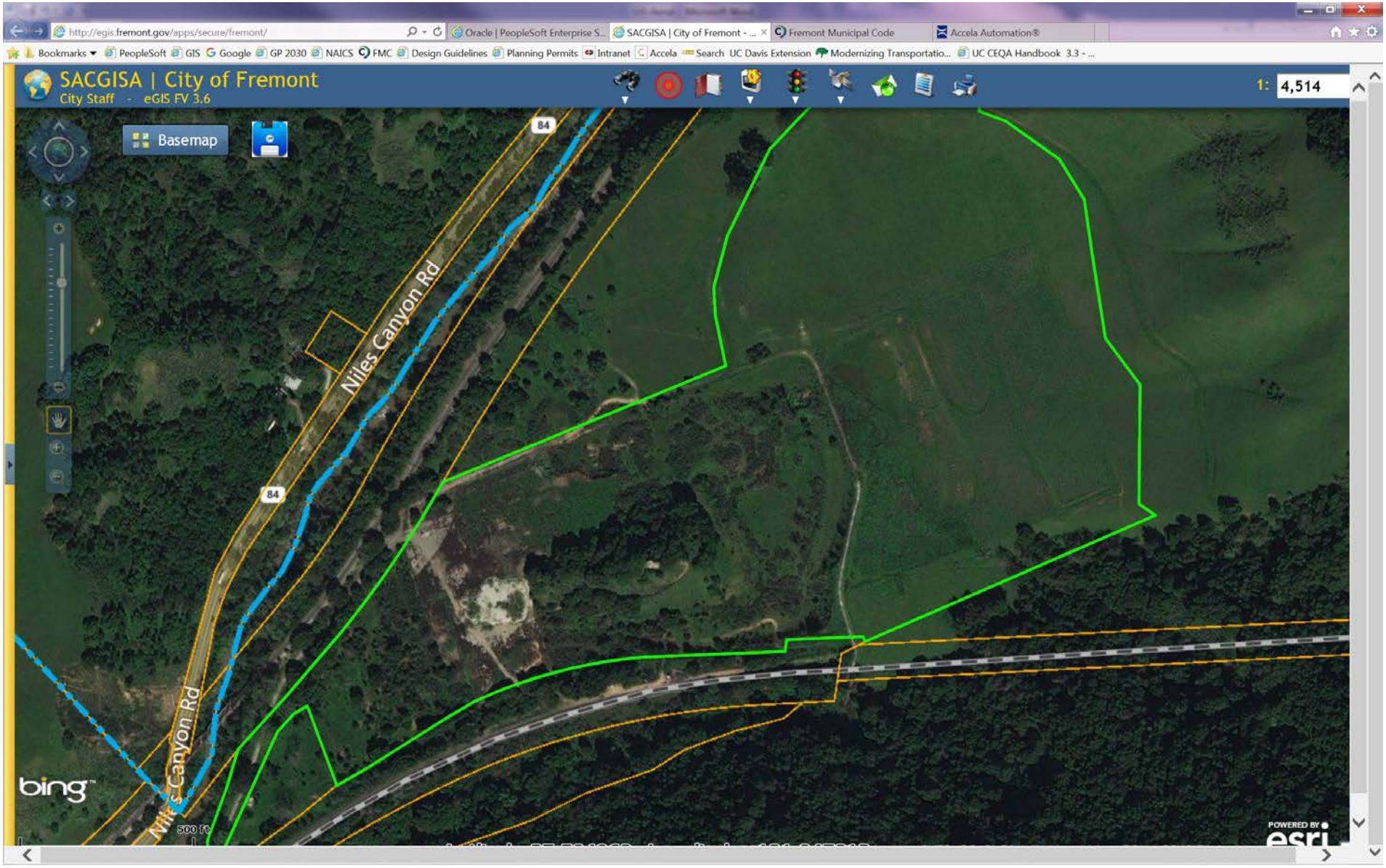
Scale 1:8,000

Mission Clay PGP

Printed: 2018-0529 edc

City of Fremont GIS with BING Aerial (2018)




http://egis.fremont.gov/apps/secure/fremont/
Oracle | PeopleSoft Enterprise S...
SACGISA | City of Fremont - ...
Fremont Municipal Code
Accela Automation®
Bookmarks
PeopleSoft
GIS
Google
GP 2030
NAICS
FMC
Design Guidelines
Planning Permits
Intranet
Accela
Search
UC Davis Extension
Modernizing Transportatio...
UC CEQA Handbook 3.3 - ...
SACGISA | City of Fremont
City Staff - eGIS FV 3.6
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Basemap
84
Niles Canyon Rd
84
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CITY OF
Fremont

June 11, 2018

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, CA 94062

RE: <u>Assembly Bill 52 Consultation</u> for Mission Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272), 2225 Old Canyon Road; APN: 507-762-2-2

Dear Ms. Zwierlein,

This letter is intended to notify you of a proposed project involving the excavation and removal of oil-contaminated soil at the Mission Clay Quarry Site at the northeastern terminus of Old Canyon Road, east of Niles Canyon Road (please see attached aerial map) at 2225 Old Canyon Road (APN: 507-762-2-2) in the Niles Community Planning Area of Fremont. The City of Fremont is the lead agency for the environmental review for this soil remediation project. As the project also involves the excavation and fill of a small wetland (0.097 acres), to remove contaminated soil and groundwater, the San Francisco Regional Water Quality Control Board (SFRWQCB) is a responsible agency. The environmental review for the project is being done in coordination with the SFRWQCB. Removal of the soil is necessary to prevent potential contamination of groundwater.

