City of Lathrop

Environmental Initial Study

Project Title:	A&A Intermodal #2 Site Plan Review (SPR-17-134)
Lead Agency:	City of Lathrop Community Development Department 390 Towne Center Drive Lathrop, CA 95330
Contact Person:	David Niskanen, Contract Planner (209) 941-7297
Project Location:	1850 Louise Avenue (APN's: 198-160-01)
Applicant:	Sukhchain Gill 865 E. Roth Road French Camp, CA 95231
Property Owners:	Collishaw Enterprises, LLC P.O. Box 611718 San Jose, CA 95161
General Plan:	Service Commercial (SC)
Zoning:	Commercial Service (CS)

Project Description:
The proposal is for a 185 truck parking facility including 49 off-street automobile parking and a 400 square foot guard shack on a 10.04 acre portion of a 13.74 acre site. The remaining 2.67 acres is to remain vacant and undeveloped. Access to the proposed project is provided via McKinley Avenue. Water service is provided via connection to the existing 16" water line in McKinley Avenue. Sanitary Sewer service is provided via extension of an 8" sewer line from the existing sewer line in E. Louise Avenue. The proposed project includes an 8' deep stormwater retention pond to retain all stormwater on-site. Future water and sewer service to be stubbed for future development of the 2.67 acre remainder. Associated site improvements include paving, landscaping, curb, gutter and sidewalk.

Surrounding Land Uses and Setting: The project site is located within the Service Commercial (SC) zoning district. The property is located within a mostly developed industrial and commercial area. The property is currently vacant and undeveloped. Surrounding land uses include commercial and industrial uses to the north, east, south and west. The site is relatively flat, with no extraordinary or unusual topographic features.

Other Public Agencies Approval: No other agencies are involved in the approval process.

Environmental Factors Potentially Affected: The environmental factors checked below would be potentially affected by this project.

☐	Aesthetics	☐	Agriculture 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	☐	Utility/Service Systems
☐	Mandatory Findings of Significance				

DETERMINATION: On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least 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, 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 _____ Date April 26, 2018

Printed name: David Niskanen, Contract Planner Phone: (209) 941-7297

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

SUMMARY OF MITIGATION MEASURES

The following is a summary of the mitigation measures identified within this Initial Study/Mitigated Negative Declaration (IS/MND). For detailed description regarding the potential impacts of the proposed project, please refer to the Environmental Checklist presented below:

Air Quality:

Mitigation Measure AIR-1: *The Project Applicant shall implement a Dust Control Plan, Best Performance Standards (BPS), and an Indirect Source Review (ISR) as part of the project construction and operation. In addition, the Applicant shall obtain approval from the SJVAPCD of an Air Impact Assessment in accordance with Rule 9510 (as required under SJVAPCD Regulation VIII and IX), prior to issuance of any construction permits. All requirements of the Air Impact Assessment shall be implemented as part of the project construction and operation.*

Biological Resources:

Mitigation Measure BIO-1: *The project shall participate in and obtain coverage under the SJMSCP. The fee identified by SJVSCP per acre coverage shall be paid prior to the issuance of any construction permits or initiation of any site disturbance, and written verification shall be provided to the City of Lathrop. All mitigation measures imposed by SJMSCP shall become requirements of the Project.*

Mitigation Measure BIO-2: *The Project Applicant shall have a pre-construction survey completed by an SJMSCP-qualified biologist and submitted to the City of Lathrop and the SJMSCP prior to any ground disturbance to confirm the absence of protected wildlife.*

Hydrology/Water Quality:

Mitigation Measure HYDRO-1: *The project developer shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project in accordance with the Construction General Permit. The developer shall incorporate an Erosion Control Plan consistent with all applicable provisions of the SWPPP within the site development plan. The SWPPP shall be available on the construction site at all times. The developer shall file a Notice of Intent (NOI) with the State Water Resources Control Board prior to commencement of construction activity, and shall submit the SWRCB Waste Discharger's Identification Number (WDID) to the City prior to approval of development or grading plans.*

Transportation/Traffic:

Mitigation Measure CIRC-1: *The City may require the property owner/applicant prepare a Traffic Impact Analysis if traffic impacts are considered exceeding an acceptable level. The property owner/applicant shall pay for and implement all mitigation measures/recommendations as a result of the Traffic Impact Analysis.*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

EVALUATION OF ENVIRONMENTAL FACTORS:

I. 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 day or nighttime views in the area?	☐	☐	☒	☐

(a-d) The project area is located in an urban setting which is surrounded by mostly developed industrial and commercial zoned land. According to the Lathrop General Plan, this area is not considered a scenic vista. The development of the site and area is planned for and anticipated under the City of Lathrop General Plan and Municipal Code. The proposed use of a truck parking facility is consistent with the adjacent properties and surrounding area and is a use identified as permitted within the Service Commercial zoning district. Light sources associated with the proposed project include site lighting and cam lighting on the guard shack. Light sources are required to be consistent with the City's lighting standards to minimize light and glare onto adjoining properties but provide sufficient lighting for health and safety. As a result, the proposed project will have a less than significant impact as it relates to aesthetics.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE 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 Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. 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?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

(a-e) The subject property and general are is planned and designated on the Lathrop General Plan Map for service commercial and industrial uses. Although the project site is vacant and undeveloped, the site is not being used for agriculture purposes. According to the Department of Conservation Farmland Mapping and Monitoring Program, the site is identified as Vacant or Disturbed Land (San Joaquin County Important Farmland Map, 2014). Vacant or Disturbed Land include open field areas that do not qualify for an agricultural category. The property is not under a Williamson Act contract. The project does not involve the rezoning of a forest land or conversion of a forest land to non-forest use. The proposal is to develop a trucking facility and guard shack. Therefore, no impacts are anticipated to Agricultural Resources and no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. 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?	☐	☐	☒	☐

Environmental Setting

The project site is located in the City of Lathrop in the northern portion of the San Joaquin Valley, a portion of the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has jurisdiction over most air quality matters in the Air Basin. Both the Air Basin and the jurisdiction of the SJVAPCD are comprised of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings and Tulare Counties, and the valley portion of Kern County.

Both the State of California and the federal government have established ambient air quality standards for criteria air pollutants. Both ambient air quality standards define clean air, but the State has one set of standards, while the federal government has two. The primary federal standards are established to protect the health of the most sensitive individuals. Federal secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animal, crops, vegetation, and buildings. Both the State and the federal government have established standards for six “criteria” pollutants, but the State has established standards for additional pollutants. Table 1 lists the criteria pollutants and the status of attainment of the ambient air quality standards for each pollutant by the San Joaquin Valley Air Basin.

The San Joaquin Valley Air Basin is designated as non-attainment for ozone. Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and nitrogen oxides (NO_x),

react in the atmosphere in the presence of sunlight to form ozone. Ozone is a respiratory irritant and an oxidant that increase susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. The SJVAPCD currently has in place the 2016 Plan for the 2008 8-Hour Ozone Standard.

The Air Basin is also designated a non-attainment area for respirable particulate matter, a mixture of solid and liquid particles suspended in air, including dust, pollen, soot, smoke, and liquid droplets. In San Joaquin County, particulate matter is generated by a mix of rural and urban sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled; consequently, both the federal and state air quality standards for particulate matter apply to particulates 10 microns or less in diameter (PM10) as well as to particulates less than 2.5 microns in diameter (PM2.5), which are carried deeper in the lungs. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illness in children. The SVAPCD currently has in place the 2007 PM10 Maintenance Plan and the 2015 PM2.5 Plan for compliance with the particulate matter standards.

San Joaquin Valley Attainment Status		
	Designation/Classification	
Pollutant	**Federal Standards**	**State Standards**
Ozone – One Hour	No Federal Standard	Nonattainment/Severe
Ozone – Eight Hour	Nonattainment/Extreme	Nonattainment
PM 10	Attainment	Nonattainment
PM 2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment
Source: SJVAPCD, 2018		

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air, unlike ozone. The main source of CO in the San Joaquin Valley is on-road motor vehicles. High CO concentrations occur in areas of limited geographic size, sometime referred to as “hot spots”, which are ordinarily associated with areas of highly congested traffic. A State Implementation Plan for carbon monoxide has bene adopted by the California Air Resources Board (ARB) for the entire state.

The SJVAPCD is responsible for implementation of measures to control air regional air pollution based on the foregoing state and federal standards, as reflected in the approved regional Air Quality Plan. These controls preliminary affect stationary sources such as industry and power

plans. Rules and regulation have been developed by SJVAPCD to control air pollution from a wide range of air pollution sources. In March 2007, an Indirect Source Review (ISR) rule was adopted that controls air pollution from new land developments.

Additionally, the SJVAPCD has developed a Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) which identifies separate thresholds for use in analyzing projects within the San Joaquin Valley area to evaluate potentially significant impacts. The City of Lathrop utilizes the SJVAPCD Guide to determine impact significance based on the following significant criteria:

1. **Construction Emissions of PM:** Construction projects will be found to have a significant impact if they fail to comply with Regulation VIII as listed in the SJVAPCD; however, the size of the project and the proximity to sensitive receptors may warrant additional measures.

2. **Criteria Air Pollutant Emissions:** A significant criteria pollutant impact will occur if the current SJVAPCD criteria construction or operational pollutant emissions standards are exceeded (SJVAPCD applies standards for permitted equipment and activities separately).

3. **Ambient Air Quality:** Emissions that are predicted to cause or contribute to a violation of an ambient air quality would be considered a significant impact. SJVAPCD recommends that dispersion modeling be conducted for construction or operation when on-site emissions exceed 100 pounds per day after implementation of all mitigation measures.

4. **Local CO Concentrations:** Traffic emissions associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the ambient air quality standards.

5. **Toxic Air Contaminants (TACs) or Hazardous Air Pollutants (HAPs):** Exposure to HAPs or TACs would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual would exceed 20 in 1 million or would result in a Hazard Index greater than 1 for non-cancer health effects.

6. **Odors:** Odor impacts associated with the proposed Project would be considered significant if the Project has the potential to frequently expose members of the public to objectionable odors through development of a new odor source or placement of receptors near an existing odor source.

(a-e) Implementation of Mitigation Measure AIR-1 below would result in the Project being consistent with SVAPCD rules and regulations. SJVAPCD's rules to reduce emission consistent with the State Implementation Plan commitments would apply based on the applicant Rules 9510 (Indirect Source Review) of Regulation IX and Rules 8021, 8031, 8041, 8051, 8061 and 8071 of Regulation VIII. Compliance with the SJVAPCD requirements ensures that there will be no significant air quality impacts.

The Project site area is currently in non-attainment status for Ozone (1 & 8 hour), PM10, and PM2.5 emissions. The project is consistent with the Lathrop General Plan land use designation

("Service Commercial" – SC) and Zoning District regulations ("Commercial Service" – CS). SJVAPCD's rules to reduce emission consistent with the rules and regulations of SJVACPD.

The Project is required to comply with Regulation VIII of the SJVACPD. There are no sensitive receptors within the immediate vicinity of the Project site which would be affected by the Project.

The project would result in temporary odors from construction of the proposed Project. All construction is subject to City of Lathrop construction regulations and ordinances. However, these odors would be temporary in nature and is considered less than significant.

