Attachment A

Applicable City of Oakland Standard Conditions of Approval (SCAs)

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
General			
SCA General-1, Regulatory Permits and Authorizations from Other Agencies: The project applicant shall obtain all necessary regulatory permits and authorizations from applicable resource/regulatory agencies including, but not limited to, the Regional Water Quality Control Board, Bay Area Air Quality Management District, Bay Conservation and Development Commission, California Department of Fish and Wildlife, U. S. Fish and Wildlife Service, and Army Corps of Engineers and shall comply with all requirements and conditions of the permits/authorizations. The project applicant shall submit evidence of the approved permits/authorizations to the City, along with evidence demonstrating compliance with any regulatory permit/authorization conditions of approval.	Prior to activity requiring permit/authorization from regulatory agency	Approval by applicable regulatory agency with jurisdiction; evidence of approval submitted to Bureau of Planning	Applicable regulatory agency with jurisdiction
SCA General-2, Construction Management Plan: Prior to the issuance of the first construction-related permit, the project applicant and his/her general contractor shall submit a Construction Management Plan (CMP) for review and approval by the Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department, Department of Transportation, and the Public Works Department as directed. The CMP shall contain measures to minimize potential construction impacts including measures to comply with all construction-related Conditions of Approval (and mitigation measures if applicable) such as dust control, construction emissions, hazardous materials, construction days/hours, construction traffic control, waste reduction and recycling, stormwater pollution prevention, noise control, complaint management, and cultural resource management (see applicable Conditions below). The CMP shall provide project-specific information including descriptive procedures, approval documentation, and drawings (such as a site logistics plan, fire safety plan, construction phasing plan, proposed truck routes, traffic control plan, complaint management plan, construction worker parking plan, and litter/debris clean-up plan) that specify how potential construction impacts will be minimized and how each construction-related requirement will be satisfied throughout construction of the project.	Prior to the issuance of the first construction-related permit	Bureau of Planning, Bureau of Building, and other relevant City departments	Bureau of Planning, Bureau of Building, and other relevant City departments
Aesthetics			
SCA Aesthetics-1, Lighting: Proposed new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector to prevent unnecessary glare onto adjacent properties.	Prior to building permit final	N/A	Bureau of Building
SCA Aesthetics-2: Trash and Blight Removal: The project applicant and his/her successors shall maintain the property free of blight, as defined in chapter 8.24 of the Oakland Municipal Code. For nonresidential and multifamily residential projects, the project applicant shall install and maintain trash receptacles near public entryways as needed to provide sufficient capacity for building users.	Ongoing	N/A	Bureau of Building

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SCA Aesthetics-3: Graffiti Control a) During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation: i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces iii. Use of paint with anti-graffiti coating iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED). v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement b) The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following: i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system ii. Covering with new paint to match the color of the surrounding surface iii. Replacing with new surfacing (with City permits if required)	Ongoing	N/A	Bureau of Building
SCA Aesthetics-4: Landscape Plan a) Landscape Plan Required: The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code. Proposed plants shall be predominantly drought-tolerant. Specification of any street trees shall comply with the Master Street Tree List and Tree Planting Guidelines (which can be viewed at http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak042662.pdf and http://www2.oaklandnet.com/oakca1/groups/pwa/documents/form/oak025595.pdf, respectively), and with any applicable streetscape plan.	Prior to approval of construction-related permit	Bureau of Planning	N/A
b) Landscape Installation: The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid.	Prior to building permit final	Bureau of Planning	Bureau of Building
c) Landscape Maintenance: All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation	Ongoing	N/A	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.			
Air Quality			
SCA Air-1, Dust Controls – Construction Related: The project applicant shall implement all of the following applicable dust control measures during construction of the project: a) Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible. b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer). c). All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. d) Limit vehicle speeds on unpaved roads to 15 miles per hour. e) All demolition activities (if any) shall be suspended when average wind speeds exceed 20 miles per house (mph). f) All trucks and equipment, including tires, shall be washed off prior to leaving the site. g) Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel. Because the Project involves extensive site preparation (the construction site more than four acres in size) and involves extensive soil transport (more than 10,000 CY of soil import), the following additional Enhanced dust control measures during construction of the project: h) Apply and maintain vegetative ground cover (e.g., hydro-seed) or non-toxic soil stabilizers to disturbed areas of soil that will be inactive for more than one month. Enclose, cover, water twice daily, or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.). i) Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. j) When working at a site, install appropriate windbreaks (e.g., trees, fences) on the windward side(s) of the site, to minimize wind-blown dust. Windbreaks must have a maximum 50 percent air porosity. k) Post a publicly visible large on-site sign that includes the contact name and phone number for the project complaint manager responsible for responding to dust complaints and the telephone numbers of the City's Code Enforcement unit and the Bay Area Air Quality Management District.	During construction	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	 Initial Approval	 Monitoring/ Inspection
When contacted, the project complaint manager shall respond and take corrective action within 48 hours. l) All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.			
SCA Air-2, Criteria Air Pollutant Controls - Construction Related: The project applicant shall implement all of the following applicable basic control measures for criteria air pollutants during construction of the project as applicable: a) Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized by shutting equipment off when not in use, or reducing the maximum idling time to two minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points. b) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized by shutting equipment off when not in use, or reducing the maximum idling time to two minutes. Fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off- Road Diesel Regulations"). c) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. Equipment check documentation should be kept at the construction site and be available for review by the City and the Bay Area Air Quality District as needed. d) Portable equipment shall be powered by grid electricity if available. If electricity is not available, propane or natural gas generators shall be used if feasible. Diesel engines shall only be used if grid electricity is not available and propane or natural gas generators cannot meet the electrical demand. e) Low VOC (i.e., ROG) coatings shall be used that comply with BAAQMD Regulation 8, Rule 3: Architectural Coatings. f) All equipment to be used on the construction site shall comply with the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") and upon request by the City (and the Air District if specifically requested), the project applicant shall provide written documentation that fleet requirements have been met.	During construction	Bureau of Building	Bureau of Building
SCA Air-3, Diesel Particulate Matter Controls-Construction Related: a) The project applicant shall implement appropriate measures during construction to reduce potential health risks to sensitive receptors due to exposure to diesel particulate matter (DPM) from construction emissions. The project applicant shall choose one of the following methods: i) The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the California Air Resources Board	During construction	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
(CARB) and Office of Environmental Health and Hazard Assessment to determine the health risk to sensitive receptors exposed to DPM from project construction emissions. The HRA shall be submitted to the City (and the Air District if specifically requested) for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, DPM reduction measures shall be identified to reduce the health risk to acceptable levels as set forth under subsection b below. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits and the approved DPM reduction measures shall be implemented during construction. -or- ii) All off-road diesel equipment shall be equipped with the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications. This shall be verified through an equipment inventory submittal and Certification Statement that the Contractor agrees to compliance and acknowledges that a significant violation of this requirement shall constitute a material breach of contract.			
b) *Construction Emissions Minimization Plan* (if required by a) above): The project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and the Bay Area Air Quality District if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following: i) An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date. ii. A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract	Prior to issuance of a construction related permit	Bureau of Planning	Bureau of Building
SCA Air-4, Stationary Sources of Air Pollution (Toxic Air Contaminants): The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to on-site stationary sources of toxic air contaminants. The project applicant shall choose one of the following methods: a) The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated	During construction	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
with proposed stationary sources of pollution in the project. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. The approved risk reduction measures shall be implemented during construction and/or operations as applicable. - or - b) The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City: i. Installation of non-diesel fueled generators, if feasible, or; ii. Installation of diesel generators with an EPA-certified Tier 4 engine or engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy, if feasible			
SCA Air-5, Truck-Related Risk Reduction Measures (Toxic Air Contaminants) a) *Truck Loading Dock*: The project applicant shall locate proposed truck loading docks as far from nearby sensitive receptors as feasible. b) *Truck Fleet Emission Standards*: The project applicant shall comply with all applicable California Air Resources Board (CARB) requirements to control emissions from diesel engines and demonstrate compliance to the satisfaction of the City. Methods to comply include, but are not limited to new clean diesel trucks, higher-tier diesel engine trucks with added Particulate Matter (PM) filters, hybrid trucks, alternative energy trucks, or other methods that achieve the applicable CARB emission standard. Compliance with this requirement shall be verified through CARB's Verification Procedures for In-Use Strategies to Control Emissions from Diesel Engines.	Prior to building permit final; ongoing	Bureau of Planning	Bureau of Building
SCA Air-6, Asbestos in Structures: The project applicant shall comply with all applicable laws and regulations regarding demolition and renovation of Asbestos Containing Materials (ACM), including but not limited to California Code of Regulations, Title 8; California Business and Professions Code, Division 3; California Health and Safety Code sections 25915-25919.7; and Bay Area Air Quality Management District, Regulation 11, Rule 2, as may be amended. Evidence of compliance shall be submitted to the City upon request.	Prior to approval of construction-related permit	Applicable regulatory agency with jurisdiction	Applicable regulatory agency with jurisdiction

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
Biological Resources			
CASP EIR MM Bio 1A-1, Pre-construction Nesting Bird Surveys and Buffers: The following mitigation measures are recommended to address potential impacts to special status birds and nesting birds: a) A qualified biologist shall conduct pre-construction surveys for construction activities between February 15 and September 30 to identify and subsequently avoid nesting areas for special status and migratory bird species. Surveys shall be designed and be of sufficient intensity to document rail and raptor nesting within 500 feet of planned work activities and within 50 feet for passerine nesting activity. b) Construction activities within 500 feet of Damon Marsh and Arrowhead Marsh shall be conducted during the period from August 1 to January 31 to protect potentially nesting Ridgeway rail, California black rail, Alameda song sparrow and San Francisco saltmarsh common yellowthroat. c) If Ridgeway rails, California black rails or raptors are found to be nesting within or adjacent to the planned work area, a minimum 100-foot wide buffer shall be maintained between construction activities and the nest location. d) For Alameda song sparrow, San Francisco saltmarsh common yellowthroat and all other protected birds, a 50-foot buffer shall be maintained. e) Buffer zones may be reduced in consultation with a qualified biologist. f) Buffers shall be maintained until the young have fledged and are capable of flight, or by September 30.	Pre-construction surveys conducted between February 15 and September 30 During construction	Bureau of Planning	Bureau of Building
Project Recommendation related to CASP EIR MM Bio-1A-1: The USFWS typically considers any disturbance within 700 feet direct line of sight of occupied nesting habitat to be a potential take of the federally endangered Ridgeway's rail. The 500-foot distance specified in CASP EIR MM Bio 1A-1 could be determined insufficient, and an increased construction-period buffer is recommended, as indicated below: a) Construction activities within ~~500~~ 700 feet of Damon Marsh and Arrowhead Marsh shall be conducted during the period from August 1 to January 31 to protect potentially nesting Ridgeway's rail, California black rail, Alameda song sparrow and San Francisco saltmarsh common yellowthroat	During construction	Bureau of Planning	Bureau of Building
CASP EIR MM Bio 1A-3, Salt Marsh Protection: All core habitat areas for salt marsh harvest mouse (i.e., pickleweed-dominated salt marsh habitat within Damon Marsh and Arrowhead Marsh) shall be avoided and protected. If construction activities are within 100 feet of these areas, site-specific buffers shall be established in coordination with a qualified biologist, approved by USFWS or CDFW as appropriate. a) Buffers shall be designed to preclude changes to water and soil salinity and flooding/inundation regime. The buffers shall be at least 100 feet wide or extend to the current boundary of existing roads or development (includes vacant but graded lots and filled building pads). The qualified biologist may modify these buffers depending on site conditions. b) The construction work area shall be fenced on the side closest to salt marsh habitat to delineate the extent of construction, preclude construction personnel and equipment from entering non-work	During construction	Bureau of Planning	Bureau of Building