Assembly Bill 52 (AB 52), which became law January 1, 2015, requires that, as part of the CEQA review process, public agencies provide early notice of a project to California Native American Tribes, and if formally requested in writing by a Tribe, consult with Tribes in regards to the project. With this letter, the City is hereby providing notice per AB 52 and as part of the CEQA process for the project.

The purpose of AB 52 and the consultation, if requested, is to identify and consider potential impacts to a new category of resources called Tribal Cultural Resources (TCRs)[1], and take into account tribal cultural values in addition to scientific and archaeological values when determining possible impacts and mitigation. An impact to a TCR may result in a significant impact under CEQA and require avoidance or minimization of the impacts.

A summary of the proposed project and site background is provided below.

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• Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either: (1) included or determined to be eligible for inclusion in the California Register of Historical Resources; or (2) included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1; or

• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

Proposed Project – Mission Clay Preliminary Grading Plan

The proposed project includes the excavation and relocation of approximately 21,000 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil.[2] The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The applicant, BBG KRG, Inc., seeks approval of a Preliminary Grading Plan from the City of Fremont, to permit the excavation of the contaminated soil.

Site Background

The Mission Clay Products (MCP or Mission Clay) property consists of approximately 87 acres on the south side of Alameda Creek in Niles Canyon in the City of Fremont (see Figures 1 and 2). The property has a long history of intensive mining and manufacturing uses. In 1907, a clay mine and brick manufacturing plant were built on-site to manufacture bricks for re-building San Francisco and other parts of the Bay Area after the 1906 earthquake. The California Pressed Brick Company (CPB) constructed 14 kilns, the largest being a Yougren Gas-Fired continuous kiln made of over one million bricks with a chimney 125 feet tall and installed a bunker fuel vault and oil house.

From 1910 to the 1930s, the kilns and other facilities used a variety of heavy oil (Bunker C and crude oil) to fuel manufacturing. Evidently these fuels were stored in earthen pits that allowed large amounts of the oil to seep into the ground. Over the next 70 to 80 years, the oil continued to move down through about 30 feet of soil until it reached bedrock. Today there are two thin (two-foot- thick) deposits of the oil resting on bedrock about 30 to 35 feet below the ground surface.

Mission Clay bought the property in 1960 and renovated the manufacturing plant. By that time, crude oil and similar fuels had been replaced by gasoline and diesel and no one associated with the property knew of the past oil leakage. Mission Clay shut down the plant in 1992 and began a clean-up operation. The bunker fuel oil vaults in the northeastern part of the developed area were removed in 2000, along with about 16,000 tons of soil below these vaults contaminated by leakage. To ensure that no additional contaminants occurred on-site, Mission Clay, working with the City of Fremont, the Regional Water Quality Control Board (RWQCB), and the Alameda County Water District (ACWD) completed several exploratory wells at depth. Those wells were the first evidence of this deep layer of oil contamination. Over the next decade, Mission Clay installed a number of wells and similar measures to try to define the extent and character of the contamination in consultation with the agencies. That effort has identified two areas of contamination, both about 32 feet below the surface and resting on bedrock.

Mission Clay then attempted to develop a solution to the contamination. Soil engineers looked at installing containment walls, injecting biologic breakdown agents, extraction pumping and other methods. Each of these options was determined to be infeasible. The greatest concern has been that, while the oil itself is relatively inert and not hazardous, when it mixes with groundwater, it gives off a variety of volatile compounds that could pollute local groundwater. More importantly, that polluted groundwater could reach Alameda Creek, which is a drinking water source. Accordingly, Mission Clay, in consultation with the City, ACWD and RWQCB concluded that the only practicable approach to eliminating the contamination would be to remove the surface soils, excavate the contaminated soil, and truck that material to Newby Island, where it could be used as cover for the trash deposits there.

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[2] The landfill address is 1601 Dixon Landing Road, Milpitas. Although the address and public street access to the site are both in the City of Milpitas, the landfill property is entirely within the City of San Jose.

Proposed Soil Remediation Areas

There are two sites on the property with impacted soils, the Bunker Fuel Vault Area and the Oil House Area (see attached Remediation Grading Plan).

Bunker Fuel Vault Area

The former bunker oil fuel vault area is in the northeastern corner of the former manufacturing area, which is near the center of the site. This area is impacted by Bunker C fuel originating from the former fuel vaults. Bunker C fuel was found in the soil during the original closure efforts and much of the soil in this area was removed in 2000 and only a small area of free product remains.

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Sincerely,

Bill Roth
Associate Planner

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cc: Andrew Galvan, The Ohlone Indian Tribe
Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan
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Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area
Tony Cerda, Costanoan Rumsen Carmel Tribe

CITY OF
Fremont

June 11, 2018

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden, CA 95236

RE: <u>Assembly Bill 52 Consultation</u> for Mission Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272), 2225 Old Canyon Road; APN: 507-762-2-2

Dear Ms. Perez,

This letter is intended to notify you of a proposed project involving the excavation and removal of oil-contaminated soil at the Mission Clay Quarry Site at the northeastern terminus of Old Canyon Road, east of Niles Canyon Road (please see attached aerial map) at 2225 Old Canyon Road (APN: 507-762-2-2) in the Niles Community Planning Area of Fremont. The City of Fremont is the lead agency for the environmental review for this soil remediation project. As the project also involves the excavation and fill of a small wetland (0.097 acres), to remove contaminated soil and groundwater, the San Francisco Regional Water Quality Control Board (SFRWQCB) is a responsible agency. The environmental review for the project is being done in coordination with the SFRWQCB. Removal of the soil is necessary to prevent potential contamination of groundwater.