Mitigation Measures

Mitigation Measure AIR-1: *The Project Applicant shall implement a Dust Control Plan, Best Performance Standards (BPS), and an Indirect Source Review (ISR) as part of the project construction and operation. In addition, the Applicant shall obtain approval from the SJVAPCD of an Air Impact Assessment in accordance with Rule 9510 (as required under SJVAPCD Regulation VIII and IX), prior to issuance of any construction permits. All requirements of the Air Impact Assessment shall be implemented as part of the project construction and operation.*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. 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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
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?	☐	☒	☐	☐

(a-f) Based on a review of the General Plan and field inspection, the site is not adjacent to wetlands, a creek or natural drainage way. No depressions or vernal pools were observed on the site. The subject site does not contain any native resident or migratory fish or wildlife and will not conflict with any other biological policies or ordinances.

The project area is located within the area covered by the San Joaquin Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). This plan, of which the City is a party to, was developed to minimize and mitigate impacts to plant and wildlife habitat resulting from the conversion of open space to non-open space. Pursuant to the Final EIR/EIS for the SJMSCP, dated November 15, 2000, and certified by the San Joaquin Council of Governments (SJCOG)

on December 7, 2000, implementation of the SJMSCP is expected to reduce impacts to biological resources through various mitigation measures.

The project site is listed as a Category "A" Exempt, No Pay Zone, under the SJMSCP map and would not conflict with the provisions other habitat conservation plans. The proposal is to develop a truck parking facility and guard shack. The site is currently vacant and undeveloped. However, because the site is within the SJMSCP area, Mitigation Measure BIO-1 and BIO-2 have been added to require the project to participate in the SJMSCP and conduct a pre-construction survey prior to any site disturbance.

Mitigation Measures

Mitigation Measure BIO-1: *The project shall participate in and obtain coverage under the SJMSCP. The fee identified by SJVSCP per acre coverage shall be paid prior to the issuance of any construction permits or initiation of any site disturbance, and written verification shall be provided to the City of Lathrop. All mitigation measures imposed by SJMSCP shall become requirements of the Project.*

Mitigation Measure BIO-2: *The Project Applicant shall have a pre-construction survey completed by an SJMSCP-qualified biologist and submitted to the City of Lathrop and the SJMSCP prior to any ground disturbance to confirm the absence of protected wildlife.*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. 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 pale ontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

(a-d) There are no known archaeological, cultural, or historical resources on the subject property. No changes to a historical site or archaeological resource are anticipated. There are no unique paleontological or geologic features present on the site. The proposal is to develop a truck parking facility and guard shack. The site is currently vacant and undeveloped. No impacts related to Cultural Resources are anticipated and no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. 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 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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Environmental Setting

The project area, along with the rest of Lathrop, is located in a seismically active region. The California Geological Survey does not list Lathrop in an area included in the Alquist-Priolo Earthquake Fault Zones (California Geological Survey 2015). However, San Joaquin County is subject to seismic shaking from fault features located to the east and west of San Joaquin County, including the Hayward/Rodgers Creek, San Andreas, and Calaveras Faults (San Joaquin County 2009).

Potential seismic hazards include ground rupture (also called surface faulting), ground shaking, liquefaction, and lateral spreading. Soil compaction and settlement can result from seismic ground shaking. If the sediments which compact during an earthquake are saturated, water

from void is forced to the ground surface, where it emerges in the form of mud spouts or sand boils – a process called liquefaction. Based on known information, areas of the County with groundwater less than 50 feet from ground surface in unconsolidated sediment are susceptible to liquefaction, including levees, wetlands and lands near river courses (San Joaquin County 2009).

A Geotechnical Engineering Report, prepared by Terracon Consultants, Inc., dated April 19, 2018 was prepared for the proposed project (see Appendix A). The investigation included a field exploration, multiple test borings, soil testing, percolation test and geological analysis. The report concluded that the site is suitable for the proposed construction based upon geotechnical conditions encountered during the test borings, provided that the recommendations presented in the report are implemented during the design and construction phases of the project.

(a-e) The project site is subject to ground shaking from faults located east and west of the County. During an earthquake event, structures can be subjected to near-source ground motion that may be damaging to structures, if the effects of potential ground motion have not been considered in the structural design. The project would be required to comply with the 2016 California Building Standards Code (California Code of Regulations, Title 24, Parts 1-12), which has been adopted by the City. The proposed guard shack will be required to adhere to these regulations. According to the most recent groundwater report available from the San Joaquin County Flood Control and Water Conservation District, groundwater in the vicinity of the project site is 30 feet below ground surface (San Joaquin County Flood Control District 2016). However, according to the Geotechnical Engineering Report, groundwater was encountered at 19 feet bgs at the time of boring and the geotechnical investigation. The project site including the surrounding area is generally underlain by deposits of Egbert silty clay loan (City of Lathrop Background Reports Page SAFE-11 Soils Map) with shallow groundwater. In addition, the Geotechnical Engineering Report, based on test borings performed on the site, concluded that the project site is underlain by silty sand, sandy silt and lean clay.

The site is flat and there is no potential for landslides on or adjacent to the site or for erosion of the soil. The potential for faults within the County to generate moderate to large earthquakes causing strong ground shaking is low. Of the known fault lines in San Joaquin County, none are currently classified by the State Geologist as being active (City of Lathrop Background Reports Page SAFE-6). The project will not utilize septic tanks as municipal sewer is available. There are no known unique paleontological or geological features on the project site. The proposed project includes the development of a truck parking facility and guard shack.

According to the Geotechnical Engineering Report, the site is not located within an Alquist-Priolo Earthquake Fault zone based on a review of the State Fault Hazard Maps. Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils and fine grained low plasticity soils exist below groundwater. The California Geologic Survey (CGS) has designed certain areas within California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. According to the Geotechnical Engineering Report, the project is not located within a liquefaction hazard zone mapped by the CGS. Therefore, the proposed project will have a less than significant impact in this area.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. 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?	☐	☐	☒	☐

Environmental Setting
The City of Lathrop does not have an adopted Climate Action Plan (CAP) or other greenhouse gas reduction strategy. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has developed a Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) which identifies separate thresholds for use in analyzing projects within the San Joaquin Valley area to evaluate potentially significant impacts related to greenhouse gasses. The SJVAPCD *Guidance for Valley Land-Use Agencies in Addressing GHG Emissions Impacts for New Projects Under CEQA*, establishes a requirement that land use development projects demonstrate a 29 percent reduction in GHG emissions from Business-As-Usual (BAU).

(a) The project will result in short term increase in GHG due to construction related activities as a result of material processing, emissions produced by onsite construction equipment and emissions arising from traffic delays due to construction. While construction would slightly increase greenhouse gas emissions temporarily during construction, the operation of the project would combine various measures to reduce greenhouse gas emissions. The project will be subject to the Title 24 and California Green Building Standards which would reduce energy consumption through building design that increase energy efficiency and promotes water conservation. The project will also be required to comply with the City's Water Conservation strategies to reduce water usage.

(b)The project is not located in a community with an adopted qualified GHG Reduction Strategy, so consistency with such a plan cannot be analyzed at this time. GHG emissions associated with the proposed project were analyzed per the SJVAPCD guidance in addressing GHG emission impacts. SJVAPCD thresholds and methodologies take into account implementation of state-wide regulations and plans, such as the AB 32 Scoping Plan, therefore, there would be no impact in relation to consistency with GHG reduction plans. As discussed in Environmental Topic No. III, the proposed project is required to be consistent with SJVAPCD Rules and Regulations as it relates to Air Quality and Greenhouse Gasses. No further Mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. 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?	☐	☐	☒	☐

(a-c) Subject to compliance with local, state and federal law, the proposed Project's construction and operation will not transport, use, or dispose of substantial quantities of hazardous materials. The construction of the truck parking facility will not involve the handling, storage, or other use of any hazardous materials. All construction work will be required to follow the existing City of Lathrop ordinances related to construction related hazards, material usage and disposal. The

construction and operation of the proposed Project will not result in the use of any new or increased quantities of any materials or other substances which are otherwise regulated under the City of Lathrop or county of San Joaquin ordinances. Subject to compliance with applicable federal, state and local laws governing the transport of materials via trucks, the proposed Project will not result in any significant hazard to the public or the environment through upset and/or accident conditions involving the release of hazardous materials into the environment.

The closest existing school is the Lathrop Elementary School located to the North approximately 3,200 feet to the northwest. The proposed project will not result in any significant impacts related to hazards or hazardous material will affect existing or currently proposed school sites.

(d) The Project site is not located on a known or listed hazardous materials site as regulated by the State of California. The Project site does not include any previously discovered hazardous materials according to the Cal/EPA Cortese List as provided by the CA EPA Department of Toxic Substances pursuant to California Government Code Section 65962.5.

(e-f) The nearest public airport to the project site, Stockton Metropolitan Airport, is approximately five miles to the north. The project site is not located within an Airport Safety Zone and is outside the airport's Area of Influence. There are no private airstrips in the vicinity of the project site. No impacts are anticipated.

(g) The proposed project will not result in any substantial conflicts with emergency response or emergency evacuation plans. There is a potential for traffic disruption from normal construction activity which may have a less than significant effect on local roadways, however, all of the local roadways surrounding the project site (Louise Avenue and McKinley Avenue) have adequate capacity to handle temporary construction impacts. All construction work shall be in compliance with City Ordinances, which include traffic regulations for temporary construction. No separate mitigation measures are needed and impacts are less than significant.

(h) Equipment used for construction on site shall be properly licensed and operated in accordance with City ordinances. The Project site is located in an industrial area adjacent to public streets with adequate access for fire protection. The Project site plans have been reviewed by the City and Fire Marshal, who have confirmed the adequacy of all site access, turning radius, and emergency vehicle access requirements. Impacts are anticipated to be less than significant.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 situation 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 which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
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 food hazard delineation map?	☐	☐	☒	☐
h) Place within a 100-year flood hazard area structures which 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?	☐	☐	☐	☒

Environmental Setting

The City of Lathrop is located in the Sacramento-San Joaquin Delta region, a 600-square mile area of channels and islands at the confluence of the Sacramento and San Joaquin Rivers; the project site is, however, outside of the Delta Secondary Zone. The project site is essentially flat and has no streams, ponds, or other bodies of water. There are no drainage facilities on the project site; runoff percolates into the permeable soils.

The surface water quality in the valley and Delta regions is managed by the RWQCB, by means of The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, revised most recently in June 2015. The beneficial uses of surface waters in the general Lathrop region include municipal and domestic water supply; contact and non-contact recreation; commercial and sport fishing; migration of aquatic organisms; wildlife habitat; and habitat for rare, threatened, and endangered species. The State Water Resource Control Board (SWRCB) determined that the quality of these waters does not fully support all of the beneficial uses assigned to the water bodies in the project area. Water quality impacts are a result of tidal fluctuations; Sacramento River and San Joaquin River inflows; local agricultural, industrial, and municipal diversions and returns; and inadequate channel capacities.