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areas, and prevent debris from entering avoided habitats. The construction boundary fencing may also inhibit movement of species such as the salt marsh harvest mouse and salt marsh wandering shrew into the construction area. c) The qualified biologist shall be present during work on-site until the construction barrier fencing is installed, instruction of workers has been conducted, and any direct habitat disturbance has been completed. After that time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. d) The monitor and qualified biologist shall have the authority to halt construction that might result in impacts that exceed anticipated levels			
CASP EIR MM Bio 1A-4, Public Access Design: All new or additional public access to San Francisco Bay, the Bay shoreline, Damon Marsh and San Leandro Creek shall be implemented in a manner consistent with the San Francisco Bay Conservation and Development Commission's Public Access Design Guidelines for the San Francisco Bay, in particular its recommendations for avoiding adverse effects on wildlife. These Design Guidelines include the following: a) Preparation of individual site analyses to generate information on wildlife species and habitats existing at the site, and the likely human use of the site b) Employing appropriate siting, design and management strategies (such as buffers or use restrictions) to reduce or prevent adverse human and wildlife interactions c) Planning public access in a way that balances the needs of wildlife and people on an areawide scale, where possible d) Providing visitors with diverse and satisfying public access opportunities to focus activities in designated areas and avoid habitat fragmentation, vegetation trampling and erosion e) Evaluating wildlife predator access and control in site design f) Retaining existing marsh and tidal flats and restoring or enhancing wildlife habitat, wherever possible	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
CASP EIR's Further Recommendations Pursuant to SCA Aesthetics-1: In addition to the standard provisions of the City SCA Lighting Plan requirements, lighting plans for properties within the CASP planning area and near the Bay include the following: a) Acorn-style lights that are International Dark Sky Association approved "Dark Sky Friendly" will be installed. This type of lighting ensures 0 percent light above 90 degrees, directs light downward and minimizes the amount of backward and side lighting, thereby reducing light pollution on habitat and animals in the surrounding area. b) Use only the lowest luminaire wattage that still provides safe conditions for vehicular traffic, bicyclists, and pedestrians. c) If possible, correlated color temperature (an indication of how "warm" or "cool" the light source appears) ranges of the light source to be between 3800 and 4000 Kelvins. This range corresponds to "warm" light that would be less disturbing to animals.	Prior to building permit final	N/A	Bureau of Building

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d) Lights shall be directed away from and/or screened from Damon Marsh and Arrowhead Marsh.			
CASP EIR MM Bio 3-2, Herbicide / Pesticide Control: Maintenance shall require preparation and implementation of a drift control plan for herbicide/pesticide use.	On going	N/A	Bureau of Building
SCA Biology-1, Tree Removal during Bird Breeding Season: To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of birds shall not occur during the bird-breeding season of February 1 to August 15 (or during December 15 to August 15 for trees located in or near marsh, wetland, or aquatic habitats). If tree removal must occur during the bird breeding season, all trees to be removed shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the California Department of Fish and Wildlife, and will be based on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.	Prior to removal of trees	Bureau of Planning	Bureau of Building
SCA Bio-2, Bird Collision Reduction Measures: The project applicant shall submit a Bird Collision Reduction Plan for City review and approval to reduce potential bird collisions to the maximum feasible extent. The Plan shall include all of the following mandatory measures, as well as applicable Project-specific Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent. The project applicant shall implement the approved Plan. Mandatory measures include all of the following: a) For large buildings subject to federal aviation safety regulations, install minimum intensity white strobe lighting with three-second flash instead of solid red or rotating lights. b) Minimize the number of and co-locate rooftop-antennas and other rooftop structures. c) Monopole structures or antennas shall not include guywires. d) Avoid the use of mirrors in landscape design. e) Avoid placement of bird-friendly attractants (i.e., landscaped areas, vegetated roofs, water features) near glass unless shielded by architectural features taller than the attractant that incorporate bird friendly treatments no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). f) Apply bird-friendly glazing treatments to no less than 90 percent of all windows and glass between the ground and 60 feet above ground or to the height of existing adjacent landscape or the height of the proposed landscape. Examples of bird-friendly glazing treatments include the following: i. Use opaque glass in windowpanes instead of reflective glass.	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

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ii. Uniformly cover the interior or exterior of clear glass surface with patterns (e.g., dots, stripes, decals, images, abstract patterns). Patterns can be etched, fritted, or on films and shall have a density of no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). iii. Install paned glass with fenestration patterns with vertical and horizontal mullions no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). iv. Install external screens over non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects. v. Install UV-pattern reflective glass, laminated glass with a patterned UV-reflective coating, or UV-absorbing and UV-reflecting film on the glass since most birds can see ultraviolet light, which is invisible to humans. vi. Install decorative grilles, screens, netting, or louvers, with openings no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). vii. Install awnings, overhangs, sunshades, or light shelves directly adjacent to clear glass which is recessed on all sides. viii. Install opaque window film or window film with a pattern/design which also adheres to the “two-by-four” rule for coverage. g) Reduce light pollution. Examples include the following: i. Extinguish nighttime architectural illumination treatments during bird migration season (February 15 to May 15 and August 15 to November 30). ii. Install time switch control devices or occupancy sensors on non-emergency interior lights that can be programmed to turn off during non-work hours and between 11:00 p.m. and sunrise. iii. Reduce perimeter lighting whenever possible. iv. Install full cut-off, shielded, or directional lighting to minimize light spillage, glare, or light trespass. v. Do not use beams of lights during the spring (February 15 to May 15) or fall (August 15 to November 30) migration. h) Develop and implement a building operation and management manual that promotes bird safety. Example measures in the manual include the following: i. Donation of discovered dead bird specimens to an authorized bird conservation organization or museums (e.g., UC Berkeley Museum of Vertebrate Zoology) to aid in species identification and to benefit scientific study, as per all federal, state and local laws. ii. Distribute educational materials on bird-safe practices for the building occupants. Contact Golden Gate Audubon Society or American Bird Conservancy for materials. iii. Asking employees to turn off task lighting at their workstations and draw office blinds, shades, curtains, or other window coverings at end of workday.			

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iv. Install interior blinds, shades, or other window coverings in windows above the ground floor visible from the exterior as part of the construction contract, lease agreement, or CC&Rs. v. Schedule nightly maintenance during the day, or so that it concludes before 11 p.m., if possible.			
SCA Biology-3, Tree Permit: 1. *Tree Permit Required*: Pursuant to the City's Tree Protection Ordinance (OMC chapter 12.36), the project applicant shall obtain a tree permit and abide by the conditions of that permit.	Prior to approval of construction-related permit	Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building	Bureau of Building
2. *Tree Protection during Construction*: Adequate protection shall be provided during the construction period for any trees that are to remain standing, including the following, plus any recommendations of an arborist: a. Before the start of any clearing, excavation, construction or other work on the site, every protected tree deemed potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree, to be determined by the project's consulting arborist. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris that will avoid injury to any protected tree. b. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filling, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the project's consulting arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree. c. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the project's consulting arborist from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the project's consulting arborist. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.	During construction	Public Works Department, Tree Division	Bureau of Building

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d. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration. e. If any damage to a protected tree should occur during or from work on the site, the project applicant shall immediately notify the Public Works Department and the project's consulting arborist shall make a recommendation to the City Tree Reviewer as to whether the damaged tree can be preserved. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed. f. All debris created from any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.			
3. *Tree Replacement Plantings*: Replacement plantings shall be required for tree removals for the purposes of erosion control, groundwater replenishment, visual screening, wildlife habitat, and preventing excessive loss of shade, in accordance with the following criteria: a. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered. b. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye), Umbellularia californica (California Bay Laurel), or other tree species acceptable to the Tree Division. c. Replacement trees shall be at least twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate. d. Minimum planting areas must be available on site as follows: for Sequoia sempervirens, three hundred fifteen (315) square feet per tree, for other species listed, seven hundred (700) square feet per tree e. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee in accordance with the City's Master Fee Schedule may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians. f. The project applicant shall install the plantings and maintain the plantings until established. The Tree Reviewer of the Tree Division of the Public Works Department may require a landscape plan showing the replacement plantings and the method of irrigation. Any replacement plantings that fail to become established within one year of planting shall be replanted at the project applicant's expense.	Prior to building permit final	Public Works Department, Tree Division	Bureau of Building

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Recommendation Pursuant to SCA Bio-3: Landscape Plan Species: Pursuant to the Project's Tree permit and/or Creek permit, the Project applicant shall reconsider the proposed plant palette to incorporate the following recommendations: a) The Project's landscape plan should provide for a greater component of native trees, especially along the Project's westerly edge near Damon Marsh. b) The selection of Chinese Pistache trees within the landscape should be limited to male variety of this species, as the female variety produces berries that are attractive to birds.	Prior to building permit final	Public Works Department, Tree Division	Bureau of Building
Cultural Resources			
SCA Cultural-1: Archaeological and Paleontological Resources – Discovery during Construction: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. a) If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented. b) In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. c) Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential	During construction	N/A	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	Initial Approval	Monitoring/ Inspection
adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense. d) In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant.			
SCA Cultural-2: Human Remains – Discovery during Construction: Pursuant to CEQA Guidelines section 15064.5(e) (1), in the event that human skeletal remains are uncovered at the project site during construction activities, all work shall immediately halt, and the project applicant shall notify the City and the Alameda County Coroner. a) If the County Coroner determines that an investigation of the cause of death is required, or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. b) In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant.	During construction	N/A	Bureau of Building
Energy			
SCA Energy-1, Green Building Requirements: The project applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code). a) The following information shall be submitted to the City for review and approval with the application for a building permit: i. Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards ii. Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit iii. Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit iv. Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (b) below	Prior to approval of construction-related permit	Bureau of Building	N/A

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	Initial Approval	Monitoring/ Inspection
v. Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance vi. Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit vii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance b) The set of plans in subsection (i) shall demonstrate compliance with the following: i. CALGreen mandatory measures ii. Green building point level/certification requirements per the appropriate checklist approved during the Planning entitlement process iii. All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted. iv. The required green building point minimums in the appropriate credit categories			
c) The project applicant shall comply with the applicable requirements of CALGreen and the Oakland Green Building Ordinance during construction of the project. The following information shall be submitted to the City for review and approval: i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit ii. Signed statement(s) by the Green Building Certifier during all relevant phases of construction that the project complies with the requirements of the Green Building Ordinance iii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance	During construction	N/A	Bureau of Building
d) Compliance with Green Building Requirements after Construction Requirement: Prior to the finalizing the Building Permit, the Green Building Certifier shall submit the appropriate documentation to City staff and attain the minimum required point level.	Prior to Final Approval	Bureau of Planning	Bureau of Building
Geology and Soils			
SCA Geo-1: Construction-Related Permit(s): The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure structural integrity and safe construction.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	 Initial Approval	 Monitoring/ Inspection
SCA Geo-2: Soils Report: The project applicant shall submit a soils report prepared by a registered geotechnical engineer for City review and approval. The soils report shall contain, at a minimum, field test results and observations regarding the nature, distribution and strength of existing soils, and recommendations for appropriate grading practices and project design. The project applicant shall implement the recommendations contained in the approved report during project design and construction.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
SCA Geo-3, Seismic Hazards Zone (Landslide/Liquefaction): The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended). The geotechnical report shall be prepared by a registered geotechnical engineer for City review and approval, and shall contain, at a minimum, a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
Detailed Recommendations in Furtherance of SCAs – Seismic Hazards: The project sponsor retained Terracon to prepare a soils report and geotechnical report for the Project. This report provides the following recommendations to address seismic hazards through design: • *Seismic Considerations*: The seismic design requirements for buildings and other structures of the Project are based on the site's Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure, and the Site Classification is based on the upper 100 feet of the site profile, in accordance with Section 20.4 of ASCE 7-10. Site Classes range from A to F based on the average conditions present within 100 feet of the ground surface, with hard rock considered an 'A', down to potentially collapsible soils which get an 'F'. The Project site qualifies as a Site Class F due to the presence of liquefiable soils. The Site Classification at the Project site could be improved from a Site Class F to a Site Class D by performing ground improvements (see below) that improve the stiffness/density and strength of the very-soft to soft Bay Mud and loose, potentially liquefiable sands. • *Ground Improvement Option*: The 2018 Terracon Report identifies ground improvements (known as Deep Soil Mixing, or DSM) as an appropriate option to mitigate the combined effects associated with the liquefaction, undocumented fill and compressible Bay Mud concerns at this site. DSM is achieved through a process of in-situ mixing of the subsurface soils with cement or a lime-cement combination. This results in physiochemical stabilization of the soils to increase the compressive and shear strength of the material, and to decrease settlement. DSM is accomplished by either a wet mixing method using primarily cement, or a dry mixing method using lime-cement. The wet mixing method should be used for the Project site based on the subgrade soils and groundwater conditions. This method would significantly improve the stiffness/density and strength of the very soft, to soft Bay Mud and loose sands that underlay the site. By improving the stiffness/density and strength of the very soft, to soft Bay Mud and loose sands, DSM would also help improve the	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