Assembly Bill 52 (AB 52), which became law January 1, 2015, requires that, as part of the CEQA review process, public agencies provide early notice of a project to California Native American Tribes, and if formally requested in writing by a Tribe, consult with Tribes in regards to the project. With this letter, the City is hereby providing notice per AB 52 and as part of the CEQA process for the project.

The purpose of AB 52 and the consultation, if requested, is to identify and consider potential impacts to a new category of resources called Tribal Cultural Resources (TCRs)[1], and take into account tribal cultural values in addition to scientific and archaeological values when determining possible impacts and mitigation. An impact to a TCR may result in a significant impact under CEQA and require avoidance or minimization of the impacts.

A summary of the proposed project and site background is provided below.

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[1] Public Resources Code (PRC) Section 21074(a) defines Tribal Cultural Resources as either of the following:

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• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

Proposed Project – Mission Clay Preliminary Grading Plan

The proposed project includes the excavation and relocation of approximately 21,000 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil.[2] The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The applicant, BBG KRG, Inc., seeks approval of a Preliminary Grading Plan from the City of Fremont, to permit the excavation of the contaminated soil.

Site Background

The Mission Clay Products (MCP or Mission Clay) property consists of approximately 87 acres on the south side of Alameda Creek in Niles Canyon in the City of Fremont (see Figures 1 and 2). The property has a long history of intensive mining and manufacturing uses. In 1907, a clay mine and brick manufacturing plant were built on-site to manufacture bricks for re-building San Francisco and other parts of the Bay Area after the 1906 earthquake. The California Pressed Brick Company (CPB) constructed 14 kilns, the largest being a Yougren Gas-Fired continuous kiln made of over one million bricks with a chimney 125 feet tall and installed a bunker fuel vault and oil house.

From 1910 to the 1930s, the kilns and other facilities used a variety of heavy oil (Bunker C and crude oil) to fuel manufacturing. Evidently these fuels were stored in earthen pits that allowed large amounts of the oil to seep into the ground. Over the next 70 to 80 years, the oil continued to move down through about 30 feet of soil until it reached bedrock. Today there are two thin (two-foot- thick) deposits of the oil resting on bedrock about 30 to 35 feet below the ground surface.

Mission Clay bought the property in 1960 and renovated the manufacturing plant. By that time, crude oil and similar fuels had been replaced by gasoline and diesel and no one associated with the property knew of the past oil leakage. Mission Clay shut down the plant in 1992 and began a clean-up operation. The bunker fuel oil vaults in the northeastern part of the developed area were removed in 2000, along with about 16,000 tons of soil below these vaults contaminated by leakage. To ensure that no additional contaminants occurred on-site, Mission Clay, working with the City of Fremont, the Regional Water Quality Control Board (RWQCB), and the Alameda County Water District (ACWD) completed several exploratory wells at depth. Those wells were the first evidence of this deep layer of oil contamination. Over the next decade, Mission Clay installed a number of wells and similar measures to try to define the extent and character of the contamination in consultation with the agencies. That effort has identified two areas of contamination, both about 32 feet below the surface and resting on bedrock.

Mission Clay then attempted to develop a solution to the contamination. Soil engineers looked at installing containment walls, injecting biologic breakdown agents, extraction pumping and other methods. Each of these options was determined to be infeasible. The greatest concern has been that, while the oil itself is relatively inert and not hazardous, when it mixes with groundwater, it gives off a variety of volatile compounds that could pollute local groundwater. More importantly, that polluted groundwater could reach Alameda Creek, which is a drinking water source. Accordingly, Mission Clay, in consultation with the City, ACWD and RWQCB concluded that the only practicable approach to eliminating the contamination would be to remove the surface soils, excavate the contaminated soil, and truck that material to Newby Island, where it could be used as cover for the trash deposits there.

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Proposed Soil Remediation Areas

There are two sites on the property with impacted soils, the Bunker Fuel Vault Area and the Oil House Area (see attached Remediation Grading Plan).

Bunker Fuel Vault Area

The former bunker oil fuel vault area is in the northeastern corner of the former manufacturing area, which is near the center of the site. This area is impacted by Bunker C fuel originating from the former fuel vaults. Bunker C fuel was found in the soil during the original closure efforts and much of the soil in this area was removed in 2000 and only a small area of free product remains.

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Sincerely,

Bill Roth
Associate Planner

Attachments: Remediation Grading Plan, GIS-Aerial, B&W Aerial (1930-1940), Quad map

cc: Andrew Galvan, The Ohlone Indian Tribe
Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan
Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista
Katherine Erolinda Perez, North Valley Yokuts Tribe
Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area
Tony Cerda, Costanoan Rumsen Carmel Tribe

CITY OF
Fremont

June 11, 2018

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
P.O. Box 360791
Milpitas, CA 95036

RE: <u>Assembly Bill 52 Consultation</u> for Mission Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272), 2225 Old Canyon Road; APN: 507-762-2-2

Dear Ms. Cambra,

This letter is intended to notify you of a proposed project involving the excavation and removal of oil-contaminated soil at the Mission Clay Quarry Site at the northeastern terminus of Old Canyon Road, east of Niles Canyon Road (please see attached aerial map) at 2225 Old Canyon Road (APN: 507-762-2-2) in the Niles Community Planning Area of Fremont. The City of Fremont is the lead agency for the environmental review for this soil remediation project. As the project also involves the excavation and fill of a small wetland (0.097 acres), to remove contaminated soil and groundwater, the San Francisco Regional Water Quality Control Board (SFRWQCB) is a responsible agency. The environmental review for the project is being done in coordination with the SFRWQCB. Removal of the soil is necessary to prevent potential contamination of groundwater.