The project site is located within the eastern San Joaquin County groundwater basin. Most of the fresh groundwater is unconfined and at depths of less than 2,500 feet. The groundwater surface in the Lathrop area generally slopes from south to north. Within the project vicinity, groundwater is shallow as a result of the low elevation and proximity to the San Joaquin River channel. Groundwater at the project site is approximately 30 feet below ground surface according to the most recent groundwater report available from the San Joaquin County Flood Control and Water Conservation District (San Joaquin County Flood Control District Fall 2016). According to the Geotechnical Engineering Report, prepared by Terracon Consultants, Inc., groundwater was occurred at 19 feet bgs. High groundwater can be influenced by water levels in the San Joaquin River, subsurface groundwater flow from areas of higher elevation to the east, and local irrigation practices.

Several geohydrologic formations underlie the Lathrop area; however, only the top two, the Victor and Laguna formations, are currently used as a source of fresh water. The Victor formation, the uppermost formation, extends from the ground surface to a maximum depth of approximately 150 feet. The underlying Laguna formation is hydrologically connected to the Victor formation and is estimated to be about 1,000 feet thick in the area of the project area. Most of the municipal and industrial wells in the Lathrop area penetrate through the Victor formation into the deeper Laguna formation. Because of saltwater intrusion into the Delta region of the County, and because of infiltration of runoff from the San Joaquin River, agricultural areas, and urban areas, the quality of groundwater taken from the shallower Victor formation include nitrate, iron, manganese, arsenic and bacteriological and radiological contamination. As a result of bacteriological contamination, the City began chlorinating water at all of its municipal wells in 1996. In general, groundwater within the City currently meets all drinking water standards.

Based on maps prepared by the Federal Emergency Management Agency (FEMA), the project site is located within Zone X, which denotes the area outside the 100-year floodplain but within the 500-year floodplain, or areas protected by levees from a 100-year flood. The 100-year flood

is the typical flood for which environmental impacts are evaluated. According to a dam failure plan prepared by the County Office of Emergency Services, the project site and vicinity is subject to inundation from a potential failure of New Melones Dam and San Luis Dam (San Joaquin County OES 2003).

(a, c, f) The project site is not located on or near streams or other surface waters. Therefore, the project would not directly impact surface waters. The project would involve construction-related including construction of the guard shack, paving, landscape and stormwater improvements.

The City of Lathrop adopted Storm Water Development Standards, per requirements contained in the City's MSR NPDES Permit. The Storm Water Development Standards require all new development to implement minimum BMPs that are common industry-accepted design practices that do not involve large capital expenditures. BMPs for the proposed project would be specific to Drainage Zone 2 – areas in Lathrop where stormwater is retained. The BMPs required for Zone 2 development are spill response measures that require facilities to incorporate into their design a location for the storage of spill response equipment for materials stored or used at that facility and, at the storage location, post information on how to respond to a spill (City of Lathrop 2008).

Additionally, the SWRCB has adopted a Construction General Permit that covers all construction activities that disturb at least one acre of soil. Discharges subject to the Construction General Permit must develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP identifies potential construction pollution sources and needed BMPs, including those for erosion control, and it specifies maintenance and monitoring activities needed to prevent exceedance of applicable water quality standards. A Notice of Intent (NOI) describing the status of the project and SWPPP must be filed with the SWRCB, which then issues a Waste Discharger's Identification Number. Mitigation Measure HYDRO-1 would require preparation of the SWPPP as part of the Construction General Permit. Compliance with the provisions of the Construction General Permit and the City's Storm Water Development Standards would reduce impacts on surface water quality to a level that would be less than significant.

(b) The project does not propose to drill any wells; therefore, it would not directly affect groundwater supplies. The depth to groundwater on the project site is approximately 30 feet, so construction activities would not intercept the groundwater table.

(d, e) The project would result in the generation of increased urban runoff from the creation of substantial impervious areas, which could contribute to urban runoff constituents to downstream surface waters. In order to treat and store the site's stormwater runoff, the project would construct a large retention basin along a portion of the western border of the project site. The retention basin is designed to accommodate runoff generated by two back-to-back 10-year, 48-hour storms.

The City's Storm Water Development Standards identify certain activities that must implement the treatment controls for any new development. As with the priority categories, new developments for any of the listed industrial activities must implement treatment controls that

are identified in the Standards for the drainage zone corresponding to the development, and select and properly size one or more of the treatment controls listed in the Standards.

Compliance with the Storm Water Development Standards, along with the proposed design features of the retention basin, would reduce drainage and runoff impacts to a level that would be less than significant.

(g, h) The project would not place housing within a 100-year floodplain. The project site is not located within a 100-year floodplain; therefore, the project would not impede or redirect flood flows.

The City of Lathrop anticipates that 200-year flood protection facilities will be in place prior to the 2025 target date. If the project receives discretionary approval prior to July 1, 2018, it would not need to meet SB 5 200-year flood protection findings requirements in order to issue a building permit. If discretionary approvals are required after that date, the City would need to make findings that the applicable 200-year flood requirements would be met. In either event, impacts related to SB 5 would be less than significant, and overall project impacts on flooding would be less than significant.

i) The project area is located within inundation zones for New Melones and San Luis Dams were they to fail. However, the probability of failure of these dams is considered low, and the project would have no change on the potential hazard within the project site. Therefore, the project is considered to have no impact related to dam inundation hazards.

j) The project site is not located near large bodies of water and the project site is relatively flat in topography. Therefore, the project would not be subject to seiche, tsunami or mudflow hazards. The project would have no impact on this issue.

Mitigation Measures

Mitigation Measure HYDRO-1: *The project developer shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project in accordance with the Construction General Permit. The developer shall incorporate an Erosion Control Plan consistent with all applicable provisions of the SWPPP within the site development plan. The SWPPP shall be available on the construction site at all times. The developer shall file a Notice of Intent (NOI) with the State Water Resources Control Board prior to commencement of construction activity, and shall submit the SWRCB Waste Discharger's Identification Number (WDID) to the City prior to approval of development or grading plans.*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. LAND USE AND 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?	☐	☐	☐	☒

(a-c) The proposed project would not create an adverse impact as it relates to land use and planning. The subject property has a General Plan Land Use Designation of SC, Service Commercial and is within the CS, Commercial Service Zoning District. The proposed use of a truck parking facility ("storage yards for commercial vehicles") is a permitted use within the CS Zone. Therefore, development of the site and area is planned for and anticipated under the City of Lathrop.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. 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?	☐	☐	☐	☒

(a-b) The City's General Plan does not identify the project area or vicinity as containing known mineral resources, nor is the area designated on any plan as a locally-important miner resource recovery site. Therefore, no impacts to mineral resources would occur.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE - Would the project result in:				
a) Exposure of persons of 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 ground borne vibration or ground borne 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 level 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 to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Environmental Setting

The existing noise environment in the project area and vicinity is defined primarily by noise from vehicular traffic on Louise Avenue and McKinley Avenue and from rail traffic on the Union Pacific Railroad (UPRR) tracks. The South Lathrop Specific Plan EIR calculated traffic noise contours for McKinley Avenue adjacent to the project site, as well as four segments of Louise Avenue and McKinley Avenue that may be affected by the project. The table below shows the noise contours for these road segments (De Novo Planning Group 2013).

Roadway Segment	Distance to Noise Contours from Centerline (feet)		
	70 dB	65 dB	60 dB
Louise Ave., east of McKinley Ave.	36	78	168
Louise Ave., west of McKinley Ave.	37	79	170
McKinley Ave., Lathrop to Louise Ave.	12	27	58
McKinley Ave., Louise to Yosemite Ave.	20	44	94
Source: De Novo Planning Group 2013.			

Ambient noise on the project originates primarily from traffic on Louise Avenue and McKinley Avenue. Lesser noise comes from traffic on the UPRR tracks and from light industrial activities

in the project vicinity. Based on the noise contours described above, most of the project site experiences ambient noise that is less than 60 dB. Only the 60 dB noise contour of McKinley Avenue encroaches substantially upon the site.

The City of Lathrop has set noise standards in its Noise Ordinance (Lathrop Municipal Code Section 8.20.040). In addition, the Lathrop Municipal Code, Section 8.20.110, prohibits outside construction work within 500 feet of a residential zone between 10:00 pm and 7:00 am weekdays, or between 11:00 pm and 9:00 am Fridays, Saturdays, and legal holidays, unless a permit is obtained from the City.

(a) The project would generate new noise associated with project operations. Noise sources would include truck maneuvering on-site, idling trucks, and on-site vehicular traffic. Properties surrounding the project site are primarily industrial, commercial or agricultural use. These uses are not noise-sensitive; noise generated by the project would be consistent with these uses and would not result in a significant noise effect.

The proposed project would be required to adhere to the City's Noise Ordinance (Section 2.80.040 of the Lathrop Municipal Code), which requires commercial activities to not exceed 66 dB from 10:00 pm to 7:00 am and 65 dB from 7:00 am to 10:00 pm. Therefore, impacts associated with project related noise is less than significant.

(b) Groundborne vibration is typically associated with transportation facilities, although it is unusual for vibration from sources such as busses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment.

The project would likely use some earthmoving equipment during construction. However, their use would be temporary and would cease with the completion of the construction work. As noted above, while trucks would enter and exit the project site, perceptible vibration from trucks is unusual. Project impacts are considered less than significant.

(c) The project proposes to construct a truck parking facility and guard shack. Therefore, the project is expected to increase ambient noise levels in the immediate vicinity of the site. In addition, the project is expected to generate an increase in traffic, which is expected to increase traffic noise along Louise Avenue and McKinley Avenue, in the project vicinity. However, the proposed project is not expected to increase ambient noise levels to a significant level (a 3.0-dB increase) and is therefore less than significant. The project is located zoned for industrial and service commercial uses, which are less sensitive to changes in noise levels. Project impacts on permanent changes in ambient noise levels are considered less than significant.

(d) Project construction activities would likely expose the adjacent properties to significant but short-term noise impacts. Heavy equipment likely to be used, and which would generate substantial noise, would include dozers, scrapers, compactors and excavators. However, project construction would occur in an area where land uses are predominately industrial or service commercial. Such land uses are less sensitive to noise and have higher exposure level based on City standards. Construction noise is a short-term occurrence that does not result in significant or long-term effects, provided that sleep interruption is not involved. Construction

activities would not occur during the hours of 10:00 pm to 7:00 am, in accordance with the Lathrop Municipal Code. These are the hours that most residents are asleep, which is when they would be particularly sensitive to noise. Impacts related to construction noise are considered less than significant.

(e, f) The nearest airport is the Stockton Metropolitan Airport at 5000 S. Airport Way in Stockton, California. The project site is located approximately 6 miles south of the airport. The project site is not within the Airport Influence Area and does not conflict with the Airport's Land Use Compatibility Plan. The project is not located near a public or private airport or airstrip, and does not include a residential component.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. 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 units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

(a) The project would not involve the construction of housing; therefore, it would have no impact on population growth. No residential resources (existing or proposed) would be affected by the Project. As a result, the proposed project would have no impact on population growth in the area, either directly or indirectly.