	Mitigation Implementation/Monitoring		
Standard Conditions of Approval/Mitigation Measures	**When Required**	**Initial Approval**	**Monitoring/ Inspection**
Seismic Site Class required for design at the site, and would provide an added assurance against lateral spreading to occur by stabilizing potentially liquefiable soils. • *Deep Foundations*: As an alternative to the DSM option, steel piles driven to into firm native soil below the Bay Mud and liquefiable soil layers can be used to support the Project's proposed Office, Warehouse and Workshop buildings and retaining walls. This would involve steel sections driven through the very soft Bay Mud and liquefiable soils to their design capacity. The preliminary design capacities for individual steel pipe piles to provide an adequate factor of safety for the load carrying capacity requires that steel piles be driven to a depth of 65 to 100 feet (with a preliminary recommendation of 70 to 80 feet below existing grade). Driven piles should be spaced at least three pile widths apart (center-to-center) if side friction is used for compressive loads. If desired, pre-drilling of oversized holes could be conducted prior to pile driving (with filling the resulting annular space with bentonite slurry), casing sleeves could be provided around the piles to separate the piles from direct contact with settling soils, and/or the piles could be coated with bitumen to allow slippage. • *Rammed Aggregate Piers*: As an alternative to the DSM option, the existing undocumented fill and compressible Bay Mud under these areas could be reinforced with a Rammed Aggregate Pier (RAP) system installed on a grid pattern. This option would allow for the placement of stockpiled materials and retaining wall foundations directly atop the RAP-reinforced subgrade. The RAP system would serve to stiffen the existing undocumented fill and Bay Mud. Piers would be constructed by advancing a drill or mandrel to design depths, then building a bottom bulb of clean, open-graded stone. The pier is built on top of the bottom bulb, using graded aggregate placed in thin lifts (12 to 24 inches compacted thickness). We anticipate shafts would extend to depths of 20 feet or less for this site. The result of construction is a reinforced zone of soils directly under the stockpiled materials and footings, which allows of the construction of shallow spread footings sized for relatively higher bearing pressures and with lower anticipated settlements. • *Floor Slabs*: Due to anticipated settlements from liquefaction and consolidation settlement, the building floor slabs should be entirely structurally supported by deep foundations, or alternative floor slab options may be considered if the subgrade in the area of the buildings is improved by DSM. • *Vapor Barrier*: The use of a vapor retarder should be considered beneath those concrete slabs on grade that are to be covered with moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture.			
Detailed Recommendations in Furtherance of SCAs - Earthwork: The project sponsor retained Terracon to prepare a soils report and geotechnical report for the Project. This report provides the following recommendations to address earthwork (clearing and grubbing, excavations and fill placement) as necessary to render the site ready for foundations, floor slabs and pavement.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring		
	When Required	Initial Approval	Monitoring/ Inspection
• *Site Preparation*: Prior to placing fill, existing vegetation and root mat, debris, stockpiled soil and any otherwise unsuitable material should be removed. Complete stripping of the topsoil should be performed in proposed building and parking/driveway areas. The subgrade should be proof-rolled with an adequately loaded vehicle such as a fully loaded tandem axle dump truck. Any areas excessively deflecting under the proof-roll should be delineated and separately addressed by either further soil removal or stabilization (see below). Excessively wet or dry materials should be removed or moisture conditioned and re-compacted. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. • *Subgrade Preparation*: After clearing, any required cuts should be made. The undocumented fill below pavement and hardscape areas should be over-excavated to a minimum depth of 2 feet. The presence of over-sized debris or a high volume of organic material may warrant additional over-excavation at the time of grading operations. If needed, a geotextile fabric may be utilized as a separator between the undocumented fill and engineered fill. This over-excavation requirement is not required in areas improved by ground improvement methods (see above) or below slabs in buildings supported by deep foundations (also, see above). • *Scarification and Compaction*: After any required cuts have been made but prior to placement of any engineered fill, the subgrade soil should be scarified and compacted. If construction occurs during the winter or spring when the subgrade soils are typically already in a moist condition, scarification and compaction may only be 12 inches. If construction occurs during the summer or fall when the subgrade soils have been allowed to dry out, deeper depth of scarification and moisture conditioning (as much as 18 inches) may be needed. Due to the shallow groundwater, the sub-grade soil at the over-excavated depth is likely to be in an elevated moisture condition, and will likely require some drying before it can be compacted. • *Backfill/Fill*: Following scarification and compaction of the subgrade, the over-excavated areas may be backfilled with compacted structural fill and any additional fill may be placed and compacted. The moisture content and compaction of subgrade soils should be maintained until foundation slab or pavement construction. Very soft Bay Mud conditions may be encountered in the bottom of excavations. Dry crushed rock or clean granular fill material placed over a geotextile may be needed to stabilize wet subgrade materials in the bottom of excavations prior to backfill. Fill placed on Bay Mud or in areas where Bay Mud is covered with less than 3 feet of soil can cause failure within the mud if large amounts of fill are placed too quickly. In order to help reduce the potential for mud waves during fill placement, the first layer of fill should be placed slowly and in as thin a layer as possible without allowing the grading equipment to sink into the mud. In these areas, lightweight equipment should be used to help minimize the required thickness of the first layer. The amount of the fill placed on a daily basis may need to be limited to help minimize pore pressure build up and subsurface failure.			

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
• *Fill Material Types*: Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures or pavements. General fill is material used to achieve grade outside of these areas. Earthen materials used for structural and general fill should meet the material property requirements as specified in the 2018 Terracon Report. • *Exterior Hardscape*: In order to address the effects of the moderate to high volume change soils, exterior hardscapes should be underlain by a minimum of 24 inches of low volume change (LVC) material. The LVC zone would help to reduce the potential for subgrade volume changes. • *Utility Design*: In addition, special design details should be considered for underground utility lines, for hardscape, entrances and pavement adjacent to pile or DSM-supported structures, and site drainage. It is recommended that utilities and piping be designed with flexible connections and/or other means to accommodate soil movement and to reduce the potential for damage. Utility and drain lines designed for gravity flow should consider and account for anticipated settlements.			
SCA Geo-4, Erosion and Sedimentation Control Plan for Construction a) *Erosion and Sedimentation Control Plan Required*: The project applicant shall submit an Erosion and Sedimentation Control Plan to the City for review and approval. The Erosion and Sedimentation Control Plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials on to lands of adjacent property owners, public streets, or to creeks as a result of conditions created by grading and/or construction operations. The Plan shall include, but not be limited to, such measures as short-term erosion control planting, waterproof slope covering, check dams, interceptor ditches, benches, storm drains, dissipation structures, diversion dikes, retarding berms and barriers, devices to trap, store and filter out sediment, and stormwater retention basins. Off-site work by the project applicant may be necessary. The project applicant shall obtain permission or easements necessary for off-site work. There shall be a clear notation that the plan is subject to changes as changing conditions occur. Calculations of anticipated stormwater runoff and sediment volumes shall be included, if required by the City. The Plan shall specify that, after construction is complete, the project applicant shall ensure that the storm drain system shall be inspected and that the project applicant shall clear the system of any debris or sediment. b) *Erosion and Sedimentation Control during Construction*: The project applicant shall implement the approved Erosion and Sedimentation Control Plan. No grading shall occur during the wet weather season (October 15 through April 15) unless specifically authorized in writing by the Bureau of Building.	During construction	N/A	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
Greenhouse Gas Emissions/Climate Change			
SCA GHG-1, Project Compliance with the Equitable Climate Action Plan (ECAP) Consistency Checklist: The project applicant shall implement all the measures in the Equitable Climate Action Plan (ECAP) Consistency Checklist that was submitted during the Planning entitlement phase. a) For physical ECAP Consistency Checklist measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction- related permits. b) For physical ECAP Consistency Checklist measures to be incorporated into the design of the project, the measures shall be implemented during construction. c) For ECAP Consistency Checklist measures that are operational but not otherwise covered by these SCAs, including but not limited to the requirement for transit passes or additional Transportation Demand Management measures, the applicant shall provide notice of these measures to employees and/or residents and post these requirements in a public place such as a lobby or work area accessible to the employees and/or residents	Prior to approval of construction-related permit	Bureau of Planning	N/A
Hazards and Hazardous Materials			
SCA Hazards-1, Hazardous Building Materials and Site Contamination a) *Hazardous Building Materials Assessment*: The project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.	Prior to approval of demolition, grading, or building permits	Bureau of Building	Bureau of Building
b) *Environmental Site Assessment Required*: The project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if warranted by the Phase 1 report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency	Prior to approval of construction-related permit	Applicable regulatory agency with jurisdiction	Applicable regulatory agency with jurisdiction

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
c) *Health and Safety Plan Required*: The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
d) Best Management Practices (BMPs) Required for Contaminated Sites (Item 4 text omitted because it is not applicable to the project, which is not on a contaminated site)	During construction	N/A	Bureau of Building
SCA Hazards-2: Hazardous Materials Related to Construction: The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following: a) Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction b) Avoid overtopping construction equipment fuel gas tanks c) During routine maintenance of construction equipment, properly contain and remove grease and oils d) Properly dispose of discarded containers of fuels and other chemicals e) Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program), and f) If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City Fire Prevention Bureau, Alameda County Environmental Health, and other applicable regulatory agencies, and implementation of the actions described in these agencies' conditions of approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.	During construction	N/A	Bureau of Building
SCA Haz-3, Hazardous Materials Business Plan: The project applicant shall submit a Hazardous Materials Business Plan (HMBP) for review and approval by the City, and shall implement the approved Plan. The approved Plan shall be kept on file with the City and the project applicant shall update the Plan as applicable. The purpose of the Hazardous Materials Business Plan is to ensure that employees are adequately trained to handle hazardous materials and provides information to the Fire Department should emergency response be required. Hazardous materials shall be handled in accordance with all applicable local, state, and federal requirements. The Hazardous Materials Business Plan shall include the following:	Prior to building permit final	Oakland Fire Department	Oakland Fire Department

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
a) The types of hazardous materials or chemicals stored and/or used on-site, such as petroleum fuel products, lubricants, solvents, and cleaning fluids b) The location of such hazardous materials c) An emergency response plan including employee training information d) A plan that describes the manner in which these materials are handled, transported, and disposed.			
Hydrology and Water Quality			
SCA Hydro-1, State Construction General Permit: The project applicant shall comply with the requirements of the Construction General Permit issued by the State Water Resources Control Board (SWRCB). The project applicant shall submit a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and other required Permit Registration Documents to SWRCB. The project applicant shall submit evidence of compliance with Permit requirements to the City.	Prior to approval of construction-related permit	State Water Resources Control Board; evidence of compliance submitted to Bureau of Building	State Water Resources Control Board
SCA Hydro-2, Creek Protection Plan: a) *Creek Protection Plan Required*: The project applicant shall submit a Creek Protection Plan for review and approval by the City. The Plan shall be included with the set of project drawings submitted to the City for site improvements and shall incorporate the contents required under section 13.16.150 of the Oakland Municipal Code including Best Management Practices ("BMPs") during construction and after construction to protect the creek. Required BMPs are identified below.	Prior to approval of construction-related permit	Bureau of Planning	N/A
b) *Construction BMPs Requirement*: The Creek Protection Plan shall incorporate all applicable erosion, sedimentation, debris, and pollution control BMPs to protect the creek during construction. The measures shall include, but are not limited to, the following: i. On sloped properties, the downhill end of the construction area must be protected with silt fencing (such as sandbags, filter fabric, silt curtains, etc.) and hay bales oriented parallel to the contours of the slope (at a constant elevation) to prevent erosion into the creek. ii. The project applicant shall implement mechanical and vegetative measures to reduce erosion and sedimentation, including appropriate seasonal maintenance. One hundred (100) percent biodegradable erosion control fabric shall be installed on all graded slopes to protect and stabilize the slopes during construction and before permanent vegetation gets established. All graded areas shall be temporarily protected from erosion by seeding with fast growing annual species. All bare slopes must be covered with staked tarps when rain is occurring, or expected. iii. Minimize the removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Maximize the replanting of the area with native vegetation as soon as possible.	Prior to approval of construction-related permit	Bureau of Planning	N/A