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Associate Planner

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Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area
Tony Cerda, Costanoan Rumsen Carmel Tribe

CITY OF
Fremont

June 11, 2018

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3388
Fremont, CA 94539

RE: <u>Assembly Bill 52 Consultation</u> for Mission Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272), 2225 Old Canyon Road; APN: 507-762-2-2

Dear Mr. Galvan,

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The proposed project includes the excavation and relocation of approximately 21,000 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil.[2] The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The applicant, BBG KRG, Inc., seeks approval of a Preliminary Grading Plan from the City of Fremont, to permit the excavation of the contaminated soil.

Site Background

The Mission Clay Products (MCP or Mission Clay) property consists of approximately 87 acres on the south side of Alameda Creek in Niles Canyon in the City of Fremont (see Figures 1 and 2). The property has a long history of intensive mining and manufacturing uses. In 1907, a clay mine and brick manufacturing plant were built on-site to manufacture bricks for re-building San Francisco and other parts of the Bay Area after the 1906 earthquake. The California Pressed Brick Company (CPB) constructed 14 kilns, the largest being a Yougren Gas-Fired continuous kiln made of over one million bricks with a chimney 125 feet tall and installed a bunker fuel vault and oil house.

From 1910 to the 1930s, the kilns and other facilities used a variety of heavy oil (Bunker C and crude oil) to fuel manufacturing. Evidently these fuels were stored in earthen pits that allowed large amounts of the oil to seep into the ground. Over the next 70 to 80 years, the oil continued to move down through about 30 feet of soil until it reached bedrock. Today there are two thin (two-foot- thick) deposits of the oil resting on bedrock about 30 to 35 feet below the ground surface.

Mission Clay bought the property in 1960 and renovated the manufacturing plant. By that time, crude oil and similar fuels had been replaced by gasoline and diesel and no one associated with the property knew of the past oil leakage. Mission Clay shut down the plant in 1992 and began a clean-up operation. The bunker fuel oil vaults in the northeastern part of the developed area were removed in 2000, along with about 16,000 tons of soil below these vaults contaminated by leakage. To ensure that no additional contaminants occurred on-site, Mission Clay, working with the City of Fremont, the Regional Water Quality Control Board (RWQCB), and the Alameda County Water District (ACWD) completed several exploratory wells at depth. Those wells were the first evidence of this deep layer of oil contamination. Over the next decade, Mission Clay installed a number of wells and similar measures to try to define the extent and character of the contamination in consultation with the agencies. That effort has identified two areas of contamination, both about 32 feet below the surface and resting on bedrock.

Mission Clay then attempted to develop a solution to the contamination. Soil engineers looked at installing containment walls, injecting biologic breakdown agents, extraction pumping and other methods. Each of these options was determined to be infeasible. The greatest concern has been that, while the oil itself is relatively inert and not hazardous, when it mixes with groundwater, it gives off a variety of volatile compounds that could pollute local groundwater. More importantly, that polluted groundwater could reach Alameda Creek, which is a drinking water source. Accordingly, Mission Clay, in consultation with the City, ACWD and RWQCB concluded that the only practicable approach to eliminating the contamination would be to remove the surface soils, excavate the contaminated soil, and truck that material to Newby Island, where it could be used as cover for the trash deposits there.

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[2] The landfill address is 1601 Dixon Landing Road, Milpitas. Although the address and public street access to the site are both in the City of Milpitas, the landfill property is entirely within the City of San Jose.

Proposed Soil Remediation Areas

There are two sites on the property with impacted soils, the Bunker Fuel Vault Area and the Oil House Area (see attached Remediation Grading Plan).

Bunker Fuel Vault Area

The former bunker oil fuel vault area is in the northeastern corner of the former manufacturing area, which is near the center of the site. This area is impacted by Bunker C fuel originating from the former fuel vaults. Bunker C fuel was found in the soil during the original closure efforts and much of the soil in this area was removed in 2000 and only a small area of free product remains.

Oil House Area

The former oil house area is in the southwestern part of the former manufacturing area. The contaminant identified in this area is unrefined crude oil. Crude oil was phased out by the 1950s but an oil-fired kiln in the former oil house area dating from the early 1900s has been identified as the likely source for the crude oil in the soil. The unrefined crude oil free product extends over an area of approximately 400 feet by 100 feet, or approximately one acre.

Prior to implementing any ground-disturbing activity associated with the project, a qualified archaeologist shall be retained to assure protection and recovery of cultural resources, should any be encountered during project work, in compliance with applicable laws and policies. Grading and other activities that could adversely affect cultural resources shall be avoided until clearance to proceed is received by the archaeologist and granted by the City.

To request consultation under AB 52 for the project, please contact me within 30 days of receipt of this letter. Failure to respond within this timeframe means that the City is not required to enter into consultation with you on this matter.

If you have any questions or comments regarding this project, please contact me directly at (510) 494-4450 or broth@fremont.gov.