(b, c) The project site is undeveloped and vacant and does not include an existing residential unit or development. Development of the proposed therefore would not displace either housing or persons and no impact is anticipated.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governments) facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☐	☒	☐
e) Other public facilities?	☐	☐	☒	☐

Environmental Setting

Fire protection services within the City of Lathrop are provided by the Lathrop-Manteca Fire Protection District. Along with fire services, the Fire District provides medical emergency response, river rescue, urban search and rescue, and fire prevention services. The Fire District operates four fire stations: Station #31 on J Street, Station #32 on Union Road, Station #33 on Austin Road, and Station #34 in Mossdale Landing.

Police protection services in the City of Lathrop are provided, by a unit known as Lathrop Police Services, through a contract with the San Joaquin County Sheriff's Department. Lathrop Police Services is staffed by deputy sheriffs who work only within the City and receive training specific to City law enforcement issues. The Police Department is located at 15597 South Seventh Street in Lathrop, northwest of the project site.

The project site is within the service boundaries of the Manteca Unified School District. The School District provides school services for grades kindergarten through 12 within the communities of Manteca, Lathrop, Stockton, and French Camp. It operates 19 elementary schools, four high schools, one continuation school, and two community day schools. The nearest school to the project is Lathrop Elementary School, approximately 1.0 miles to the northwest.

The City of Lathrop Parks and Recreation Department operates three community parks and nine neighborhood parks within the City. The Parks and Recreation Department also operates a senior center, a community center, a skate park, and a dog park temporarily located at Mossdale Community Park. The City currently has 68 developed acres of parkland. The nearest park to the project site is Valverde Park, approximately 1.1 miles to the northwest.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

a) The project proposes the construction of a new truck parking facility and guard shack, which would create a demand for fire protection services. However, the one (1) project structure would be required to comply with the City building and fire codes through the building permit process, which include provisions designed to reduce potential fire hazards. In addition, the project site circulation is required to meet minimum turn-radii for fire trucks to enter and maneuver through the site. Project impacts on fire protection services would be less than significant.

(b) The proposed construction would create a demand for police protection services. However, no new or expanded facilities that could have environmental impacts would be required to serve the project. Project impacts on police protection services would be less than significant.

(c) Demand for school services is typically generated by the addition of residents through new housing. The project does not propose new housing, so it would have no direct impacts on school services. The project is not expected to create a demand for school services. Project impacts on school services would be less than significant.

(d, e) Demand for parks and public facilities such as libraries is typically generated by new residential development. The project is not expected to create a demand for parks and other public facilities. Project impacts on parks and other public facilities would be less than significant.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. 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?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

(a-b) The proposed project does not include any residential component, or housing of residents, which could contribute substantially to use of or impacts to the City of Lathrop park system. The proposed project is not expected to create a demand for recreational facilities such that new or expanded facilities would be required. Project impacts on parks and recreational facilities would be less than significant.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI.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?	☐	☐	☒	☐

(a-f) The project site is located on the corner of Louise Avenue and McKinley Avenue. Louise Avenue is an east-west arterial roadway that extends easterly from an interchange with Interstate 5 into the City of Manteca. McKinley Avenue is a north-south arterial roadway extends southerly from Lathrop Road into the southern portion of the City of Manteca. Louise Avenue has four travel lanes within Lathrop at the project site. McKinley Avenue has two travel lanes within Lathrop at the project site. On-street parking is prohibited on Louise Avenue and McKinley Avenue at the project site. The proposed project includes the construction of a truck parking facility and guard shack. Parking is provided at 50 automobile parking spaces including 2 handicap accessible parking spaces and 185 truck and trailer parking spaces. In a letter provided to the City of Lathrop, the estimated traffic in and out of the project facility is based on the type of parking spaces provided. Below is a summary of the proposed truck and trailer parking spaces:

- 50 spot locations – long term – No traffic it will be for storage for 2-3 months.

- 50 – Weekly – over the road drivers – 24/7 once a week in and out (drivers service 48 states and will not return for a week at a time).
- 50 – Every 3 days – Shorter distance over the road drivers 24/7 (drivers service the western states and return every 3 days).
- 35 – Daily parking / from 5 am to 9 am leave for the day, return 4 pm to 9 pm.

As shown above, the truck parking facility will provide commercial truck parking for long-term, weekly and everyday truck drivers. Daily trips associated with the proposed project are projected to be 50 – 100, based on the number of daily parking and three (3) day parking spaces. Although the proposed project includes 185 commercial truck and trailer parking spaces and an additional 50 automobile parking spaces, the number of new daily trips associated with the proposed project are less than significant. However, the City may require a traffic impact analysis at a future date if traffic impacts are considered exceeding an acceptable level. Therefore, Mitigation Measure CIRC-1 requires the applicant to prepare a traffic impact analysis at which time the City deems the study necessary and the applicant is required to implement the mitigation measures part of the study.

As discussed previously, primary access to the project site is McKinley Avenue, a north-south arterial. The proposed project will feature 59’ – 61’ drive aisle widths and 15’ entry drive lane widths. Emergency access will be provided via entry lanes on McKinley and will be able to access the site completely through the interior drive aisles. Impact associated with emergency access are therefore considered less than significant.

Mitigation Measures

Mitigation Measure CIRC-1: *The City may require the property owner/applicant prepare a Traffic Impact Analysis if traffic impacts are considered exceeding an acceptable level. The property owner/applicant shall pay for and implement all mitigation measures/recommendations as a result of the Traffic Impact Analysis.*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES - Would the project:				
a) 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:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, it 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.	☐	☐	☒	☐

Environmental Setting

Pursuant to AB 52, the scope of the evaluation at the project level should include consultation with Native American representatives identified by the Native American Heritage Commission (NAHC) for areas outside of reservations, and with tribal representatives of federally recognized tribes where projects are located near or within lands associated with federally recognized tribes. The purpose of the consultation is to identify tribal cultural resources and ensure that such resources are taken into consideration in the planning process. On April 26, 2018, the City of Lathrop transmitted letters to the Buena Vista Racheria of Me-Wuk Indians, and the Northern Valley Yokuts Tribe, both of which are traditionally and culturally affiliated with a geographic area within the City of Lathrop's jurisdiction. Notice of the proposed project was provided to both groups on April 26, 2018 for purposes of inviting comments and conducting consultation if needed.

(a-i) As discussed previously, the project site is currently vacant and undeveloped. No existing structures or facilities are located on the site that are of historical or cultural value. In addition, the site there is no known historical resource, tribal resource or other items of cultural significance on the site. Per the requirements of AB 52, the City has transmitted letters to the Buena Vista Rancheria of Me-Wuk Indians and the Northern Valley Yokuts Tribe notifying them of the proposed project. Impacts related to tribal cultural resources are considered less than significant.

(a-ii) Letters providing notice for potential consultation were sent to all known Native American tribes traditionally and/or culturally affiliated with the geographic area within which the project is

located, as noted above. The notice letters establish a 30-day period within which the affected tribes may request information, provide comments, or request further consultation. Therefore, the proposed project will have a less than significant impact as it relates to tribal cultural resources.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. 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?	☐	☐	☒	☐

Environmental Setting

The project proposes to connect to the City's water system through an existing 16-inch diameter water line beneath McKinley Avenue. A separate 2" water stub will be placed for a future connection to the 2.67 acre remainder.

Wastewater from the project site will be collected and pumped to a new 8-inch diameter sewer line along McKinley Avenue, where it will connect to the existing 16-inch sewer line beneath Louise Avenue. A separate 8" sewer stub will be placed for future connection to the 2.67 acre remainder.

The proposed drainage system would keep all stormwater runoff contained on the project site. A major component of this drainage system would be a retention 8-feet deep basin installed on the western portion of the project site. The retention basin would have the capacity to accommodate runoff from a City standard of two 10-year, 48-hour storms. The basin would be surrounded by a chain link fence with privacy slats. According to the Geotechnical Engineering

Report, prepared by Terracon Consultants, Inc., dated April 19, 2018, the percolation test at the basin area shows that the infiltration rate is 13 inches/hours.

(a, e) The proposed project would result in a small increase in wastewater flows to the City's system, the cumulative impacts from which can be mitigated through payment of a fee established by the City of Lathrop. The proposed project includes the development of a guard and will includes one (1) handicap accessible bathroom. Impacts related to wastewater are anticipated to less than significant.

(b, d) The proposed project would connect to the City's existing water system at the McKinley Avenue frontage. The city's Urban Water Management Plan estimates that the water demand for the City would be 20,867 acre-feet per year in the year 2030. The total available water supply for the City during the worst-case scenario of a multiple dry year would be 21,706 acre-feet per year in 2030, which results in as surplus of 839 acre-feet per year (Nolte Associates 2009). The assumptions used by the Urban Water Management Plan to calculate the City's demand is based on the buildout of the General Plan. The proposed project is consistent with the land use planned for the project site in the General Plan, and is therefore in the Urban Water Management Plan. Thus, the City would have adequate water supply to serve the proposed project. Project impacts would be less than significant.

(c) As noted in Section IX, all stormwater would be retained on the project site. As such, it would not generate a demand for the City's stormwater services. The project would have no impact on this issue.

(f, g) Solid waste collection services can be extended to the project site. The Forward landfill has adequate capacity to the year 2054. It is expected that the project would comply with all applicable statutes related to solid waste. Project impacts on solid waste would be less than significant.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. 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?	☐	☐	☐	☒

(a) This finding is checked as “Less Than Significant with Mitigation Incorporated” on the basis of the project’s potential biological impacts, described in Environmental Checklist No. IV. Potentially significant environmental effects were identified in this issue area, but all of the potentially significant effects would be reduced to a less than significant level with mitigation incorporated into the project.

(b) As described in this Initial Study, the potential environmental effects of the project would be either less than significant, or the project would have no impact at all, when compared to the baseline. Where the project involves potentially significant effects, these effects would be reduced to a less than significant level with proposed mitigation measures and compliance with required permits and applicable regulations. The potential environmental effects identified in this Initial Study have been considered in conjunction with each other as to their potential to generate other potentially significant effects. The various potential environmental effects of the project would not combine to generate potentially significant cumulative effects.

As described in Environmental Checklist No. X, the project is consistent with the City of Lathrop General Plan. The Lathrop General Plan EIR analyzed potential cumulative effects of development under the General Plan and did not identify any cumulatively considerable effects that pertains to this project.

(c) Potential adverse effects on human beings were discussed in Environmental Check List No. VI, Geology and Soils, VIII, Hazards and Hazardous Materials, and IX, Hydrology and Water Quality (flooding). No potential adverse effects on human beings were identified during the preparation of this IS/MND.