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
iv. All work in or near creek channels must be performed with hand tools and by a minimum number of people. Immediately upon completion of this work, soil must be re-packed and native vegetation planted. v. Install filter materials (such as sandbags, filter fabric, etc.) acceptable to the City at the storm drain inlets nearest to the project site prior to the start of the wet weather season (October 15); site dewatering activities; street washing activities; saw cutting asphalt or concrete; and in order to retain any debris flowing into the City storm drain system. Filter materials shall be maintained and/or replaced as necessary to ensure effectiveness and prevent street flooding. vi. Ensure that concrete/granite supply trucks or concrete/plaster finishing operations do not discharge wash water into the creek, street gutters, or storm drains. vii. Direct and locate tool and equipment cleaning so that wash water does not discharge into the creek. viii. Create a contained and covered area on the site for storage of bags of cement, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the creek or storm drain system by the wind or in the event of a material spill. No hazardous waste material shall be stored on site. ix. Gather all construction debris on a regular basis and place it in a dumpster or other container which is emptied or removed at least on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution. x. Remove all dirt, gravel, refuse, and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site. During wet weather, avoid driving vehicles off paved areas and other outdoor work. xi. Broom sweep the street pavement adjoining the project site on a daily basis. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the end of each workday, the entire site must be cleaned and secured against potential erosion, dumping, or discharge to the creek, street, gutter, or storm drains. xii. All erosion and sedimentation control measures implemented during construction activities, as well as construction site and materials management shall be in strict accordance with the control standards listed in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Control Board (RWQCB). xii. Temporary fencing is required for sites without existing fencing between the creek and the construction site and shall be placed along the side adjacent to construction (or both sides of the creek if applicable) at the maximum practical distance from the creek centerline. This area shall not be disturbed during construction without prior approval of the City.			
c) *Post-Construction BMPs Requirement*: The project shall not result in a substantial increase in stormwater runoff volume or velocity to the creek or storm drains. The Creek Protection Plan shall include site design measures to reduce the amount of impervious surface to maximum extent	Prior to approval of construction-related permit	Bureau of Planning	N/A

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	 Initial Approval	 Monitoring/ Inspection
practicable. New drain outfalls shall include energy dissipation to slow the velocity of the water at the point of outflow to maximize infiltration and minimize erosion.			
d) *Creek Landscaping Requirement*: The project applicant shall include final landscaping details for the site on the Creek Protection Plan, or on a Landscape Plan, for review and approval by the City. Landscaping information shall include a planting schedule, detailing plant types and locations, and a system to ensure adequate irrigation of plantings for at least one growing season. Plant and maintain only drought-tolerant plants on the site where appropriate as well as native and riparian plants in and adjacent to riparian corridors. Along the riparian corridor, native plants shall not be disturbed to the maximum extent feasible. Any areas disturbed along the riparian corridor shall be replanted with mature native riparian vegetation and be maintained to ensure survival.	Prior to approval of construction-related permit	Bureau of Planning	N/A
d) *Creek Protection Plan Implementation Requirement*: The project applicant shall implement the approved Creek Protection Plan during and after construction. During construction, the project applicant shall regularly monitor all erosion, sedimentation, debris, and pollution control. The City may require that a qualified consultant (paid for by the project applicant) inspect the control measures and submit a written report of the adequacy of the control measures to the City. If measures are deemed inadequate, the project applicant shall develop and implement additional and more effective measures immediately.	During construction; ongoing	N/A	Bureau of Building
SCA Hydro-3, NPDES C.3 Stormwater Requirements for Regulated Projects a) *Post-Construction Stormwater Management Plan Required*: The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES). The project applicant shall submit a Post-Construction Stormwater Management Plan to the City for review and approval with the project drawings submitted for site improvements, and shall implement the approved Plan during construction. The Post-Construction Stormwater Management Plan shall include and identify the following: i. location and size of new and replaced impervious surface ii. directional surface flow of stormwater runoff iii. location of proposed on-site storm drain lines iv. site design measures to reduce the amount of impervious surface area v. source control measures to limit stormwater pollution vi. stormwater treatment measures to remove pollutants from stormwater runoff, including the method used to hydraulically size the treatment measures; and hydro-modification management measures, if required by Provision C.3, so that post-project stormwater runoff flow and duration match pre-project runoff.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
b) *Maintenance Agreement Required*: The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following: i. The project applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity, and ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco Region. Access is for purposes of verifying implementation, operation and maintenance of the on-site stormwater treatment measures, taking corrective action if necessary. The maintenance agreement shall be recorded at the County Recorder's Office at the applicant's expense.	Prior to building permit final	Bureau of Building	Bureau of Building
SCA Hydro-4, Vegetation Management on Creekside Properties: The project applicant shall comply with the following requirements when managing vegetation prior to, during, and after construction of the project: a) Identify and leave "islands" of vegetation in order to prevent erosion and landslides and protect habitat; b) Trim tree branches from the ground up (limbing up) and leave tree canopy intact; c) Leave stumps and roots from cut down trees to prevent erosion; d) Plant fire-appropriate, drought-tolerant, preferably native vegetation; e) Provide erosion and sediment control protection if cutting vegetation on a steep slope; f) Fence off sensitive plant habitats and creek areas if implementing goat grazing for vegetation management; g) Obtain a Tree Permit before removing a Protected Tree (any tree 9 inches diameter at breast height or dbh or greater and any oak tree 4 inches dbh or greater, except eucalyptus and Monterey pine); h) Do not clear-cut vegetation, as this can lead to erosion and severe water quality problems and destroy important habitat; i) Do not remove vegetation within 20 feet of the top of the creek bank. If the top of bank cannot be identified, do not cut within 50 feet of the centerline of the creek or as wide a buffer as possible between the creek centerline and the development; j) Do not trim/prune branches that are larger than 4 inches in diameter; k) Do not remove tree canopy; l) Do not dump cut vegetation in the creek; m) Do not cut tall shrubbery to less than 3 feet high; and n) Do not cut short vegetation (e.g., grasses, groundcover) to less than 6 inches high.	Ongoing	N/A	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
CASP EIR Recommendation Hydro-5: The following additional recommendations are suggested to provide an adaptive approach to addressing a 16-inch sea level rise above current Base Flood Elevation (BFE) for mid-term (2050) planning and design: 1. Design gravity-based storm drain systems for 16 inches of sea level rise 2. Design and construct habitable space above at-grade parking structures to allow sea level rise to affect uninhabited parking structures rather than dwelling units 3. Design buildings to withstand periodic inundation 4. Prohibit below grade habitable space in inundation zones 5. Require that all critical infrastructure sensitive to inundation be located above the SLR base flood elevation 6. Consider means for implementing an adaptive management strategy to protect against long-term sea level rise of as much as 55”, potentially including constructing levees or seawalls and providing space for future storm water lift stations near outfall structures into the Bay and Estuary	Prior to approval of grading and other construction-related permits	Bureau of Building	Bureau of Building
Land Use			
CASP EIR MM Land-7B, Avigation Easement / Disclosure: Sellers or leasers of real property located within the Oakland Airport Influence Area shall disclose within an aviation easement included as part of all real estate transactions within the AIA that their property is situated within the AIA, and may be subject to some of the annoyances or inconveniences associated with proximity to airport operations.	Prior to issuance of building permit	Bureau of Building	N/A
CASP EIR MM Land-8A, BCDC Issuance of Major Permit(s): Prior to implementation of the proposed Damon Slough enhancements, the Elmhurst Creek realignment, new development within 100 feet of the San Leandro Bay shoreline, and the proposed Bay Cut (and potentially other project elements found to be within BCDC jurisdiction), the project applicants for those projects shall apply for and obtain through an application review process (which may include additional public hearings and review boards) issuance of necessary BCDC permits.	Prior to activity requiring permit/authorization from BCDC	Approval by BCDC; evidence of approval submitted to Bureau of Planning	BCDC, per agency jurisdiction
Noise and Vibration			
SCA Noise-1, Construction Days/Hours: The project applicant shall comply with the following restrictions concerning construction days and hours: a) Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m. b) Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.	During construction	N/A	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
c) No construction is allowed on Sunday or federal holidays. Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area. Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.			
SCA Noise-2, Construction Noise: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following: a) Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible. b) Except as provided herein, impact tools (e.g., jackhammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures. c) Applicant shall use temporary power poles instead of generators where feasible d) Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction. e) The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.	During construction	N/A	Bureau of Building
SCA Noise-3, Extreme Construction Noise Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan. This Plan shall be prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following: a) Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings; b) Implement “quiet” pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions; c). Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site; d) Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and e) Monitor the effectiveness of noise attenuation measures by taking noise measurements.			
SCA Noise-4, Public Notification Required: The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice. The public notice shall provide the estimated start and end dates of the extreme noise-generating activities, and describe noise attenuation measures to be implemented.	During construction	Bureau of Building	Bureau of Building
SCA Noise-5, Construction Noise Complaints: The project applicant shall submit to the City for review and approval a set of procedures for responding to and tracking complaints received pertaining to construction noise, and shall implement the procedures during construction. At a minimum, the procedures shall include: a) Designation of an on-site construction complaint and enforcement manager for the project; b) A large on-site sign near the public right-of-way containing permitted construction days/hours, complaint procedures, and phone numbers for the project complaint manager and City Code Enforcement unit; c) Protocols for receiving, responding to, and tracking received complaints; and d) Maintenance of a complaint log that records received complaints and how complaints were addressed, which shall be submitted to the City for review upon the City’s request.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
Recommendation #1 Pursuant to the Construction Management Plan - Temporary Rerouting of the Bay Trail: The Project applicant shall coordinate with BCDC to identify an acceptable temporary detour of the segment of the Bay Tail that is immediately adjacent to the Project site during pile driving/pile drilling activities. The options for detour routes in this area are limited, and may best be accomplished by providing a temporary public pathway along the Project site’s frontage on Oakport Street, at least as far as the	Prior to the issuance of the first construction-related permit	Bureau of Planning, Bureau of Building, and other relevant	Bureau of Planning, Bureau of Building, and other relevant City departments

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
Peppermint Gate Access Road through the EBMUD Parcel #2. The segment of the Bay Trail adjacent to the site can be re-opened after conclusion of the temporary pile driving/pile drilling activity.		City departments	
Recommendation #2 Pursuant to the Construction Management Plan – Schedule Coordination with City-Sponsored Use of Soccer Fields: The Project applicant shall coordinate with the City Parks and Recreation Department to best avoid pile driving/pile drilling activities of the Project concurrent with scheduled sports activities at the City Soccer fields. Pursuant to SCA Noise-3, no pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday, and no construction is allowed on Sunday or federal holidays. Accordingly, schedule coordination is only required during intermittent weekday use of the sport field between the hours of 8:00 a.m. and 4:00 p.m	Prior to the issuance of the first construction-related permit	Bureau of Planning, Bureau of Building, and other relevant City departments	Bureau of Planning, Bureau of Building, and other relevant City departments
SCA Noise-6, Operational Noise: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.	Ongoing	N/A	Bureau of Building
Population and Housing			
SCA Population-1, Jobs/Housing Impact Fee: The project applicant shall comply with the requirements of the City of Oakland Jobs/Housing Impact Fee Ordinance (chapter 15.68 of the Oakland Municipal Code).	Prior to issuance of building permit	Bureau of Building	N/A
Public Services			
SCA Pubic-1, Capital Improvements Impact Fee: The Project applicant shall comply with the requirements of the City of Oakland Capital Improvements Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).	Prior to issuance of building permit	Bureau of Building	N/A
As authorized by **California Government Code Sections 65995, 65996(a) and 65996(b**), the OUSD will collect school impact fees from the Project, and payment of the required school impact fees will address the impact of the Project on school services to the furthest extent permitted by law. School impact fees are collected when building permits are issued. Payment of these fees will constitute full and complete mitigation, and the impact of the Project related to schools would be less than significant.	Prior to issuance of building permit	Bureau of Building	N/A
SCA Public-2, Access to Parks and Open Space: The project applicant shall submit a plan for City review and approval to enhance bicycle and pedestrian access from the Project site and adjacent areas to the Bay Trail. Examples of enhancements may include, but are not limited to new or improved bikeways, bike parking, traffic control devices, sidewalks, pathways, bulb-outs and signage. The project sponsor shall install the approved enhancements during construction and prior to completion of the project.	Prior to approval of construction-related permit	Bureau of Planning, Department of Transportation	Department of Transportation