Sincerely,

Bill Roth
Associate Planner

Attachments: Remediation Grading Plan, GIS-Aerial, B&W Aerial (1930-1940), Quad map

cc: Andrew Galvan, The Ohlone Indian Tribe
Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan
Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista
Katherine Erolinda Perez, North Valley Yokuts Tribe
Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area
Tony Cerda, Costanoan Rumsen Carmel Tribe

CITY OF
Fremont

June 11, 2018

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA 95024

RE: <u>Assembly Bill 52 Consultation</u> for Mission Clay Preliminary Grading Plan (Fremont File No. PLN2018-00272), 2225 Old Canyon Road; APN: 507-762-2-2

Dear Ms. Sayers,

This letter is intended to notify you of a proposed project involving the excavation and removal of oil-contaminated soil at the Mission Clay Quarry Site at the northeastern terminus of Old Canyon Road, east of Niles Canyon Road (please see attached aerial map) at 2225 Old Canyon Road (APN: 507-762-2-2) in the Niles Community Planning Area of Fremont. The City of Fremont is the lead agency for the environmental review for this soil remediation project. As the project also involves the excavation and fill of a small wetland (0.097 acres), to remove contaminated soil and groundwater, the San Francisco Regional Water Quality Control Board (SFRWQCB) is a responsible agency. The environmental review for the project is being done in coordination with the SFRWQCB. Removal of the soil is necessary to prevent potential contamination of groundwater.

Assembly Bill 52 (AB 52), which became law January 1, 2015, requires that, as part of the CEQA review process, public agencies provide early notice of a project to California Native American Tribes, and if formally requested in writing by a Tribe, consult with Tribes in regards to the project. With this letter, the City is hereby providing notice per AB 52 and as part of the CEQA process for the project.

The purpose of AB 52 and the consultation, if requested, is to identify and consider potential impacts to a new category of resources called Tribal Cultural Resources (TCRs)[1], and take into account tribal cultural values in addition to scientific and archaeological values when determining possible impacts and mitigation. An impact to a TCR may result in a significant impact under CEQA and require avoidance or minimization of the impacts.

A summary of the proposed project and site background is provided below.

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[1] Public Resources Code (PRC) Section 21074(a) defines Tribal Cultural Resources as either of the following:

• Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either: (1) included or determined to be eligible for inclusion in the California Register of Historical Resources; or (2) included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1; or

• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

Proposed Project – Mission Clay Preliminary Grading Plan

The proposed project includes the excavation and relocation of approximately 21,000 cubic yards of contaminated soil from the Mission Clay property at 2225 Old Canyon Road in the City of Fremont to the Newby Island Landfill in the City of San Jose, an off-site landfill that can accept the soil.[2] The project also includes dewatering of excavated areas and treatment of the impacted groundwater at an on-site treatment plant. The applicant, BBG KRG, Inc., seeks approval of a Preliminary Grading Plan from the City of Fremont, to permit the excavation of the contaminated soil.

Site Background

The Mission Clay Products (MCP or Mission Clay) property consists of approximately 87 acres on the south side of Alameda Creek in Niles Canyon in the City of Fremont (see Figures 1 and 2). The property has a long history of intensive mining and manufacturing uses. In 1907, a clay mine and brick manufacturing plant were built on-site to manufacture bricks for re-building San Francisco and other parts of the Bay Area after the 1906 earthquake. The California Pressed Brick Company (CPB) constructed 14 kilns, the largest being a Yougren Gas-Fired continuous kiln made of over one million bricks with a chimney 125 feet tall and installed a bunker fuel vault and oil house.

From 1910 to the 1930s, the kilns and other facilities used a variety of heavy oil (Bunker C and crude oil) to fuel manufacturing. Evidently these fuels were stored in earthen pits that allowed large amounts of the oil to seep into the ground. Over the next 70 to 80 years, the oil continued to move down through about 30 feet of soil until it reached bedrock. Today there are two thin (two-foot- thick) deposits of the oil resting on bedrock about 30 to 35 feet below the ground surface.

Mission Clay bought the property in 1960 and renovated the manufacturing plant. By that time, crude oil and similar fuels had been replaced by gasoline and diesel and no one associated with the property knew of the past oil leakage. Mission Clay shut down the plant in 1992 and began a clean-up operation. The bunker fuel oil vaults in the northeastern part of the developed area were removed in 2000, along with about 16,000 tons of soil below these vaults contaminated by leakage. To ensure that no additional contaminants occurred on-site, Mission Clay, working with the City of Fremont, the Regional Water Quality Control Board (RWQCB), and the Alameda County Water District (ACWD) completed several exploratory wells at depth. Those wells were the first evidence of this deep layer of oil contamination. Over the next decade, Mission Clay installed a number of wells and similar measures to try to define the extent and character of the contamination in consultation with the agencies. That effort has identified two areas of contamination, both about 32 feet below the surface and resting on bedrock.

Mission Clay then attempted to develop a solution to the contamination. Soil engineers looked at installing containment walls, injecting biologic breakdown agents, extraction pumping and other methods. Each of these options was determined to be infeasible. The greatest concern has been that, while the oil itself is relatively inert and not hazardous, when it mixes with groundwater, it gives off a variety of volatile compounds that could pollute local groundwater. More importantly, that polluted groundwater could reach Alameda Creek, which is a drinking water source. Accordingly, Mission Clay, in consultation with the City, ACWD and RWQCB concluded that the only practicable approach to eliminating the contamination would be to remove the surface soils, excavate the contaminated soil, and truck that material to Newby Island, where it could be used as cover for the trash deposits there.

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[2] The landfill address is 1601 Dixon Landing Road, Milpitas. Although the address and public street access to the site are both in the City of Milpitas, the landfill property is entirely within the City of San Jose.

Proposed Soil Remediation Areas

There are two sites on the property with impacted soils, the Bunker Fuel Vault Area and the Oil House Area (see attached Remediation Grading Plan).