REFERENCES:

1. California, State of, Governor's Office, Office of Planning and Research, Office of Permit Assistance, *Hazardous waste and Substances Site*, List pursuant to AB 3750, Current Edition.
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3. California, State of, Office of Planning and Research, *State Planning and Zoning Laws*, 2007.
4. The Farmland Mapping and Monitoring Program in the California Resources Agency, Department of Conservation, maintain detailed maps of these and other categories of farmland.
5. City of Lathrop, The Code of Ordinances of Lathrop, *Zoning Ordinance*, current edition.
6. City of Lathrop, Community Development Department, Planning Division, Zone Maps, current edition.
7. Lathrop-Manteca Fire District, Code of Ordinances of Lathrop, Fire Code, current edition.
8. San Joaquin Valley Air Pollution Control District, *Air Basin Significance Thresholds*, current edition.
9. United States Federal Emergency Management Agency, *FIRM Flood Insurance Map, Panel No. 0602990585C*, dated December 16, 2005
10. City of Lathrop, General Plan and EIR for the City of Lathrop adopted December 17, 1991.
11. Section 2081, MOU and Adopted Swainson's Hawk Habitat Management Plan (HMP) by Sycamore Environmental, 1995 (Tracking No. 2081-1995-083-2).
12. City of Lathrop, *Emergency Evacuation Plan*, 1995.
13. City of Lathrop, *Master Storm Drainage Plan*, 1992.
14. City of Lathrop, *Master Water Plan*, 1992.
15. City of Lathrop, *Master Bicycle Plan Amended*, January 28, 2003.
16. City of Lathrop, *Wastewater Facilities Master Plan*, 1996.
17. City of Lathrop, Water, Wastewater, and Recycled Water Master Plan and EIR, 2001.
18. City of Lathrop, West Lathrop Specific Plan and EIR, February 20, 1996
19. City of Lathrop, Mossdale Landing EIR, January 27, 2003
20. City of Lathrop, River Islands at Lathrop SEIR, January 28, 2003
21. City of Lathrop, West Lathrop Specific Plan Amended, January 28, 2003 City of Lathrop
22. City of Lathrop, South Lathrop Specific Plan, June 2014
23. Terracon Consultants, Inc. 2018. Geotechnical Engineering Report. April 19, 2018.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Appendix A

Geotechnical Engineering Report

A&A Intermodal Terminal II
Lathrop, CA
April 19, 2018
Terracon Project No. NA185032

Prepared for:
Sunrise Trucking, Inc.
French Camp, California

Prepared by:
Terracon Consultants, Inc.
Lodi, California

April 19, 2018

Terracon

Sunrise Trucking, Inc.
865 E. Roth Road
French Camp, CA 95231

Attn: Mr. Sam Gill
P: (209) 531-0539
E: sam@sunrisetruckinginc.com

Re: Geotechnical Engineering Services
A&A Intermodal Terminal II
1850 E. Louise Avenue
Lathrop, California
Terracon Project Number: NA185032

Dear Mr. Gill,

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with the proposal dated March 13, 2018 and revised March 14, 2018, proposal number PNA185032. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, pavements, and other earth connected phases for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Patrick C. Dell

Patrick C. Dell, G.E. 2186
Senior Associate

Christopher B Congrave

Christopher B. Congrave, EIT 157943
Staff Engineer

Enclosures
cc: 1 – Client (PDF)
1 – File

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

EXECUTIVE SUMMARY

A geotechnical engineering report has been prepared for the proposed A&A Intermodal Terminal II to be located at 1850 E. Louise Avenue in Lathrop, California. Terracon's geotechnical engineering scope of work for this project included drilling four (4) borings for subsurface exploration, laboratory testing, geotechnical engineering analysis, and preparation of this report. Three (3) of the four borings were advanced between 5 to 6½ feet below ground surface (bgs) and one (1) boring was advanced to 25 feet bgs. Additionally, one percolation test was performed at a depth of 8½ feet bgs.

Based on the information obtained from our engineering analyses of the field and laboratory data, the site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, and provided our recommendations contained in this report are properly implemented in the design and construction of the development. The following geotechnical considerations were identified:

- The near surface soils encountered in our borings consisted of medium dense to dense silty sand that extended to about 18 feet below the ground surface (bgs). The upper silty sandy soils were underlain by lean clay that extended to the maximum depth explored of 25 feet bgs. In boring B3 we encountered very stiff sandy silt from 4 feet bgs extending to the planned boring depth of 6½ feet bgs.
- Groundwater was encountered at 19 feet bgs in the boring B1.
- Given the medium dense nature of the near surface soil, the proposed guard shack building may be supported on spread foundations bearing on undisturbed native soil or a minimum of 12 inches of compacted native soil or engineered fill. The slab should also be supported on undisturbed native soil or a minimum of 12 inches of compacted native soil or engineered fill.
- The 2016 California Building Code seismic site classification for this site is D.
- Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of the subgrade, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project. Such evaluation is considered an extension of this study.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We therefore recommend that the Terracon be retained to monitor this portion of the work.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The

section titled **GENERAL COMMENTS** should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT
A&A INTERMODAL TERMINAL II
LATHROP, CALIFORNIA

Terracon Project No. NA185032
April 19, 2018

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed A&A Intermodal Terminal II project located at 1850 E. Louise Avenue in Lathrop, California. Logs of the borings along with a site location map and exploration plan are included in Appendix A of this report.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- earthwork and subgrade preparation
- pavement design and construction
- foundation design and construction
- slab design and construction
- seismic site classification

Our geotechnical engineering scope of work for this project included drilling four (4) borings, soil classification, laboratory testing, geotechnical engineering analysis, and preparation of this report.

2.0 PROJECT INFORMATION

2.1 Project Description

Item	Description
Site layout	See Appendix A, Exhibit A-2: Exploration Plan
Structure	The proposed project will include the construction of an approximately 20ft x 20ft guard shack with an asphalt concrete driveway and parking lot.
Maximum Loads (assumed)	Column load –10 to 20 kips Continuous Wall Load –0.5 to 1 klf
Grading	Based on the topography, we anticipate relatively minor cuts and fills less than 4 feet in vertical extent to provide a level building pad and parking lot.

2.2 Site Location and Description

Item	Description
Location	1850 E. Louise Avenue, Lathrop, California.
Existing Features	The site previously contained several buildings extending approximately 500 feet south from Louise Avenue that have since been demolished. Aerial photos from Google Earth indicate the buildings were removed sometime between 1993 and 2003. The site is currently bare ground with vegetative growth.
Current ground cover	Bare ground with medium grass.
Existing topography	The site is relatively flat. Elevation of the project site is approximately 21 feet above Mean Sea level.

3.0 SUBSURFACE CONDITIONS

3.1 Seismic Considerations

3.1.1 Seismic Site Class and Parameters

The following table presents the seismic design values and site class as calculated from the USGS U.S. Seismic Design Maps website utilizing ASCE 7-10.

DESCRIPTION	VALUE
2016 California Building Code Site Classification (CBC) [1]	D
Site Latitude	37.8108°
Site Longitude	-121.2708°
S_s Spectral Acceleration for a Short Period	1.039g
S_1 Spectral Acceleration for a 1-Second Period	0.366g
F_a Site Coefficient for a Short Period	1.085
F_v Site Coefficient for a 1-Second Period	1.669
S_{Ms} Maximum Considered Spectral Response Acceleration for a Short Period	1.126g
S_{M1} Maximum Considered Spectral Response Acceleration for a 1-Second Period	0.610g
S_{Ds} Design Spectral Response Acceleration for a Short Period	0.751g
S_{D1} Design Spectral Response Acceleration for a 1-Second Period	0.407g
PGA_M Peak Ground Acceleration	0.425g

[1] Note: The 2016 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100 foot soil profile determination. Borings extended to a maximum depth of 25 feet, and this seismic site class definition considers that similar soils continue below the maximum depth of the subsurface exploration. Additional exploration to greater

DESCRIPTION	VALUE
depths could be considered to confirm the conditions below the current depth of exploration. Alternatively, a geophysical exploration could be utilized in order to attempt to confirm the seismic site class.	

The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of State Fault Hazard Maps.[1]

3.1.2 Liquefaction Potential Evaluation

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils and fine grained low plasticity soils exist below groundwater. The California Geologic Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. The project site is not located within a liquefaction hazard zone mapped by the CGS.

Due to small size and light weight of the guard shack, a liquefaction analysis was not performed.

3.2 Typical Profile

Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/ Density
1[1]	18	Silty Sand	Medium Dense to Dense
2[2]	6½	Sandy Silt	Very Stiff
3[3]	25	Lean Clay	---

1. Borings B2 & B4 were terminated within this stratum at 5½ feet bgs and 5 feet bgs, respectively.
2. This stratum was only encountered in boring B3 where it was terminated at 6½ feet bgs.
3. Boring B1 was terminated within this stratum at 25 feet bgs

Conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in situ, the transition between materials may be gradual. Details for each of the borings can be found on the boring logs in Appendix A of this report.

[1] California Department of Conservation Division of Mines and Geology (CDMG), *"Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California.*

3.3 Groundwater

Groundwater was encountered in boring B1 at 19 feet bgs at the time of our investigation. This represents groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater conditions in the future could change due to rainfall, construction activities, irrigation, or other factors. The evaluation of these factors is beyond the scope of this study.

3.3.1 Percolation Testing and Storm Water Considerations

As requested, we performed one (1) percolation test within the proposed storm water retention basin at the west side of the site for the design on the onsite basin. The percolation test was drilled to the depth of approximately 8½ feet bgs as requested by Wong Engineers, Inc. The approximate location of the test hole is shown on the Exploration Plan, Exhibit A-2. The location of the test was provided to us by Wong Engineers, Inc.

After drilling the test hole, we placed approximately 2 inches of gravel in the bottom of the hole, then placed slotted PVC pipe in the hole, and filled the annular space around the pipe with gravel. We then filled the hole with water to a depth of about 4 feet and then allowed the hole to soak overnight. No water remained in the hole when we returned the following day. The hole was then filled with about 3 feet of water and then the drop in water was measured for one (1) foot (from 3 feet to 2 feet of head) during four (4) tests. The hole was refilled to 3 feet after each of the four (4) tests. This method was used due to the water escaping the test hole too quickly to be able to take equal time measurements.

Since the percolation test consisted of a vertical bore hole, the percolation rate was converted to an infiltration rate using the Porchet Equation which may be used by others to design the basin. Based on the measured data, an infiltration rate of 13 inches/hour was calculated.

Given the sandy soil conditions, it is our opinion that the native soils are suitable for infiltration system design. We have provided considerations for the retention/detention facility.

The long term infiltration rates will depend on many factors, and can be reduced if the following conditions are present:

Shallow groundwater table,
Variability of site soils.
Fine layering of soils, or
Lack of maintenance and pre-treatment of the influent

Groundwater: Based on the estimated depth to groundwater of approximately 19 feet bgs, groundwater levels may fluctuate and impact the performance of the basin. This should be taken into consideration in the design of the basin.

Construction Considerations: Operation of heavy equipment may densify the receptor soils below the infiltration facility. The soils exposed in the bottom of the infiltration facility should not be compacted. It may be necessary to scarify the infiltration facility subgrade to facilitate infiltration.

Maintenance of Facilities: Satisfactory long-term performance of an infiltration facility will require some degree of maintenance. Accumulations of sediment, organic materials, or other material that serves to mask the receptor soils or reduce their permeability should be removed on a regular basis. As part of the maintenance program, the contractor should be required to dispose of the fines at an approved facility in accordance with applicable regulation.

Since our tests were performed using clean water, the storm water runoff will likely contain materials such as silt, leaves, oil residues, and other matter that may reduce the percolation characteristics of the soil. We therefore recommend that an appropriate safety factor be applied to the estimated infiltration rate for use in design and based on the amount of filtration designed into the system.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations presented in this report are implemented during the design and construction phases of this project. Based on the geotechnical engineering analyses, subsurface exploration, and laboratory test results, we recommend that the proposed guard shack building be supported on spread footings bearing on undisturbed native soil or a minimum of 12 inches of compacted native material or engineered fill. The main geotechnical consideration for this project is to provide uniform support for the foundations.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing (which are presented in Appendices A and B), engineering analyses, experience, and our current understanding of the proposed project.