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	 Initial Approval	 Monitoring/ Inspection
Transportation and Circulation			
SCA Transportation-1, Bicycle Parking: The project applicant shall comply with the City of Oakland Bicycle Parking: Requirements (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall demonstrate compliance with the requirements.	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
SCA Transportation-2: Transportation and Parking Demand Management: a) *Transportation and Parking Demand Management (TDM) Plan Required*: The project applicant shall submit a Transportation and Parking Demand Management (TDM) Plan for review and approval by the City. 1. The goals of the TDM Plan shall be the following: i. Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable. ii. For Projects generating 50-99 net new a.m. or p.m. peak hour vehicle trips, achieve a project vehicle trip reduction (VTR of 10%. For Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips, achieve a project vehicle trip reduction (VTR of 20% iii. Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel. All four modes of travel shall be considered, as appropriate. iv. Enhance the City's transportation system, consistent with City policies and programs. 2. The TDM Plan should include the following: i. Baseline existing conditions of parking and curbside regulations within the surrounding neighborhood that could affect the effectiveness of TDM strategies, including inventory of parking spaces and occupancy if applicable. ii. Proposed TDM strategies to achieve VTR goals (see below). iii. For employers with 100 or more employees at the subject site, the TDM Plan shall also comply with the requirements of Oakland Municipal Code Chapter 10.68 Employer-Based Trip Reduction Program. 3. The following TDM strategies must be incorporated into a TDM Plan based on a project location or other characteristics. When required by Code or when described below, these mandatory strategies should be identified as a credit toward a project's VTR. i. Bus boarding bulbs or islands, when a bus boarding bulb or island does not already exist and a bus stop is located along the project frontage; and/or a bus stop along the project frontage serves a route with 15 minutes or better peak hour service and has a shared bus-bike lane curb ii. Bus shelter, when a stop with no shelter is located within the project frontage, or the project is located within 0.10 miles of a flag stop with 25 or more boardings per day iii. Concrete bus pad, where a bus stop is located along the project frontage and a concrete bus pad does not already exist	Prior to approval of planning application	Bureau of Planning	N/A

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Mitigation Implementation/Monitoring: Initial Approval	Mitigation Implementation/Monitoring: Monitoring/ Inspection
iv. Curb extensions or bulb-outs, where identified as an improvement within site analysis v. Implementation of a corridor-level bikeway improvement, where a buffered Class II or Class IV bikeway facility is in a local or county adopted plan within 0.10 miles of the project location, and The project would generate 500 or more daily bicycle trips vi. Implementation of a corridor-level transit capital improvement, where a high-quality transit facility is in a local or county adopted plan within 0.25 miles of the project location; and the project would generate 400 or more peak period transit trips vii. Installation of amenities such as lighting; pedestrian-oriented green infrastructure, trees, or other greening landscape; and trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan - always required viii. Installation of safety improvements identified in the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.), when improvements are identified in the Pedestrian Master Plan along project frontage or at an adjacent intersection ix. In-street bicycle corral, when a project includes more than 10,000 square feet of ground floor retail, is located along a Tier 1 bikeway, and onstreet where vehicle parking is provided along the project frontages. x. Intersection improvements, when identified as an improvement within site analysis xi. New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards, always required xii. No monthly permits and establish minimum price floor for public parking, if proposed parking ratio exceeds 1:1000 sf. (commercial) xiii Parking garage is designed with retrofit capability, optional if proposed parking ratio exceeds 1:1.25 (residential), or 1:1000 sf. (commercial) xiv Parking space reserved for car share, if a project is providing parking and a project is located within downtown. One car share space reserved for buildings between 50 – 200 units, then one car share space per 200 units. xv. Paving, lane striping or restriping (vehicle and bicycle), and signs to midpoint of street section, typically required xvi. Pedestrian crossing improvements, when identified as an improvement within site analysis xvii Pedestrian-supportive signal changes, when identified as an improvement within operations analysis xviii Real-time transit information system, when a project frontage block includes a bus stop or BART station and is along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better xix Relocating bus stops to far side, when a project is located within 0.10 mile of any active bus stop that is currently near-side			

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
xx. Signal upgrades, when project size exceeds 100 residential units, 80,000 sf. of retail, or 100,000 sf. Of commercial; and Project frontage abuts an intersection with signal infrastructure older than 15 years xxi. Transit queue jumps , when identified as a needed improvement within operations analysis of a project with frontage along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better xxii Trenching and placement of conduit for providing traffic signal interconnect, when a Project size exceeds 100 units, 80,000 sf. Of retail, or 100,000 sf. of commercial; and Project frontage block is identified for signal interconnect improvements as part of a planned ITS improvement; and a major transit improvement is identified within operations analysis requiring traffic signal interconnect xxiii Unbundled parking, if proposed parking ratio exceeds 1:1.25 (residential) 4. Other TDM strategies to consider include, but are not limited to, the following: i. Inclusion of additional long-term and short-term bicycle parking that meets the design standards set forth in chapter five of the Bicycle Master Plan and the Bicycle Parking Ordinance (chapter 17.117 of the Oakland Planning Code), and shower and locker facilities in commercial developments that exceed the requirement. ii. Construction of and/or access to bikeways per the Bicycle Master Plan; construction of priority bikeways, on-site signage and bike lane striping iii. Installation of safety elements per the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.) to encourage convenient and safe crossing at arterials, in addition to safety elements required to address safety impacts of the project. iv. Installation of amenities such as lighting, street trees, and trash receptacles per the Pedestrian Master Plan, the Master Street Tree List and Tree Planting Guidelines and any applicable streetscape plan. v. Construction and development of transit stops/shelters, pedestrian access, way finding signage, and lighting around transit stops per transit agency plans or negotiated improvements. vi. Direct on-site sales of transit passes purchased and sold at a bulk group rate (through programs such as AC Transit Easy Pass or a similar program through another transit agency). vii. Provision of a transit subsidy to employees or residents, determined by the project applicant and subject to review by the City, if employees or residents use transit or commute by other alternative modes. viii Provision of an ongoing contribution to transit service to the area between the project and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle service; and 3) Establishment of new shuttle			

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario 3). ix. Guaranteed ride home program for employees, either through 511.org or through separate program. x. Pre-tax commuter benefits (commuter checks) for employees xi. Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.), and/or car-share membership for employees or tenants. xii. On-site carpooling and/or vanpool program that includes preferential (discounted or free) parking for carpools and vanpools xiii. Distribution of information concerning alternative transportation options xiv. Parking spaces sold/leased separately for residential units. Charge employees for parking, or provide a cash incentive or transit pass alternative to a free parking space in commercial properties. xv. Parking management strategies, including attendant/valet parking and shared parking spaces xvi. Requiring tenants to provide opportunities and the ability to work off-site xvii Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five eight-hour workdays by adjusting their schedule to reduce vehicle trips to the worksite (e.g., working four, ten-hour days; allowing employees to work from home two days per week). xviii Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours. 5. The TDM Plan shall indicate the estimated VTR for each strategy, based on published research or guidelines where feasible. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report.			
b) *TDM Implementation – Physical Improvements Requirement*: For VTR strategies involving physical improvements, the project applicant shall obtain the necessary permits/approvals from the City and install the improvements prior to the completion of the project.	Prior to building permit final	Bureau of Building	Bureau of Building
c) TDM Implementation – Operational Strategies: For projects that generate 100 or more net new a.m. or p.m. peak hour vehicle trips and contain ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first five years following completion of the project (or completion of each phase for phased projects) for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual VTR achieved by the project during operation. If deemed necessary, the City may elect to have a peer	Ongoing	Department of Transportation	Department of Transportation

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in these Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the VTR goal is not achieved.			
SCA Transportation-3, Transportation Impact Fee: The project applicant shall comply with the requirements of the City of Oakland Transportation Impact Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).	Prior to issuance of building permit	Bureau of Building	N/A
SCA Transportation-4, Plug-In Electric Vehicle (PEV) Charging Infrastructure a) *PEV-Ready Parking Spaces*: The applicant shall submit, for review and approval of the Building Official and the Zoning Manager, plans that show the location of parking spaces equipped with full electrical circuits designated for future PEV charging (i.e. "PEV-Ready) per the requirements of Chapter 15.04 of the Oakland Municipal Code. Building electrical plans shall indicate sufficient electrical capacity to supply the required PEV-Ready parking spaces. b) *PEV-Capable Parking Spaces*: The applicant shall submit, for review and approval of the Building Official, plans that show the location of inaccessible conduit to supply PEV-capable parking spaces per the requirements of Chapter 15.04 of the Oakland Municipal Code. Building electrical plans shall indicate sufficient electrical capacity to supply the required PEV-capable parking spaces. c) *ADA-Accessible Spaces*: The applicant shall submit, for review and approval of the Building Official, plans that show the location of future accessible EV parking spaces as required under Title 24 Chapter 11B Table 11B-228.3.2.1, and specify plans to construct all future accessible EV parking spaces with appropriate grade, vertical clearance, and accessible path of travel to allow installation of accessible EV charging station(s).	Prior to Issuance of Building Permit	Bureau of Building	Bureau of Building
SCA Transportation-5, Construction Activity in the Public Right-of-Way a) *Obstruction Permit Required*: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets, sidewalks, bicycle facilities, and bus stops.	Prior to approval of construction-related permit	Department of Transportation	Department of Transportation
b) *Traffic Control Plan Required*: In the event of obstructions to vehicle or bicycle travel lanes, bus stops, or sidewalks, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian accommodations (or detours, if accommodations are not feasible), including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction	The project applicant shall implement the approved Plan during construction	Department of Transportation	Department of Transportation

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	Initial Approval	Monitoring/ Inspection
access routes. The Traffic Control Plan shall be in conformance with the City's Supplemental Design Guidance for Accommodating Pedestrians, Bicyclists, and Bus Facilities in Construction Zones.			
c) *Repair of City Streets*: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks, caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.	Prior to building permit final	N/A	Department of Transportation
SCA Transportation-6, Transportation Improvements: The project applicant shall implement the recommended on- and off-site transportation-related improvements contained within the Transportation Impact Review for the project (e.g., signal timing adjustments, restriping, signalization, traffic control devices, roadway reconfigurations, transportation demand management measures, and transit, pedestrian, and bicyclist amenities). The project applicant is responsible for funding and installing the improvements, and shall obtain all necessary permits and approvals from the City and/or other applicable regulatory agencies such as, but not limited to, Caltrans (for improvements related to Caltrans facilities) and the California Public Utilities Commission (for improvements related to railroad crossings), prior to installing the improvements. To implement this measure for intersection modifications, the project applicant shall submit Plans, Specifications, and Estimates (PS&E) to the City for review and approval. All elements shall be designed to applicable City standards in effect at the time of construction and all new or upgraded signals shall include these enhancements as required by the City. All other facilities supporting vehicle travel and alternative modes through the intersection shall be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for, among other items, the elements listed below: a) 2070L Type Controller with cabinet accessory b) GPS communication (clock) c) Accessible pedestrian crosswalks according to Federal and State Access Board guidelines with signals (audible and tactile) d) Countdown pedestrian head module switch out e) City Standard ADA wheelchair ramps f) Video detection on existing (or new, if required) g) Mast arm poles, full activation (where applicable) h) Polara Push buttons (full activation) i) Bicycle detection (full activation)) Pull boxes k) Signal interconnect and communication with trenching (where applicable), or through existing conduit (where applicable), 600 feet maximum l) Conduit replacement contingency	Prior to building permit final or as otherwise specified	Bureau of Building; Department of Transportation	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring When Required	 Initial Approval	 Monitoring/ Inspection
m) Fiber switch n) PTZ camera (where applicable) o) Transit Signal Priority (TSP) equipment consistent with other signals along corridor p) Signal timing plans for the signals in the coordination group q) Bi-directional curb ramps (where feasible, and if project is on a street corner) r) Upgrade ramps on receiving curb (where feasible, and if project is on a street corner)			
Tribal Cultural Resources			
SCA Cultural-1, Archaeological and Paleontological Resources - Discovery during Construction: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources, including tribal cultural resources, are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. a) If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented. b) In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. c) Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense.	During construction	N/A	Bureau of Building
Project Requirement Tribal Cultural Resources-1, Discovery of Tribal Cultural Resources: In the event that Native American human remains or funerary objects are discovered, the provisions of Section 7050.5(b) of	During construction	N/A	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
the California Health and Safety Code apply. These provisions provide that, the County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within 24 hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection of Native American human burials and skeletal remains from vandalism and inadvertent destruction.			
Utilities and Service Systems			
SCA Utilities-1, Water Efficient Landscape Ordinance: The project applicant shall comply with California's Water Efficient Landscape Ordinance (WELO) in order to reduce landscape water usage. For any landscape project with an aggregate (total noncontiguous) landscape area over 2,500 sq. ft., the project applicant shall implement the Performance Measures in accordance with the WELO. Prior to construction, the project applicant shall submit the Project Information (detailed below) and documentation showing compliance with Appendix D of California's Model Water Efficient Landscape Ordinance. *a) Performance Measures*: Prior to construction, the project applicant shall prepare and submit a Landscape Documentation Package for review and approval, including the following: i. Project information (date, applicant and property owner name, project address, total landscape area, project type (new, rehabilitated, cemetery, or home owner installed), water supply type and water purveyor, checklist of documents in the package, project contact information, and applicant signature and date with the statement: "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package." ii. Water Efficient Landscape Worksheet, including Hydro-zone Information Table and Water Budget Calculations with Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use iii. Soil Management Report iv. Landscape Design Plan v. Irrigation Design Plan, and vi. Grading Plan b) Upon installation of the landscaping and irrigation systems, and prior to the final of a construction-related permit, the Project applicant shall submit a Certificate of Completion, and landscape and irrigation maintenance schedule, for review and approval by the City. The Certificate of Completion shall also be submitted to the local water purveyor and property owner or his or her designee.	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
SCA Utilities-2, Sanitary Sewer System: The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer	Prior to approval of construction-related permit	Public Works Department, Department of Engineering and Construction	N/A