Bunker Fuel Vault Area

The former bunker oil fuel vault area is in the northeastern corner of the former manufacturing area, which is near the center of the site. This area is impacted by Bunker C fuel originating from the former fuel vaults. Bunker C fuel was found in the soil during the original closure efforts and much of the soil in this area was removed in 2000 and only a small area of free product remains.

Oil House Area

The former oil house area is in the southwestern part of the former manufacturing area. The contaminant identified in this area is unrefined crude oil. Crude oil was phased out by the 1950s but an oil-fired kiln in the former oil house area dating from the early 1900s has been identified as the likely source for the crude oil in the soil. The unrefined crude oil free product extends over an area of approximately 400 feet by 100 feet, or approximately one acre.

Prior to implementing any ground-disturbing activity associated with the project, a qualified archaeologist shall be retained to assure protection and recovery of cultural resources, should any be encountered during project work, in compliance with applicable laws and policies. Grading and other activities that could adversely affect cultural resources shall be avoided until clearance to proceed is received by the archaeologist and granted by the City.

To request consultation under AB 52 for the project, please contact me within 30 days of receipt of this letter. Failure to respond within this timeframe means that the City is not required to enter into consultation with you on this matter.

If you have any questions or comments regarding this project, please contact me directly at (510) 494-4450 or broth@fremont.gov.

Sincerely,

Bill Roth
Associate Planner

Attachments: Remediation Grading Plan, GIS-Aerial, B&W Aerial (1930-1940), Quad map

cc: Andrew Galvan, The Ohlone Indian Tribe
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Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area
Tony Cerda, Costanoan Rumsen Carmel Tribe

Appendix E

Comments on Public Draft IS/MND and Responses

APPENDIX E

Comments on Public Draft IS/MND and Responses

This appendix to the Final IS/MND identifies comments received during the agency/public review period for the Public Draft IS/MND (from July 13, 2018 to August 1, 2018) and provides responses to the comments.

As specified in CEQA Guidelines Section 15074 (b), prior to approving a project, the decision-making body of the lead agency shall consider the proposed negative declaration or mitigated negative declaration together with any comments received during the public review process. The decision-making body shall adopt the proposed negative declaration or mitigated negative declaration only if it finds on the basis of the whole record before it (including the initial study and any comments received), that there is no substantial evidence that the project will have a significant effect on the environment and that the negative declaration or mitigated negative declaration reflects the lead agency's independent judgment and analysis.

One comment was received by the City of Fremont during the agency/public review period for the Public Draft IS/MND. The comment was provided via email from the State of California San Francisco Bay Regional Water Quality Control Board. The comment is provided below in **Table E-1**.

TABLE E-1
DRAFT IS/MND COMMENTS

Item	Agency/Commenter	Dated	Received by City of Fremont	Comment
1.	Regional Water Quality Control Board San Francisco Bay Region 1515 Clay St., Suite 1400 Oakland, CA 94612	July 23, 2018	July 23, 2018	The CEQA analysis should include an evaluation whether the proposed project will have significant impacts either directly or cumulatively (i.e., in combination with other projects). It will in no way make a determination that the plume is or is not having an effect on water quality in Alameda Creek. In other words, it should identify (1) whether the proposed project would affect the plume in a manner that would cause significant impacts, such as causing it to migrate further into Alameda Creek, and (2) whether the proposed project in combination with any additional clean up actions outside the scope of the project (i.e., other projects) would have a potentially significant effect on the environment.

Response to Comment

The Draft IS/MND analyzed the environmental effects of the proposed project. The analysis determined that project-specific and cumulative impacts would be less than significant with implementation of the City of Fremont's standard development requirements and mitigation measures identified in the Public Draft IS/MND, or the project would result in a less-than-significant project-specific impacts or a less-than-cumulatively-considerable contribution to cumulative impacts. The effectiveness of the proposed project and the need for additional groundwater cleanup efforts would be evaluated with a groundwater monitoring program after the proposed project is fully implemented and completed. For example, further investigation of soil and groundwater would be required characterize the extent and nature of the aforementioned contaminant plume that extends approximately 350 feet downgradient of the project site approximate to Alameda Creek. The monitoring program would consist of sampling the creek and interstitial (near-creek groundwater) waters periodically over the course of the remediation at the leading edge of the plume near the creek to evaluate the effectiveness of the proposed project cleanup actions and would be developed in coordination with RWQCB and ACWD. Groundwater would be analyzed for contaminants associated with the known impacts at the site as appropriate. Depending on their physical nature and extent, additional cleanup actions could be subject to environment review pursuant to CEQA. Because these subsequent cleanup actions have not been determined necessary and therefore the physical extent of the actions is not known, the actions are not evaluated in the Draft IS/MND.

In response to the comment, the City has added text to the *Project Description* and *Mandatory Findings of Significance* sections of the Final IS/MND to identify the aforementioned monitoring program and to state that further remediation actions, if necessary, could be subject to CEQA review. The additional text, identified below, is informational and does not change the analysis and conclusions of the Draft IS/MND that there is no substantial evidence that the project will have a significant effect on the environment.

Revisions to IS/MND

The description of proposed soil remediation on pages 10 through 12 in Section 2, *Project Description*, of the Public Draft IS/MND has been modified as shown below to address the comment. Text that has been added to this Final IS/MND is shown as <u>underlined text</u>.

Soil Remediation

Soil remediation would be completed through a combination of excavation, disposal of the contaminated soils, and dewatering and treatment of the impacted groundwater.