4.2 Earthwork

The following presents recommendations for site preparation, excavation, subgrade preparation and placement of fills on the project. The recommendations presented are for the design and construction of earth supported elements including foundations and concrete slabs and are

contingent upon following the recommendations outlined in this section. All grading for the structure should incorporate the limits of the proposed structure plus a lateral distance of at least 5 feet beyond the outside perimeters (the building pad).

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of the subgrade, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project. Such evaluation is considered an extension of this study.

4.2.1 Site Preparation

Strip and remove existing debris, vegetation, and other deleterious materials (such as roots, ½ in diameter or larger) from the outline of the proposed structural improvements. This should include the removal of any buried concrete slabs or buried footings that may exist within the area of the proposed construction. Exposed surfaces should be free of mounds and depressions, which could prevent uniform compaction.

Although evidence of utilities or underground facilities was not observed during the site reconnaissance or encountered when clearing the boring locations for underground utilities, it is possible such features may be encountered during construction. If encountered, abandoned underground utilities and facilities should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

4.2.2 Subgrade Preparation

Care should be taken to prevent wetting or drying of the bearing materials during construction. Wet, dry, or loose/disturbed material at the bottom of the footing excavations should be removed before foundation concrete is placed. Place a lean concrete mud-mat over the bearing soils if the excavations must remain open for an extended period of time.

Exposed areas which will receive fill, once properly cleared, should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted per the compaction requirements in Section 4.2.4.

Subgrade materials beneath interior floor slabs, exterior slabs and pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 12 inches. The moisture content and compaction of subgrade soils should be maintained until pavement construction.

Exposed soils should be proof rolled and approved by the Engineer prior to the placement of engineered fill. Any soft spots, where the contractor may have difficulty in obtaining the desired compaction, shall be removed and replaced with compacted backfill as described in this report.

4.2.3 Material Requirements

All fill materials from any source should be inorganic soils free of vegetation, debris, and fragments larger than three inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Imported earth materials for use as engineered fill should be pre-approved by our representative during construction. On site soils and imported non-expansive soils may be used as fill material for the following:

- general site grading
- foundation areas
- slab-on-grade floor
- foundation backfill
- trench backfill
- exterior floor slabs

Soils for use as compacted engineered fill material within the proposed building areas should conform to non-expansive materials as indicated as follows:

Gradation	Percent Finer by Weight (ASTM C 136)
3"	100
No. 4 Sieve	50-100
No. 200 Sieve	20 - 40

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 10 (max)
- Maximum expansive index* ..... 20 (max)

*ASTM D 4829

The on-site silty sands should meet the specifications above and use for fills at building pad areas. Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed twelve inches loose thickness.

4.2.4 Compaction Requirements

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Relative Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
Approved on-site or import engineered fill soils:			
Beneath foundations:	90	0%	+3%

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Relative Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
Beneath slabs:	90	0%	+3%
Utility trenches (structural areas):	90	0%	+3%
Fill within 2 feet of finish grade elevation:	90	0%	+3%
On-site Soils: Bottom of excavation receiving fill:	90	0%	+3%
Miscellaneous backfill:	90	0%	+3%
Utility trenches (Landscape areas):	90	0%	+3%
Beneath asphalt pavements:	95	0%	+3%
Beneath concrete pavements:	95	0%	+3%
Aggregate base and Subbase (beneath pavements):	95	0%	+3%

We recommend that compacted native soil or any engineered fill be tested for moisture content and relative compaction during placement. Should the results of the in-place density tests indicate the specified moisture content or compaction requirements have not been met, the area represented by the test should be reworked and retested as required until the specified moisture content and relative compaction requirements are achieved.

4.2.5 Utility Trench Backfill

Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath the structure should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the structure. We recommend constructing an effective "trench plug" that extends at least 2 feet out from the face of the structure exterior. The plug material could consist of lean clay compacted at a water content at or above the soils optimum water content or lean concrete. The plug should be placed to completely surround the utility line. If lean concrete is used, then the utility line should be sleeved through flexible material and/or designed to be flexible.

4.2.6 Grading and Drainage

All final grades must provide effective drainage away from the structure during and after construction. Water permitted to pond next to the structure can result in greater soil movements than those discussed in this report. These greater movements can result in unacceptable differential floor slab movements, cracked slabs and walls, and roof leaks. Estimated movements

described in this report are based on effective drainage for the life of the structure and cannot be relied upon if effective drainage is not maintained.

Exposed ground should be sloped at least 2 percent away from the structure for at least 10 feet beyond the perimeter of the structure. After building construction and landscaping, we recommend the Civil Engineer/Surveyor verify final grades to document that effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted as necessary, as part of the structure's maintenance program.

Positive drainage should be provided during construction and maintained throughout the life of the structure. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

4.2.7 Earthwork Construction Considerations

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. On-site silty sands may pump or become unworkable at high water contents. The workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying. If the construction schedule does not allow for scarifying and drying by aeration in place, the contractor may utilize dry crushed rock materials and geogrid to stabilize wet subgrade materials. If soil stabilization is needed, Terracon should be consulted to evaluate the situation as needed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of the floor slab. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to construction.

As a minimum, all temporary excavations should be sloped or braced as required by Occupational Safety and Health Administration (OSHA) regulations to provide stability and safe working conditions. The contractor, by his contract, is responsible for designing and constructing stable, temporary excavations (including utility trenches) as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, and backfilling of excavations to the completed subgrade.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork may require additional mitigation measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

4.3 Foundations

In our opinion, after the site is prepared in accordance with the recommendations outlined herein, the proposed building can be supported by shallow spread footings bearing on undisturbed native soil or a minimum of 12 inches of compacted native soil or engineered fill.

4.3.1 Foundation Design Recommendations

DESCRIPTION	RECOMMENDATION
Foundation Type	Conventional Shallow Spread Footings
Bearing Material	Undisturbed native soil or compacted native soil or engineered fill
Allowable Bearing Pressure with 12 inches compacted native soil or engineered fill[1,2]	3,500 psf for spread footings
Allowable Bearing Pressure with undisturbed native soil[1,2]	2,500 psf for spread footings
Minimum Dimensions	Walls: 12 inches; Columns: 24 inches
Minimum Embedment Depth Below Finished Grade[3]	12 inches
Total Estimated Settlement[4]	Less than 1 inch
Estimated Differential Settlement[4]	½ inch in 30 feet.
Ultimate passive pressure[5]	300 pcf, equivalent fluid density
Ultimate coefficient of sliding friction[5]	0.32

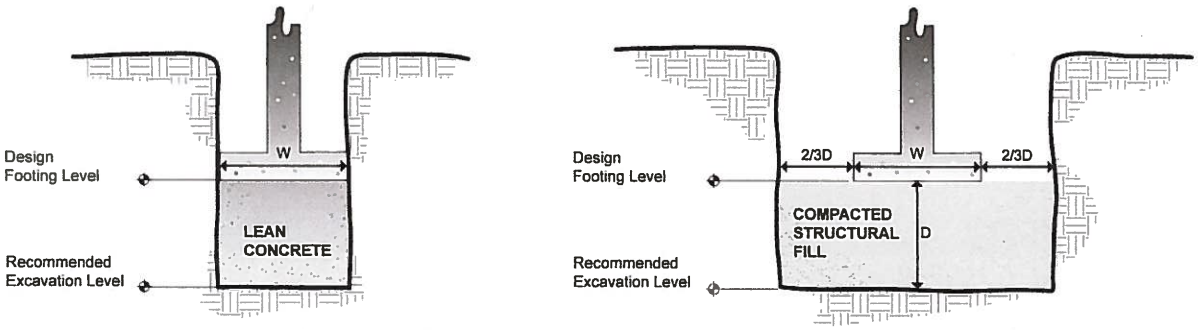
1. The recommended allowable bearing pressure is the net pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Assumes any unsuitable existing fill or soft soils, if encountered, will be undercut and replaced with compacted structural fill. Based upon a minimum Factor of Safety of 3.

DESCRIPTION	RECOMMENDATION

2. The allowable foundation bearing pressure applies to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.
3. Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings.
4. The above settlement estimates from foundation loads have assumed that the minimum footing width is 2 feet for column footings and 1 foot for continuous footings and the maximum footing widths for column and continuous footings are 4 feet and 2 feet, respectively.
5. The spread footing foundation excavation sides must be nearly vertical and the concrete should be placed neat against these vertical faces for the passive earth pressure values to be valid. If the loaded side is sloped or benched, and then backfilled, the allowable passive pressure will be significantly reduced. Passive resistance in the upper 1 foot of the soil profile should be neglected. If passive resistance is used to resist lateral loads, the base friction should be reduced by 50 percent.

4.3.2 Foundation Construction Considerations

If unsuitable bearing soils are encountered in footing excavations, the excavation could be extended deeper to suitable soils and the footing could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. As an alternative, the footings could also bear on properly compacted structural backfill extending down to the suitable soils. Overexcavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with well graded granular material placed in lifts of 9 inches or less in loose thickness (6 inches or less if using hand-guided compaction equipment) and compacted to at least 90 percent of the maximum dry density as determined by the ASTM D1557 test method. The overexcavation and backfill procedure is described in the following figure.



Lean Concrete Backfill **Overexcavation / Backfill**

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

To ensure footings have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footing should be at least 1 foot below an

imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest bottom edge of the adjacent trench.

4.4 Floor Slabs

4.4.1 Floor Slab Design Recommendations

Item	Description
Floor slab support[1]	A minimum of 12 inches of compacted native soil or engineered fill [1]
Capillary break:	
For slabs with floor coverings (moisture sensitive).	4 inches of free draining granular material
For slabs exposed, no floor coverings.	4 inches of Class 2 Aggregate Base

1. Upon completion of grading operations in the building areas, the recommend subgrade moisture content and density should be maintained through construction of the building floor slab.

4.4.2 Floor Slab Construction Considerations

The use of a vapor retarder should be considered beneath concrete slabs-on-grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Some differential movement of a slab-on-grade floor system is possible should the moisture content of the subgrade soils vary significantly. Such movements are anticipated to be within general tolerance for normal slab-on-grade construction. To reduce (not prevent) potential slab movements, the subgrade soils should be prepared as outlined in the **Earthwork** section of this report.

On most project sites, the site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of granular material and concrete and corrective action will be required.

Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All floor slab subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the granular material and concrete.

4.5 Pavements

A representative soil sample was obtained from the near surface soils and subjected to an R-value test in our laboratory. The sample produced an R-value of 69. Caltrans allows the use of a maximum R-value of 50 in design; therefore, a design R-value of 50 was used in our calculations.

Traffic indices of 4.0 through 7.0 were used to design the pavement sections for the site based on our experience with similar sites. The project civil engineer should determine the appropriate traffic index for this project. If different traffic indices are required, please contact our office and a suitable design can be provided. Flexible (asphalt concrete) pavement sections have been designed according to the latest edition of the Caltrans Highway Design Manual using a 20-year pavement life. The recommended pavement sections are shown in the table below.