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.			
SCA General -1, Regulatory Permits and Authorizations from Other Agencies: The project applicant shall obtain all necessary regulatory permits and authorizations from applicable resource/regulatory agencies, and shall comply with all requirements and conditions of the permits/authorizations. The project applicant shall submit evidence of the approved permits/authorizations to the City, along with evidence demonstrating compliance with any regulatory permit/authorization conditions of approval. In accordance with this SCA: a) To ensure that the Project contributes to legally required reductions in I&I, the Project applicant shall comply with EBMUD's Regional Private Sewer Lateral (PSL) Ordinance. Affected property owners must obtain a certificate from EBMUD certifying that all of their PSLs are leak-free. b) The Project shall replace or rehabilitate any existing sanitary sewer collection systems, including sewer lateral lines, to ensure that such systems and lines are free from defects or, alternatively, disconnected from the sanitary sewer system, and c) The Project shall ensure that any new wastewater collection systems, including sewer lateral lines, are constructed to prevent I/I to the maximum extent feasible while meeting all requirements contained in the Regional Private Sewer Lateral Ordinance and applicable municipal codes.	Prior to activity requiring permit/authorization from EBMUD	Approval by EBMUD; evidence of approval submitted to Bureau of Planning	Applicable regulatory agency with jurisdiction
SCA Utilities-3, Construction and Demolition Waste Reduction and Recycling: The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations /modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.	Prior to approval of construction-related permit	Public Works Department, Environmental Services Division	Public Works Department, Environmental Services Division
SCA Utilities-4, Recycling Collection and Storage Space: The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two (2) cubic feet of storage and collection space per residential unit is required, with a minimum of ten (10) cubic feet. For non-residential projects, at least two (2) cubic feet of storage and collection space per 1,000 square feet of building floor area is required, with a minimum of ten (10) cubic feet.	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring: When Required	Initial Approval	Monitoring/ Inspection
SCA Utilities-5, Underground Utilities: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.	During construction	N/A	Bureau of Building
SCA Utilities-6, Storm Drain System: The project storm drainage system shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines. To the maximum extent practicable, peak stormwater runoff from the project site shall be reduced by at least 25 percent compared to the pre-project condition.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Appendix B

CalEEMod Emissions Calculator Results, Project Construction Emissions, December 2022

Lamphier-Gregory

1. Basic Project Information

1.1 Basic Project Information

Data Field	Value
Project Name	SBnk
Lead Agency	City of Oakland
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	39.0
Location	37.754506887246976, -122.21137687971326
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1481
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2 Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (	Landscape Area (sq ft)
General Office Building	160	1000sqft	4.13	160,000	19,300
Unrefrigerated Warehouse-No Rail	134	1000sqft	4.13	134,000	19,300
General Light Industry	10.0	1000sqft	4.13	10,000	19,300
User Defined Industrial	0.00	User Defin	4.13	0.00	19,300

5. Activity Data

5.1 Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase
Demolition	Demolition	8/1/2023	8/29/2023	5.00	20.0
Site Preparation	Site Preparation	8/1/2023	8/7/2023	6.00	6.00
Grading	Grading	8/8/2023	9/11/2023	6.00	30.0
Building Construction	Building Construction	9/12/2023	1/31/2024	6.00	122
Building Const Ph2	Building Construction	8/1/2024	1/31/2025	6.00	158
Building Const Ph 3	Building Construction	8/1/2025	8/23/2025	6.00	20.0
Paving	Paving	8/25/2025	9/16/2025	6.00	20.0
Architectural Coating	Architectural Coating	9/17/2025	10/9/2025	6.00	20.0

5.3. Construction Vehicles

5.3.1 Unmitigated

Phase Name	Trip Type	One-Way T	Miles per Trip	Vehicle Mix
Demolition				
Demolition	Worker	15.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor		8.40	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck			HHDT
Site Preparation				
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor		8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck			HHDT
Grading				
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor		8.40	HHDT,MHDT
Grading	Hauling	95.6	20.0	HHDT
Grading	Onsite truck			HHDT
Building Construction				
Building Construction	Worker	112	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	49.8	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck			HHDT
Paving				
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor		8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck			HHDT
Architectural Coating				
Architectural Coating	Worker	67.0	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor		8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck			HHDT
Building Const Ph2				
Building Const Ph2	Worker	112	11.7	LDA,LDT1,LDT2
Building Const Ph2	Vendor	49.8	8.40	HHDT,MHDT
Building Const Ph2	Hauling	0.00	20.0	HHDT
Building Const Ph2	Onsite truck			HHDT
Building Const Ph 3				
Building Const Ph 3	Worker	112	11.7	LDA,LDT1,LDT2
Building Const Ph 3	Vendor	49.8	8.40	HHDT,MHDT
Building Const Ph 3	Hauling	0.00	20.0	HHDT
Building Const Ph 3	Onsite truck			HHDT

5.6. Dust Mitigation

5.6.1 Construction Earthmoving Activities

Phase Name	Material Imported (Cubic	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00		
Site Preparation			9.00	0.00	
Grading	22,941	0.00	90.0	0.00	
Paving	0.00	0.00	0.00	0.00	10.3

5.2. Off-Road Equipment

5.2.1 Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Da	Hours Per Day	Horsepowe	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backho	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backho	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backho	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Building Const Ph2	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Const Ph2	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Const Ph2	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Const Ph2	Tractors/Loaders/Backho	Diesel	Average	3.00	7.00	84.0	0.37
Building Const Ph2	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Const Ph 3	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Const Ph 3	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Const Ph 3	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Const Ph 3	Tractors/Loaders/Backho	Diesel	Average	3.00	7.00	84.0	0.37
Building Const Ph 3	Welders	Diesel	Average	1.00	8.00	46.0	0.45

8 User Changes to Default Data

Screen	Justification
	Total landscape divided equally between office, warehouse, shop and pipe laydown uses
Land Use	Total lot area divided equally between office, warehouse, shop and pipe laydown uses
Construction: Paving	Total paved area (10.3 acres or 449,000 sf) divided equally among each land use type
Construction Phases	Construction schedule based on limited construction period of August through January each year

2. Emissions Summary

2.1 Construction Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Daily, Summer (Max)											
Unmit.	8.52	159	73.4	60.4	3.01	19.9	22.9	2.76	10.2	12.9	17,652
Daily, Winter (Max)											
Unmit.	2.05	159	14.1	18.4	0.57	1.27	1.85	0.53	0.31	0.84	4,778
Average Daily (Max)											
Unmit.	1.22	9.02	9.61	9.59	0.39	1.57	1.96	0.36	0.59	0.95	2,688
Annual (Max)											
Unmit.	0.22	1.65	1.75	1.75	0.07	0.29	0.36	0.06	0.11	0.17	445

2. Emissions Summary

2.2 Construction Emissions by Year, Unmitigated

Year	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Daily - Summer (Max)											
2023	8.52	6.91	73.4	60.4	3.01	19.9	22.9	2.76	10.2	12.9	17,652
2024	1.98	1.64	13.2	18.5	0.52	1.27	1.79	0.48	0.31	0.79	4,821
2025	1.84	159	12.3	18.0	0.45	1.27	1.72	0.42	0.31	0.73	4,778
Daily - Winter (Max)											
2023	2.05	1.71	14.1	18.4	0.57	1.27	1.85	0.53	0.31	0.84	4,778
2024	1.94	1.62	13.4	18.0	0.52	1.27	1.79	0.48	0.31	0.79	4,744
2025	1.82	159	12.5	17.6	0.45	1.27	1.72	0.42	0.31	0.73	4,702
Average Daily											
2023	1.22	0.99	9.61	9.59	0.39	1.57	1.96	0.36	0.59	0.95	2,688
2024	0.83	0.70	5.75	7.70	0.22	0.54	0.76	0.21	0.13	0.34	2,054
2025	0.31	9.02	2.06	2.98	0.08	0.19	0.27	0.07	0.05	0.12	728
Annual											
2023	0.22	0.18	1.75	1.75	0.07	0.29	0.36	0.06	0.11	0.17	445
2024	0.15	0.13	1.05	1.40	0.04	0.10	0.14	0.04	0.02	0.06	340
2025	0.06	1.65	0.38	0.54	0.01	0.04	0.05	0.01	0.01	0.02	121

3. Construction Emissions Details

3.1 Demolition (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	3.39	2.84	27.3	23.5	1.20		1.20	1.10		1.10	3,437
Demolition						0.00	0.00		0.00	0.00	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Off-Road Equipment	0.19	0.16	1.50	1.29	0.07		0.07	0.06		0.06	188
Demolition						0.00	0.00		0.00	0.00	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.03	0.03	0.27	0.23	0.01		0.01	0.01		0.01	31.2
Demolition						0.00	0.00		0.00	0.00	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.06	0.06	0.04	0.67	0.00	0.12	0.12	0.00	0.03	0.03	137
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.16
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.3 Site Preparation (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	4.70	3.95	39.7	35.5	1.81		1.81	1.66		1.66	5,314
Dust From Material Mc						19.7	19.7		10.1	10.1	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Off-Road Equipment	0.08	0.06	0.65	0.58	0.03		0.03	0.03		0.03	87.3
Dust From Material Mc						0.32	0.32		0.17	0.17	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.01	0.01	0.12	0.11	0.01		0.01	< 0.005		< 0.005	14.5
Dust From Material Mc						0.06	0.06		0.03	0.03	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.07	0.07	0.05	0.78	0.00	0.14	0.14	0.00	0.03	0.03	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.45
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.41
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.5 Grading (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	4.43	3.72	37.3	31.4	1.59		1.59	1.47		1.47	6,621
Dust From Material M						9.28	9.28		3.66	3.66	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Off-Road Equipment	0.36	0.31	3.07	2.58	0.13		0.13	0.12		0.12	544
Dust From Material M						0.76	0.76		0.30	0.30	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.07	0.06	0.56	0.47	0.02		0.02	0.02		0.02	90.1
Dust From Material M						0.14	0.14		0.05	0.05	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.08	0.08	0.06	0.89	0.00	0.17	0.17	0.00	0.04	0.04	183
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.56	0.15	8.66	3.41	0.13	1.77	1.90	0.13	0.49	0.61	7,274
Daily, Winter (Max)											
Average Daily											
Worker	0.01	0.01	0.01	0.06	0.00	0.01	0.01	0.00	< 0.005	< 0.005	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.01	0.74	0.28	0.01	0.14	0.15	0.01	0.04	0.05	597
Annual											
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.05	< 0.005	0.03	0.03	< 0.005	0.01	0.01	98.9