The former bunker fuel vault area would be excavated first. This excavation would not be dewatered due to the limited size of the excavation. Instead it would be backfilled with course aggregate within the water table and backfilled with overburden (e.g., soil free of contaminant) above the water table.

The former oil house area would be excavated second. Overburden would be excavated first, progressing from east to west, deepening the excavation area at the same time. After the overburden layer is excavated, unsaturated soils with visible impacts would be excavated and segregated. Dewatering trenches would be installed once the water table is reached. Once dewatering is completed the remaining soil would be excavated to bedrock.

Excavation at the site would be completed by segregating the material in three different stockpiles. The overburden soil with no visible impacts above the water table would be stockpiled and sampled to determine if the soil can be reused on-site for backfill. The soils with visible impacts both within and above the water table would be stockpiled in lined cells and allowed to

dry within the cells until the moisture content is low enough that the material may be shipped off-site for disposal at Newby Island. The soil within the water table with no visible impacts would be stockpiled in separate lined cells and free water within the cells would be allowed to evaporate or pumped to the water treatment plant. The soil within the water table with no visible impacts would be analyzed to determine if the soil (all or portions) may be applicable for reuse on-site.

Groundwater within the trenches and any pumped from the holding cells would be treated in the on-site treatment plant and then used for on-site applications (e.g., dust control, watering the erosion control plantings, etc.).

Once remediation is complete, stockpiled soils and those requiring excavation and movement for the completion of the Reclamation Plan would be used to backfill the pits and contour the site in accordance with the proposed Preliminary Grading Plan.

The need for additional groundwater cleanup efforts would be evaluated with a groundwater monitoring program after the proposed project is fully implemented and completed. For example, further investigation of soil and groundwater would be required characterize the extent and nature of the aforementioned contaminant plume that extends approximately 350 feet downgradient of the project site approximate to Alameda Creek. The monitoring program would consist of sampling the creek and interstitial (near-creek groundwater) waters periodically over the course of the remediation at the leading edge of the plume near the creek to evaluate the effectiveness of the proposed project cleanup actions and would be developed in coordination with RWQCB and ACWD.[1] Groundwater would be analyzed for contaminants associated with the known impacts at the site as appropriate. Depending on their physical nature and extent, additional cleanup actions could be subject to environment review pursuant to CEQA. Because these subsequent cleanup actions have not been determined necessary and therefore the physical extent of the actions is not known, the actions are not evaluated in this Initial Study.

[1] Haley Aldrich, 2018, Revised Remedial Action Plan Mission Clay Products, 2225 Old Canyon Road, Fremont, California, May 2018.

The discussion of item b on page 74 in the *Mandatory Findings of Significance* section of the Public Draft IS/MND has been modified as shown below to address the comment.

b) **Less than Significant with Mitigation Incorporated.** Cumulative impacts would be less than significant with implementation of the City of Fremont's standard development requirements and mitigation measures identified in this Initial Study, or the project would result in a less than cumulatively considerable contribution to cumulative impacts.

The need for additional groundwater cleanup efforts would be evaluated with a groundwater monitoring program after the proposed project is fully implemented and completed. For example, further investigation of soil and groundwater would be required characterize the extent and nature of the aforementioned contaminant plume that extends approximately 350 feet downgradient of the project site approximate to Alameda Creek. The monitoring program would evaluate the effectiveness of the proposed project cleanup actions and would be developed in coordination with RWQCB and ACWD. Groundwater would be analyzed for contaminants associated with the known impacts at the site as appropriate. Depending on their physical nature and extent, additional cleanup actions could be subject to environment review pursuant to CEQA. Because these subsequent cleanup actions have not been determined necessary and therefore the physical extent of the actions is not known, the actions are not evaluated in this Initial Study.

Appendix F

Mitigation Monitoring and Reporting Program

APPENDIX F
Mitigation Monitoring and Reporting Program

Introduction

Where a California Environmental Quality Act (CEQA) document has identified significant environmental effects, Public Resources Code Section 21081.6 requires adoption of a "reporting or monitoring program for the changes to the project which it has adopted or made a condition of a project approval to mitigate or avoid significant effects on the environment." A public agency is required to ensure that the measures are fully enforceable, through permit conditions, agreements, or other means (Public Resources Code Section 21081.6(b)). The Mitigation Monitoring and Reporting Program (MMRP) must be designed to ensure project compliance with mitigation measures during project implementation. The City of Fremont is the lead agency that must adopt the MMRP for development of the project.

This MMRP has been prepared to provide for the monitoring of mitigation measures required of the proposed project, as set forth in the Final IS/MND.

Format

Table F-1 below lists all mitigation measures for the proposed project identified in the Final IS/MND. The components of the MMRP include:

Mitigation Measure: This column presents the mitigation measure identified in the Final IS/MND.

Implementation Responsibility: This column identifies the person/group responsible for implementation of the migration measure.

Monitoring Responsibility: This column contains an assignment of responsibility for the monitoring and reporting tasks.

Monitoring and Reporting Action: This column refers to the outcome from implementing the mitigation measure.

Mitigation Schedule: The general schedule for conducting each mitigation task, identifying where appropriate both the timing and the frequency of the action.

Verification of Compliance: This column may be used by the lead agency to document the person who verified the implementation of the mitigation measure and the date on which this verification occurred.

Roles and Responsibilities

The City of Fremont will oversee monitoring and documenting the implementation of mitigation measures. The project applicant or its construction contractors is responsible for fully understanding and effectively implementing all of the mitigation measures contained within this MMRP.