CONVENTIONAL ASPHALT CONCRETE PAVEMENT SECTIONS, inches			
Traffic Index	**Asphalt Surface**	**Aggregate Base**	**Total Thickness**
4.0	2.5	4.0 (min)	6.5
5.0	3.0	4.0 (min)	7.0
6.0	3.5	4.0 (min)	7.5
7.0	4.0	5.0	9.0

Minimum PCC Pavement Section (inches)		
Traffic Area	**Portland Cement Concrete**	**Aggregate Base**
Automobile Parking	5.0	4.0
Drive Lanes/Entrances/Exits	6.0	4.0
Dumpster Pad	7.0	4.0

Rigid PCC pavements will perform better than AC in areas where short-radii turning and braking are expected (i.e. entrance/exit aprons) due to better resistance to rutting and shoving. In addition, PCC pavement will perform better in areas subject to large or sustained loads. We recommend rigid pavement for the dumpster area to include the area where the trucks will pick up the dumpster. An adequate number of longitudinal and transverse control joints should be placed in the rigid pavement in accordance with ACI and/or AASHTO requirements. Expansion (isolation) joints must be full depth and should only be used to isolate fixed objects abutting or within the paved area.

All concrete for rigid pavements should have a minimum flexural strength of 500 psi, a minimum compressive strength of 4,000 psi. and be placed with a maximum slump of four inches. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. All

joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

We recommend all PCC pavement details for joint spacing, joint reinforcement, and joint sealing be prepared in accordance with American Concrete Institute (ACI 330R-01 and ACI 325R.9-91). PCC pavements should be provided with mechanically reinforced joints (doweled or keyed) in accordance with ACI 330R-01.

These pavement sections are considered minimum sections based on the expected traffic and the existing subgrade conditions; however, they are expected to function with periodic maintenance and overlays if good drainage is provided and maintained.

4.5.1 Pavement Construction Considerations

The upper 12 inches of all pavement subgrade should be scarified, moisture conditioned, and compacted to a minimum of 95 percent of the material's maximum dry density as determined by the ASTM D1557 test method.

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the latest edition of Caltrans Standard Specifications.

On most project sites, the site grading is generally accomplished early in the construction phase. However, as construction proceeds, the subgrades may become disturbed due to utility excavations, construction traffic, rainfall, etc. As a result, the pavement subgrade may not be suitable for placement of aggregate base and pavement.

We recommend the area underlying the pavement be rough graded and proof-rolled prior to placement of aggregate base material. Particular attention should be paid to high traffic areas and utility trenches that were backfilled. Areas where disturbance has occurred and materials are unsuitable should be removed and replaced with compacted engineered fill.

We recommend the pavement construction be scheduled in the later stage of construction activities when most heavy construction traffic such as concrete trucks and material delivery trucks will no longer come on site.

The aggregate base should be uniformly moisture-conditioned and compacted to a minimum of 95 percent of the maximum dry density as determined in the ASTM D1557 test method in accordance with this report. Base course or pavement materials should not be placed when the surface is wet. Surface drainage should be provided away from the edge of paved areas to minimize lateral moisture transmission into the subgrade.

Minimizing subgrade saturation is an important factor in maintaining subgrade strength. Water allowed to pond on or adjacent to pavements could saturate the subgrade and cause premature

pavement deterioration. The pavement should be sloped to provide rapid surface drainage, and positive surface drainage should be maintained away from the edge of the paved areas. Design alternatives which could reduce the risk of subgrade saturation and improve long-term pavement performance include crowning the pavement subgrades to drain toward the edges, rather than to the center of the pavement areas; and installing surface drains next to any areas where surface water could pond. Properly designed and constructed subsurface drainage will reduce the time subgrade soils are saturated and can also improve subgrade strength and performance. In areas where there will be irrigation adjacent to pavements, we recommend the owner consider installing perimeter drains for the pavements.

Preventative maintenance should be planned and provided for through an on-going pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g. crack and joint sealing and patching) and global maintenance (e.g. surface sealing). Preventive maintenance is usually the first priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

5.0 GENERAL COMMENTS

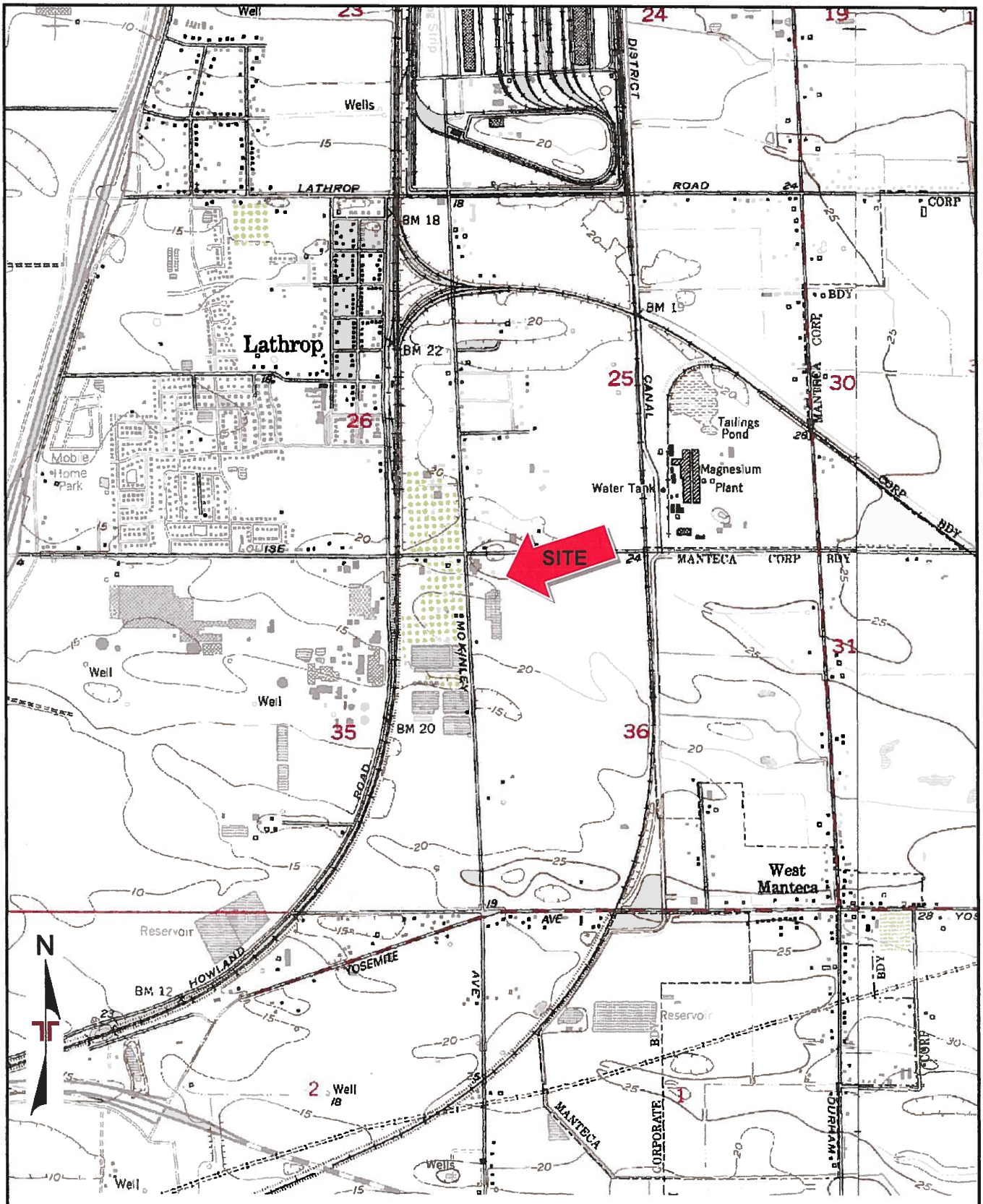
Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: LATHROP, CA (1/1/1996) and MANTECA, CA (1/1/1994).

Project Manager:	PCD
Drawn by:	CBC
Checked by:	PCD
Approved by:	PCD

Project No.	NA185032
Scale:	1"=2,000'
File Name:	N/A
Date:	April 2018

Terracon
902 Industrial Way
Lodi, CA 95240-3106

SITE LOCATION

A&A Intermodal Terminal II
1850 E. Louise Ave
Lathrop, CA

Exhibit
A-1

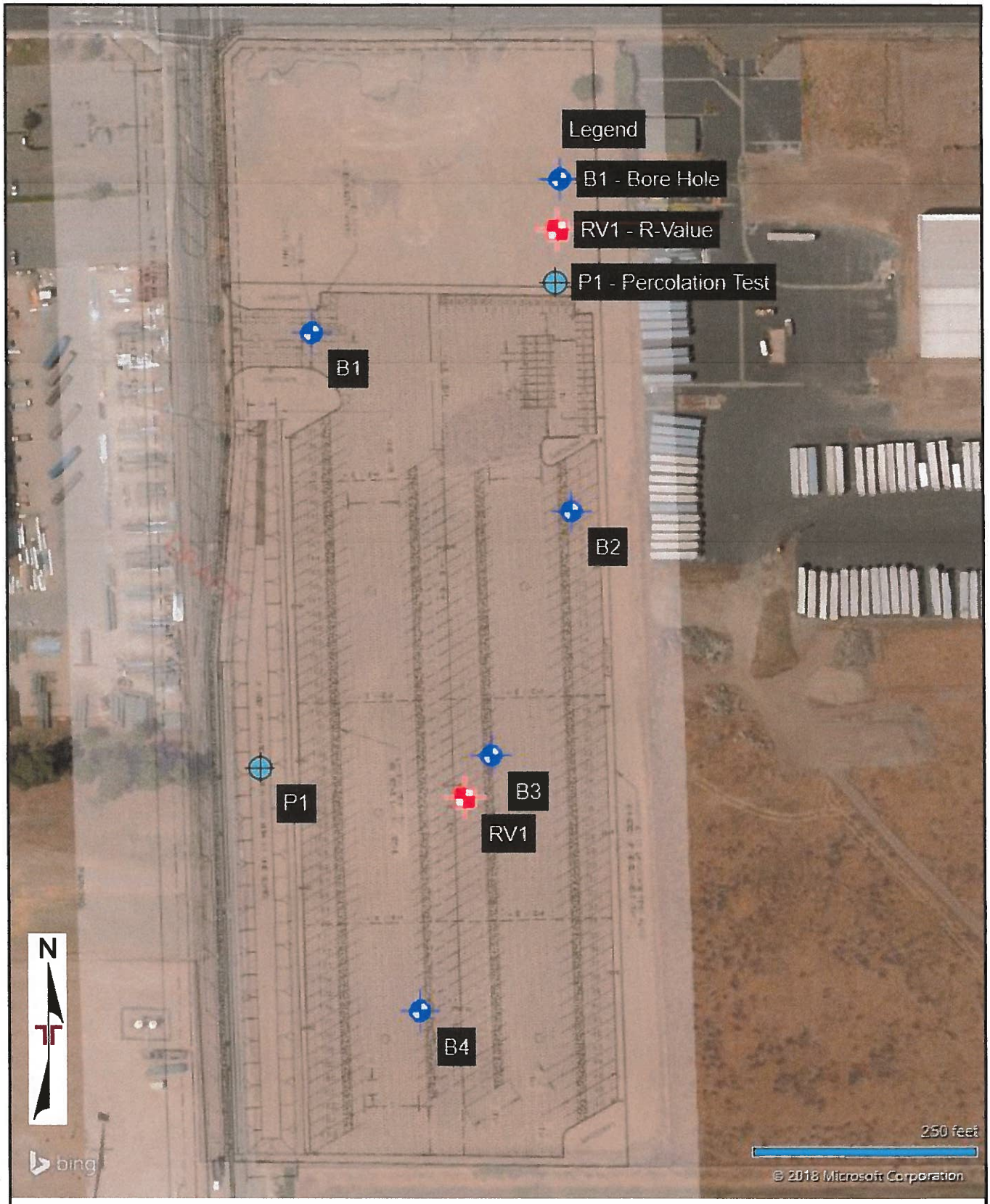


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Project Manager:	PCD
Drawn by:	CBC
Checked by:	PCD
Approved by:	PCD
Project No.	NA185032
Scale:	AS SHOWN
File Name:	N/A
Date:	April 2018