3. Construction Emissions Details

3.7 Building Construction (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	1.50	1.26	11.8	13.2	0.55		0.55	0.51		0.51	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Off-Road Equipment	1.50	1.26	11.8	13.2	0.55		0.55	0.51		0.51	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Off-Road Equipment	0.39	0.33	3.08	3.43	0.14		0.14	0.13		0.13	627
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.07	0.06	0.56	0.63	0.03		0.03	0.02		0.02	104
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.46	0.42	0.31	4.98	0.00	0.92	0.92	0.00	0.22	0.22	1,022
Vendor	0.11	0.05	1.76	0.78	0.02	0.35	0.37	0.02	0.10	0.12	1,430
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Worker	0.44	0.40	0.42	4.40	0.00	0.92	0.92	0.00	0.22	0.22	945
Vendor	0.11	0.05	1.86	0.80	0.02	0.35	0.37	0.02	0.10	0.12	1,428
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Worker	0.11	0.10	0.10	1.11	0.00	0.23	0.23	0.00	0.05	0.05	248
Vendor	0.03	0.01	0.47	0.21	< 0.005	0.09	0.09	< 0.005	0.02	0.03	372
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	0.02	0.02	0.02	0.20	0.00	0.04	0.04	0.00	0.01	0.01	41.1
Vendor	0.01	< 0.005	0.09	0.04	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	61.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.9 Building Construction (2024) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Daily, Winter (Max)											
Off-Road Equipment	1.44	1.20	11.2	13.1	0.50		0.50	0.46		0.46	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Off-Road Equipment	0.10	0.09	0.82	0.95	0.04		0.04	0.03		0.03	175
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.02	0.02	0.15	0.17	0.01		0.01	0.01		0.01	29.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Daily, Winter (Max)											
Worker	0.39	0.38	0.35	4.08	0.00	0.92	0.92	0.00	0.22	0.22	927
Vendor	0.10	0.04	1.78	0.76	0.02	0.35	0.37	0.02	0.10	0.12	1,411
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Worker	0.03	0.03	0.03	0.29	0.00	0.07	0.07	0.00	0.02	0.02	68.1
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	0.03	0.03	< 0.005	0.01	0.01	103
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	0.01	0.01	< 0.005	0.05	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.11 Building Construction (2024) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	1.44	1.20	11.2	13.1	0.50		0.50	0.46		0.46	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Off-Road Equipment	1.44	1.20	11.2	13.1	0.50		0.50	0.46		0.46	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Off-Road Equipment	0.52	0.43	4.03	4.71	0.18		0.18	0.16		0.16	864
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.09	0.08	0.74	0.86	0.03		0.03	0.03		0.03	143
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.44	0.40	0.28	4.63	0.00	0.92	0.92	0.00	0.22	0.22	1,002
Vendor	0.11	0.04	1.69	0.74	0.02	0.35	0.37	0.02	0.10	0.12	1,414
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Worker	0.39	0.38	0.35	4.08	0.00	0.92	0.92	0.00	0.22	0.22	927
Vendor	0.10	0.04	1.78	0.76	0.02	0.35	0.37	0.02	0.10	0.12	1,411
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Worker	0.14	0.14	0.12	1.42	0.00	0.32	0.32	0.00	0.08	0.08	336
Vendor	0.04	0.01	0.63	0.27	0.01	0.12	0.13	0.01	0.03	0.04	507
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	0.03	0.02	0.02	0.26	0.00	0.06	0.06	0.00	0.01	0.01	55.6
Vendor	0.01	< 0.005	0.11	0.05	< 0.005	0.02	0.02	< 0.005	0.01	0.01	84.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.13 Building Construction (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Daily, Winter (Max)											
Off-Road Equipment	1.35	1.13	10.4	13.0	0.43		0.43	0.40		0.40	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Off-Road Equipment	0.10	0.08	0.76	0.95	0.03		0.03	0.03		0.03	175
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.02	0.01	0.14	0.17	0.01		0.01	0.01		0.01	29.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Daily, Winter (Max)											
Worker	0.38	0.37	0.35	3.80	0.00	0.92	0.92	0.00	0.22	0.22	909
Vendor	0.09	0.04	1.71	0.73	0.02	0.35	0.37	0.02	0.10	0.12	1,387
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Worker	0.03	0.03	0.02	0.27	0.00	0.07	0.07	0.00	0.02	0.02	66.7
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	0.03	0.03	< 0.005	0.01	0.01	101
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	16.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.15 Building Construction (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	1.35	1.13	10.4	13.0	0.43		0.43	0.40		0.40	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Off-Road Equipment	0.07	0.06	0.57	0.71	0.02		0.02	0.02		0.02	132
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.01	0.01	0.10	0.13	< 0.005		< 0.005	< 0.005		< 0.005	21.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.39	0.38	0.24	4.29	0.00	0.92	0.92	0.00	0.22	0.22	982
Vendor	0.11	0.04	1.63	0.71	0.02	0.35	0.37	0.02	0.10	0.12	1,390
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Worker	0.02	0.02	0.02	0.20	0.00	0.05	0.05	0.00	0.01	0.01	50.2
Vendor	0.01	< 0.005	0.09	0.04	< 0.005	0.02	0.02	< 0.005	0.01	0.01	76.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.32
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.17 Paving (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	0.95	0.80	7.45	9.98	0.35		0.35	0.32		0.32	1,517
Paving		1.35									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Off-Road Equipment	0.05	0.04	0.41	0.55	0.02		0.02	0.02		0.02	83.1
Paving		0.07									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005		< 0.005	< 0.005		< 0.005	13.8
Paving		0.01									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.05	0.05	0.03	0.58	0.00	0.12	0.12	0.00	0.03	0.03	132
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Average Daily											
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.12
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Construction Emissions Details

3.19 Architectural Coating (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Onsite											
Daily, Summer (Max)											
Off-Road Equipment	0.15	0.13	0.88	1.14	0.03		0.03	0.03		0.03	134
Architectural Coatings		159									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Off-Road Equipment	0.15	0.13	0.88	1.14	0.03		0.03	0.03		0.03	134
Architectural Coatings		159									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005		< 0.005	< 0.005		< 0.005	7.34
Architectural Coatings		8.69									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005		< 0.005	< 0.005		< 0.005	1.22
Architectural Coatings		1.59									
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite											
Daily, Summer (Max)											
Worker	0.23	0.23	0.15	2.58	0.00	0.55	0.55	0.00	0.13	0.13	589
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)											
Worker	0.23	0.22	0.21	2.28	0.00	0.55	0.55	0.00	0.13	0.13	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily											
Worker	0.01	0.01	0.01	0.12	0.00	0.03	0.03	0.00	0.01	0.01	30.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual											
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.01	0.01	0.00	< 0.005	< 0.005	4.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix C

CalEEMod Emissions Calculator Results, Project Operational Emissions, December 2022

Lamphier-Gregory

1. Basic Project Information

1.1 Basic Project Information

Data Field	Value
Project Name	SBnk
Lead Agency	City of Oakland
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	39.0
Location	37.754506887246976, -122.21137687971326
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1481
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2 Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)
General Office Building	160	1000sqft	4.13	160,000	19,300
Unrefrigerated Warehouse-No Rail	134	1000sqft	4.13	134,000	19,300
General Light Industry	10.0	1000sqft	4.13	10,000	19,300
User Defined Industrial	0.00	Jser Defined Un	4.13	0.00	19,300

4.2. Energy

4.2.1 Electricity Emissions By Land Use - Unmitigated

Land Use	ROG	NOx	PM10E	PM2.5E	CO_2e
Daily, Summer (Max)					
General Office Building					2,540
Unrefrigerated Warehouse-No Rail					874
General Light Industry					134
User Defined Industrial					0.00
Total					3,548
Daily, Winter (Max)					
General Office Building					2,540
Unrefrigerated Warehouse-No Rail					874
General Light Industry					134
User Defined Industrial					0.00
Total					3,548
Annual					
General Office Building					421
Unrefrigerated Warehouse-No Rail					145
General Light Industry					22.2
User Defined Industrial					0.00
Total					587

5.9. Operational Mobile Sources

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year
Total all Land Uses	1,750	1,750	1,750	638,750
	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
	25,550	25,550	25,550	9,325,700

5.10. Operational Area Sources

5.10.2 Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)
0.00	0.00	456,000	152,000

5.10.3 Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	4,500,450	204	0.0,330	0.0,040	0.00
Unrefrigerated Warehouse-No Rail	1,548,691	204	0.0,330	0.0,040	0.00
General Light Industry	237,410	204	0.0,330	0.0,040	0.00
User Defined Industrial	0.00	204	0.0,330	0.0,040	0.00

5.12. Operational Water and Wastewater Consumption

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	28,437,400	219,273
Unrefrigerated Warehouse-No Rail	30,987,500	219,273
General Light Industry	2,312,500	219,273
User Defined Industrial	0.00	219,273

5.13. Operational Waste Generation

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	149	0.00
Unrefrigerated Warehouse-No Rail	126	0.00
General Light Industry	12.4	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak	Service Leak Ra	Times Serviced
General Office Building	Household refri	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commerci	R-410A	2,088	< 0.005	4.00	4.00	18.0
Unrefrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0
General Light Industry	Other commerci	R-410A	2,088	0.30	4.00	4.00	18.0

2. Emissions Summary

2.4 Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Daily, Summer (Max)											
Unmit.	10.0	16.5	7.50	88.8	0.15	7.03	7.18	0.14	1.24	1.38	29,251
Daily, Winter (Max)											
Unmit.	7.47	14.1	8.66	68.8	0.13	7.03	7.16	0.12	1.24	1.36	27,964
Average Daily (Max)											
Unmit.	8.53	15.0	8.23	73.5	0.14	7.03	7.17	0.13	1.24	1.37	28,116
Annual (Max)											
Unmit.	1.56	2.75	1.50	13.4	0.03	1.28	1.31	0.02	0.23	0.25	4,655

2. Emissions Summary

2.5 Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Daily, Summer (Max)											
Mobile	7.69	6.94	7.39	75.6	0.13	7.03	7.16	0.12	1.24	1.36	20,796
Area	2.35	9.54	0.11	13.2	0.02		0.02	0.02		0.02	56.0
Energy	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	3,548
Water											736
Waste											541
Refrig.											3,574
Total	10.0	16.5	7.50	88.8	0.15	7.03	7.18	0.14	1.24	1.38	29,251
Daily, Winter (Max)											
Mobile	7.47	6.69	8.66	68.8	0.13	7.03	7.16	0.12	1.24	1.36	19,564
Area		7.37									
Energy	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	3,548
Water											736
Waste											541
Refrig.											3,574
Total	7.47	14.1	8.66	68.8	0.13	7.03	7.16	0.12	1.24	1.36	27,964
Average Daily											
Mobile	7.37	6.60	8.17	67.0	0.13	7.03	7.16	0.12	1.24	1.36	19,690
Area	1.16	8.44	0.05	6.52	0.01		0.01	0.01		0.01	27.6
Energy	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	3,548
Water											736
Waste											541
Refrig.											3,574
Total	8.53	15.0	8.23	73.5	0.14	7.03	7.17	0.13	1.24	1.37	28,116
Annual											
Mobile	1.34	1.20	1.49	12.2	0.02	1.28	1.31	0.02	0.23	0.25	3,260
Area	0.21	1.54	0.01	1.19	< 0.005		< 0.005	< 0.005		< 0.005	4.57
Energy	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	587
Water											122
Waste											89.6
Refrig.											592
Total	1.56	2.75	1.50	13.4	0.03	1.28	1.31	0.02	0.23	0.25	4,655

Appendix D

Biological Resource Assessment

Environmental Collaborative, May 25, 2023

ENVIRONMENTAL COLLABORATIVE

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MEMORANDUM

TO: Scott Gregory, President
Lamphier-Gregory
4100 Redwood Road, Suite 20A #601
Oakland, CA 94619

DATE: 25 May 2023

FROM: James Martin, Principal
Environmental Collaborative

SUBJECT: Biological Resource Assessment
SupplyBank Project on Oakport Street
Oakland, California

Environmental Collaborative was retained by Lamphier-Gregory to conduct a Biological Resource Assessment (BRA) for the SupplyBank.org Project (Project) on Oakport Street in Oakland, California. The Project site consists of one large property owned by the East Bay Municipal Utilities District (EBMUD) that is split among three Assessor's Parcels (APN #s 41-3904-1-5, 41-3903-2-7 and 41-3903-2-8) that collectively occupy approximately 66.5 acres within in the Coliseum industrial neighborhood of East Oakland. The Project site is within the planning area of the City of Oakland's Coliseum Area Specific Plan (CASP). Assessor's Parcel Number 41-3903-2-8 is the primary location of the Project (i.e., the Development Area), and APNs 41-3904-1-5 and 41-3903-2-7 are the remaining portions of the property The Development Area was originally tidal marshlands that were filled in the 1950s and 1960s to create the existing relatively level property. The EBMUD Oakport Wet Weather Treatment Facility (Oakport WWF) is located on the northerly APN (41-3904-1-5) and would remain and continue to provide primary wastewater treatment. The remainder of this APN is used for warehousing, materials storage, temporary parking and other activities, and is largely vacant. The proposed Project involves relocating EBMUD's main warehouse operations, pipe storage, worker training, and materials storage bins, and constructing a new 85-foot high, 5-story office building and associated improvements to be used as the SupplyBank.org headquarters, with the remaining capacity of the new building to be rented to other non-profit organizations for similar office use.

This BRA provides a summary of existing conditions on the Project site and an assessment of potential impacts of the proposed Project. The primary purpose of this BRA is to determine whether the biological resource analysis contained in the CASP EIR[1] adequately addresses the biological resources that are specific to the Project site, or whether there are unique or specific

[1] City of Oakland, 2014. *Coliseum Area Specific Plan, Draft Environmental Impact Report.* SCH # 2013042066. City Case #ER 13-004.

biological resources associated with the Project site that may not have been adequately addressed in the CASP EIR. Accordingly, this BRA is focused on the topics of special-status species, regulated waters, wildlife movement opportunities, and conformance with local ordinances. This BRA also includes a peer-review of several biological studies prepared by consultants retained by the applicant that are specific to the topic of wetlands and jurisdictional waters and their applicability to regulatory agency authorizations for proposed development of the Project site. Significance Criteria from Appendix G of the California Environmental Quality Act (CEQA) Guidelines related to consistency with adopted habitat conservation plans are not relevant and not further reviewed in this BRA because there are no adopted habitat conservation plans encompassing the Project site vicinity.