TABLE F-1
MISSION CLAY PRODUCTS SOIL REMEDIATION PROJECT MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Implementation Responsibility	Mitigation Responsibility	Monitoring and Reporting Action	Mitigation Schedule	Verification of Compliance
Mitigation Measures Required by the Initial Study					
Air Quality					
Mitigation Measure AIR-1: Enhanced Exhaust Emissions Reduction Measures. The project proponent shall implement the following measures during construction to further reduce construction-related exhaust emissions: All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements: a. All off-road equipment shall have engines that meet or exceed either USEPA or CARB Tier 4 off-road emission standards.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Provide each unit's certified tier specification to the City. Verify inclusion of measure in contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	
Biological Resources					
Mitigation Measure BIO-1: Worker Environmental Awareness Training. Before the beginning of work, a qualified biologist shall conduct preconstruction training for all personnel working within the project boundaries, before conducting any work on-site. The training shall consist of a presentation from the biologist that includes a description of the biology of the special-status species with potential to occur at the project site. The biologist shall also include information about the distribution and habitat needs of any special-status species that may be present, legal protection of those species, penalties for violations, and project-specific protective measures. A handout that summarizes the education program, including images of special-status species, shall also be distributed to all personnel working at the site. These materials shall be filed at the worksite office and be available on request.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	
Mitigation Measure BIO-2: Exclusionary Fencing. Exclusionary fencing that surrounds the project site boundaries, was installed as part of the reclamation project, immediately following the conclusion of the vegetation and debris clearing. The fencing is standard silt fencing at least 36 inches high that was trenched six inches into the soil. The soil was then compacted against both sides of the fence to prevent wildlife from gaining access underneath the fence. No gaps or holes shall be allowed in the fence, except for pedestrian and vehicle entry points. The fence shall be inspected weekly by a qualified biologist starting before the initiation of remediation activities for holes, gaps, or access points, which shall be repaired on discovery. The area inside the fence shall also be inspected by the qualified biologist for trapped wildlife before the initiation of remediation activities and daily thereafter. Trapped wildlife shall be relocated outside the fence. No additional fencing shall be necessary.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	

TABLE F-1 (CONTINUED)
MISSION CLAY PRODUCTS SOIL REMEDIATION PROJECT MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Implementation Responsibility	Mitigation Responsibility	Monitoring and Reporting Action	Mitigation Schedule	Verification of Compliance
Mitigation Measure BIO-3: Construction Site Surveys. A qualified biologist shall conduct weekly surveys for California red-legged frog, California tiger-salamander, Alameda whipsnake, western pond turtle, and San Francisco dusky-footed woodrat, throughout the project site for the duration of the project. If an individual of these species is discovered at any time within the project site, any work within 100 feet of the occurrence shall stop and not continue until the animal has left the site or CDFW and USFWS has been consulted. A biological monitor shall conduct daily surveys for native wildlife before the beginning of the day's construction work. Any native wildlife discovered shall be encouraged to leave the site. Any special-status species shall be allowed to leave on their own after consultation with a qualified biologist.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	
Cultural Resources					
Mitigation Measure CUL-1: Determine Status of Archaeological Site Ala-4 and Implement Protection Measures if Necessary. Prior to implementing any ground disturbing activities associated with remediation activities, the project proponent shall retain a qualified archaeologist to update previous investigations in order to determine the present status and condition of archaeological site Ala-4, and to recommend appropriate procedures, if necessary, to ensure protection and/or recovery of resources in compliance with applicable laws and policies. Grading and other activities associated with the remediation plan that could adversely affect the archaeological site shall be avoided until clearance is received by the archaeologist and granted by the City.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	
Mitigation Measure CUL-2: Monitoring on Excavation Activities. Monitoring during all excavations and other earth-moving operations associated with remediation activities shall be performed by a tribal monitor from the Northern Valley Yokuts Tribe. The tribal monitor shall have the authority to temporarily divert, redirect, or halt the ground disturbance activities to allow for recovery of cultural resources in coordination with the project archaeologist identified in Mitigation Measure CUL-1 and the City of Fremont.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	
Mitigation Measure CUL-3: Accidental Discovery of Human Remains. In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the City of Fremont for the appropriate means of treating the human remains and any grave goods. The procedures identified on Public Resources Code section 5097.98 (and reiterated in State CEQA Guidelines section 15064.5(e) and (f)) which identifies steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery shall be followed.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation activities.	

TABLE F-1 (CONTINUED)
MISSION CLAY PRODUCTS SOIL REMEDIATION PROJECT MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Implementation Responsibility	Mitigation Responsibility	Monitoring and Reporting Action	Mitigation Schedule	Verification of Compliance
Traffic					
Mitigation Measure TR-1: Haul Trip Scheduling. The project proponent's contractor shall schedule truck haul trips to occur during the off-peak midday time period (9:00 a.m. to 3:00 p.m.), to the extent feasible, to both reduce the chance for trucks to encounter heavy traffic, and to minimize delays caused by trucks on already heavy traffic conditions. Prior to commencement of construction activities, the contractor shall indicate in writing the number and frequency of any truck haul trips that cannot be performed during off-peak times, and provide a justification as to why they cannot be performed during off-peak times, to the City of Fremont for approval. On a daily basis, no more than 10 percent of the total one-way daily truck trips (i.e., 16 truck trips) shall be permitted to occur outside of the off-peak midday time period.	Project sponsor and its contractor(s)	City of Fremont	**Pre-construction:** Verify inclusion of measure in construction plans and contract specifications. **During construction:** Conduct field inspections	**Pre-construction:** Prior to grading permit approvals; **During Construction:** during earth-disturbing remediation and hauling activities.	

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