Terracon
902 Industrial Way
Lodi, CA 95240-3106

EXPLORATION PLAN

A&A Intermodal Terminal II
1850 E. Louise Ave
Lathrop, CA

Exhibit
A-2

Field Exploration Description

The proposed boring locations were laid out in the field by a Terracon representative using a scaled site plan provided by the client and utilizing hand-held GPS equipment. Ground surface elevations indicated on the boring logs were estimated from Google earth aerial photos. The locations and elevations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The borings were drilled with a truck-mounted rotary drill rig using continuous flight hollow-stem augers to advance the boreholes as well as a hand auger. Samples of the soil encountered in the borings were obtained using the split-barrel sampling procedures and hand auger split-barrel sampling procedures.

In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (SPT-N). This value is used to estimate the in situ relative density of cohesionless soils and consistency of cohesive soils.

In the hand auger split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler 4 inches of penetration by means of an 10-pound hammer with a free fall of 18 inches. The blows are for information purposes only and do not correlate to standard penetration resistance value (SPT-N).

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with auger cuttings prior to the drill crew leaving the site.

A field log of each boring was prepared by the field engineer. These logs included visual classifications of the materials encountered during drilling as well as the engineer's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the geotechnical engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

BORING LOG NO. B1

PROJECT: A&A Intermodal Terminal II

CLIENT: Sunrise Trucking Inc.
French Camp, CA

SITE: 1850 E. Louise Ave
Lathrop, CA

LOCATION See Exhibit A-2

Latitude: 37.8108° Longitude: -121.2708°

Approximate Surface Elev: 24 (Ft.) +/-

DEPTH	ELEVATION (Ft.)		FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	PERCENT FINES
		SILTY SAND (SM), fine to medium grained, brown, medium dense				
			4-10-9	5	122	
			9-7-6	6	106	
			4-5-8	11	106	
18.0	6+/-					
		LEAN CLAY (CL), brown				
25.0	-1+/-					
		Boring Terminated at 25 Feet				

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated usin Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

▽ *One hour after drilling*

Terracon
902 Industrial Way
Lodi, CA

Boring Started: 03-29-2018 | Boring Completed: 03-29-2018

Drill Rig: CME 75 | Driller: R. Anderson

Project No.: NA185032 | Exhibit: A-4

BORING LOG NO. B2

PROJECT: A&A Intermodal Terminal II

CLIENT: Sunrise Trucking Inc.
French Camp, CA

SITE: 1850 E. Louise Ave
Lathrop, CA

LOCATION See Exhibit A-2

Latitude: 37.8103° Longitude: -121.2699°

Approximate Surface Elev: 21 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	PERCENT FINES
SILTY SAND (SM), fine to medium grained, brown, medium dense to dense, weak cementation								
					33 in 4"	10		
		5						
5.5	15.5+/-				29 in 4 "	10		
Boring Terminated at 5.5 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Slide Hammer

Advancement Method:
Hand Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated usin Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
902 Industrial Way
Lodi, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: Hand Auger	Driller: K. Powell
Project No.: NA185032	Exhibit: A-5

BORING LOG NO. B3

PROJECT: A&A Intermodal Terminal II

CLIENT: Sunrise Trucking Inc.
French Camp, CA

SITE: 1850 E. Louise Ave
Lathrop, CA

LOCATION See Exhibit A-2

Latitude: 37.8095° Longitude: -121.2702°

Approximate Surface Elev: 20 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	PERCENT FINES
	SILTY SAND (SM), fine to medium grained, brown, dense, weak cementation							
				X	4-19-18	11	118	
4.0	16+/-							
	SANDY SILT (ML), fine to medium grained, brown, very stiff, weak cementation	5						
				X	11-21-21	27		
6.5	13.5+/-							
	Boring Terminated at 6.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated usin Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
902 Industrial Way
Lodi, CA

Boring Started: 03-29-2018	Boring Completed: 03-29-2018
Drill Rig: CME 75	Driller: R. Anderson
Project No.: NA185032	Exhibit: A-6

BORING LOG NO. B4

PROJECT: A&A Intermodal Terminal II

CLIENT: Sunrise Trucking Inc.
French Camp, CA

SITE: 1850 E. Louise Ave
Lathrop, CA

LOCATION See Exhibit A-2

Latitude: 37.8087° Longitude: -121.2705°

Approximate Surface Elev: 20 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	PERCENT FINES
SILTY SAND (SM), fine to medium grained, brown, medium dense to dense								
					44 in 4"	4		
5.1	15+/-	5			100 in <1"	25		
Boring Terminated at 5.1 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Slide Hammer

Advancement Method:
Hand Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated usin Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
902 Industrial Way
Lodi, CA

Boring Started: 03-26-2018 | Boring Completed: 03-26-2018
Drill Rig: Hand Auger | Driller: K. Powell
Project No.: NA185032 | Exhibit: A-7

APPENDIX B
SUPPORTING INFORMATION

Laboratory Testing

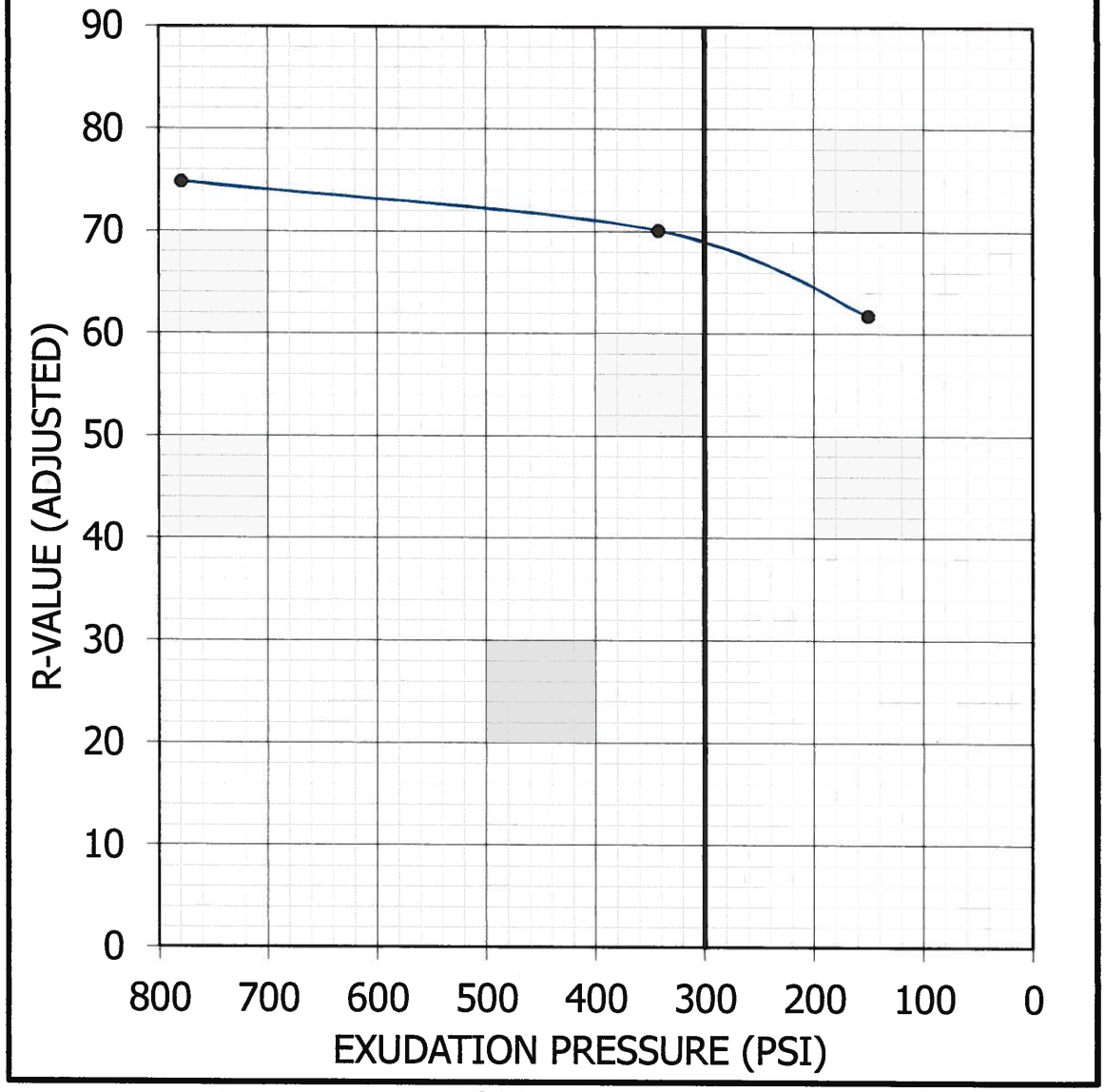
Soil samples were tested in the laboratory to measure their natural water content. The test results are provided on the boring logs included in Appendix A.

Descriptive classifications of the soils indicated on the boring logs are in accordance with the enclosed General Notes and the Unified Soil Classification System. Also shown are estimated Unified Soil Classification Symbols. A brief description of this classification system is attached to this report. All field classification was by visual manual procedures.

Terracon

JOB NAME: A&A Intermodal Terminal JOB #: NA185032
SAMPLE NUMBER: RV-1 Location: B3
SAMPLE CLASSIFICATION: Silty Sand

R-VALUE GRAPH



R-VALUE AT 300 PSI EXUDATION PRESSURE: **69**

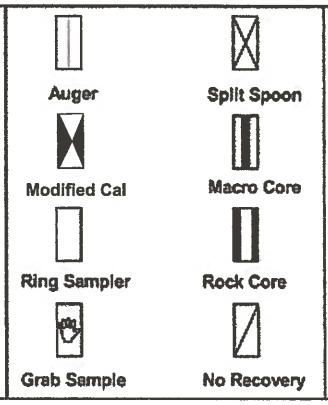
NOTES:

APPENDIX C
SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

Exhibit: C-1

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.