This BRA was prepared based on a review of available background information, as well as field reconnaissance surveys of the Project site. The review provided information on biological and wetland resources known from the Project site and vicinity. This included review of records maintained by the California Natural Diversity Data Base (CNDDB) of the California Department of Fish and Wildlife (CDFW) on special-status species and sensitive natural communities in the Oakland vicinity, mapping prepared by the U.S. Fish and Wildlife Service (USFWS) as part of the National Wetland Inventory, and other available background information. Biological and wetland resource documentation prepared for the applicant by First Carbon solutions and LSA were reviewed. Environmental Collaborative conducted field reconnaissance surveys of the Project site on April 27, May 2, and June 18, 2019, and February 14, 2023, to inspect existing conditions and review the adequacy of documentation prepared by the applicant's consultants. No protocol surveys for special-status species were performed as part of the field reconnaissance surveys, although habitat conditions were evaluated to determine the likelihood of occurrence on the Project site and assess the potential impacts of the Project. A separate wetland delineation or coordination with regulatory agency staff was not performed as part of this BRA, as these tasks were accomplished by consultants retained by the applicant.

The following provides an assessment of the Project on biological issues in accordance with Appendix G of the CEQA Guidelines, and ordinance conformance, pertinent findings contained in the CASP EIR, and a review of the applicability of mitigation measures from the CASP EIR and the City's Standard Conditions of Approval (SCA) in addressing potentially significant impacts on sensitive resources.

SPECIAL-STATUS SPECIES

1. CASP EIR identification of Special-Status Species

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Acts or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts and other essential habitat. As defined in the CASP EIR, special status species included: those species listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act; species listed or candidates for listing as rare, threatened or endangered under the California Endangered Species Act; species designated as "Special Concern" or "Fully Protected" by CDFW; species protected by the Federal Marine Mammal Protection Act; raptors (birds of prey), which are specifically protected by California Fish & Game Code Section 3503.5; those species that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines, such as those listed as “Special Animals” by CDFW, which include species on CDFW’s watchlist, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and colonial nesting birds; species listed in the Special Plants, Bryophytes, and Lichens List as defined by the CDFW CNDDB; and species listed as California Rare Plant Rank (RPR) 1-3 as defined by the California Native Plant Society’s *Inventory of Rare and Endangered Plants of California*.

The CASP EIR found that 46 special-status wildlife species (see **Table 4.3A-1** in **Appendix 4.3A** of the CASP EIR) and 33 plant species (see **Table 4.3B-1** in **Appendix 4.3B** of the CASP EIR) were considered to have some potential for occurrence in the CASP planning area. Tables included in the CASP EIR listed the status, habitat requirements and potential for each species to occur within the CASP planning area or adjacent habitats. **Figures 1** and **2** show the known distribution of special-status plants and animals, respectively, within several miles of the Project site according to records maintained as part of the CNDDB. Those special-status species known or suspected to occur along the Bay front in the vicinity of the Project site, include the following:

- Coastal salt marsh provides habitat for the State and federally-endangered salt marsh harvest mouse and the Species of Special Concern (SSC) salt marsh wandering shrew
- Creeks, sloughs and open water provide suitable foraging habitat for special-status and more common bats. Existing structures and mature trees may provide maternity roosts for bat species. Three special-status bat species (the Townsend’s big-eared bat, pallid bat and silver-haired bat) are recognized as SSC by CDFW.
- California clapper (Ridgway’s) rail, California black rail, California brown pelican, California least tern, peregrine falcon and western snowy plover all occur within the CASP panning area and vicinity. Of these currently or now delisted birds, the Ridgway’s rail and California black rail nest in coastal salt marshes, including Damon Marsh just west of the Project site. California brown pelican, California least tern, and western snowy plover may forage in the open waters of the Bay but are not expected to nest in the CASP planning area. Peregrine falcon is expected to forage in portions of the CASP planning area.
- Several bird species recognized as SSC or for which roosting colonies are of concern to CDFW, are known from the CASP planning area. Alameda song sparrow and San Francisco saltmarsh common yellowthroat nest in tidal coastal salt marshes along the edges of San Francisco Bay. East Creek Slough, Damon Slough, Elmhurst Creek and San Leandro Creek provide foraging for the great blue heron, great egret, snowy egret, California gull, double-crested cormorant, and other species. Adjacent marshes, creeks, sloughs and Bay waters also provide foraging habitat for most of these species.
- Raptors (birds of prey) are known or suspected from the CASP planning area, including American kestrel, burrowing owl, Cooper’s hawk, northern harrier, osprey, red-tailed hawk, and white-tailed kite.
- Special-status fish and marine mammals known from the open waters of the Bay and creeks include steelhead trout, green sturgeon, longfin smelt, Pacific herring, Pacific harbor seals and California sea lions.

2. Potential Project Impacts to Special-Status Species

The proposed Project would directly affect a highly disturbed area that has very little potential for presence of any special-status species. However, its proximity to Damon Marsh could result in indirect impacts on known occurrences of Ridgway's rail, California black rail, and other special-status birds and mammals. **Figures 1** and **2** show the location of the Project site in relation to the natural habitat of Damon Marsh and open waters of the Bay, known to support numerous special-status species.

Construction activities, including noise, vibrations from pile driving, and increased human activity, could directly affect individuals, and could indirectly affect special-status species by reducing the quality of habitats, disruption of nesting and other essential behaviors, or attracting predators. The proposed Project would introduce new nighttime lighting, an increase in human activity and noise generated from the Project site, and the new structure could pose a risk of bird collision due to the height and proximity to Damon Marsh and the Bay. Sediment from grading could be released by construction-related erosion and wash contaminants into Bay waters, adversely affecting aquatic-dependent species unless careful controls are implemented. Other indirect impacts on special-status birds and bats could occur from construction-related disturbance from noise, vibrations from pile driving, new sources of light and traffic, as well as direct impacts through removal of nesting and roosting habitat.

The demolition or renovation of structures and removal of mature trees could affect bat species if roosting individuals are present, or if maternity roosts have been established.

3. Applicable Mitigation Measures and Standard Conditions of Approval

As concluded in the CASP EIR, implementation of City of Oakland SCAs that require Erosion and Sedimentation Control Plans, Best Management Practices for Soil and Groundwater Hazards and Creek Protection Plans would serve to address potential indirect effects of the Project's construction on water quality and aquatic-dependent special-status species associated with the nearby habitat of the Bay and creeks.

Potential impacts on nesting birds and roosting bats would generally be addressed through SCAs that call for preconstruction surveys as part of tree removal requirements during breeding season, and construction controls required as part of operational noise controls, limitations on pile driving and other extreme noise generators, and controls of nighttime lighting through preparation of a lighting plan.

A number of the biological-related SCAs identified in the CASP EIR that apply to future development in proximity to highly sensitive habitat areas such as Damon Marsh, would also apply to the proposed Project. These SCAs include controls on pile driving and other construction related disturbance, and nighttime lighting. Controls would also be required as part of building design to limit the risk of bird collision, which is of particular concern given the proposed height and proximity of the Office Building to Damon Marsh and open waters of the Bay. The risk of bird collision with new structures applies to both special-status species and more common bird species. Exterior treatment and nighttime lighting issues would be addressed as part of the Bird Collision Reduction Plan called for in the City's updated SCAs. Additional analysis of the risk of bird collision associated with the proposed Project is provided below under Species Movement, Migration, or Nursery Sites.

The CASP EIR also recommended additional mitigation measures to address the special sensitivity and extended nesting and migratory period associated with Ridgway's rails, California black rails and raptors.

Given the proximity of the Project site to Damon Marsh, many of these CASP EIR mitigation measures would apply to the Project and would serve to further address potential adverse impacts on special-status species, as reviewed further below. These additional mitigation measures include conducting pre-construction nesting surveys and establishing appropriate construction buffers, protection of essential habitat for species associated with salt marsh habitat, and controls on public access to limit disturbance to sensitive habitat. All of these mitigation measures would be useful in further minimizing or avoiding potential adverse impacts on special-status species associated with Damon Marsh and the remaining natural habitat in the vicinity of the Project site.

Applicable Standard Conditions of Approval

The following City of Oakland SCAs (as updated) are cited in the CASP EIR as an effective means for addressing direct and indirect impacts to SSS and their habitats, and would apply to the Project:

- SCA Bio-1: Operational Noise-General
- SCA Bio-2: Pile Driving and Other Extreme Noise Generators
- SCA Bio-3: Lighting Plan
- SCA Bio-4: Tree Removal Permit on Creekside Properties
- SCA Bio-5: Tree Removal during Breeding Season
- SCA Bio-6: Tree Removal Permit
- SCA Bio-7: Tree Replacement Plantings
- SCA Bio-8: Tree Protection during Construction
- SCA Bio-9: Erosion and Sedimentation Control Plan
- SCA Bio-10: Best Management Practices for Soil and Groundwater Hazards
- SCA Bio-12: Regulatory Permits and Authorizations
- SCA Bio 17: Bird Collision Reduction

In addition, to reduce potential impacts to special status bat species, the consulting biologists involved in preparation of the CASP EIR recommend the following additional measures be implemented:

Recommendations in Furtherance of SCA Bio-5: Tree Removal during Breeding Season:

a) Potential direct and indirect disturbances to bats shall be identified by locating colonies and instituting protective measures prior to tree removal and building dismantling and demolition activities. No more than two weeks in advance of tree removal, demolition of buildings onsite, or initiation of construction within 100 feet of trees or structures providing potential bat roosting sites, a qualified bat biologist (e.g., a biologist holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle and collect bats) shall conduct pre-construction surveys for bat roosts. No activities that could disturb active roosts shall proceed prior to the completed surveys.

b) If a bat maternity colony is located within the Project site during pre-construction surveys, the Project shall be redesigned to avoid impacts if feasible, and a no-disturbance buffer acceptable in size to the CDFW shall be created around the roost.

Bat roosts (maternity or otherwise) initiated during construction are generally presumed to be unaffected by increased noise, vibration, or human activity, and no buffer is necessary as long as roost sites are not directly altered or destroyed. However, the “take” of individuals is still prohibited at any time.

c) If there is a maternity colony present and the Project cannot be redesigned to avoid removal of the tree or structure inhabited by the bats, demolition of that tree or structure shall not commence until after young are flying (i.e., after July 31, confirmed by a qualified bat biologist) or before maternity colonies form the following year (i.e., prior to March 1).

d) If a non-maternity roost must be removed as part of the Project, the non-maternity roost shall be evicted prior to building/tree removal by a qualified biologist using methods such as making holes in the roost to alter the air-flow or creating one-way funnel exits for the bats.

e) If significant (e.g., maternity roosts or large non-maternity roost sites) bat roosting habitat is destroyed during building/tree removal, artificial bat roosts shall be constructed in an undisturbed area in the Project site vicinity away from human activity and at least 200 feet from Project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist.

CASP EIR Mitigation Measures

Because of the special sensitivity and extended nesting and migratory period associated with Ridgway’s rails, California black rails and raptors, the following mitigation measures for further addressing direct and indirect impacts to these special status species and their habitat would apply to the Project to address potential impacts to special status birds and nesting birds:

CASP EIR MM Bio 1A-1, Pre-construction Nesting Bird Surveys and Buffers: A qualified biologist shall conduct pre-construction surveys for construction activities between February 15 and September 30 to identify and subsequently avoid nesting areas for special status and migratory bird species. Surveys shall be designed and be of sufficient intensity to document rail and raptor nesting within 500 feet of planned work activities and within 50 feet for passerine nesting activity.

a) Construction activities within 500 feet of Damon Marsh and Arrowhead Marsh shall be conducted during the period from August 1 to January 31 to protect potentially nesting Ridgeway’s rail, California black rail, Alameda song sparrow and San Francisco saltmarsh common yellowthroat.

b) If Ridgeway’s rails, California black rails or raptors are found to be nesting within or adjacent to the planned work area, a minimum 100-foot wide buffer shall be maintained between construction activities and the nest location.

c) For Alameda song sparrow, San Francisco saltmarsh common yellowthroat and all other protected birds, a 50-foot buffer shall be maintained.

d) Buffer zones may be reduced in consultation with a qualified biologist.

e) Buffers shall be maintained until the young have fledged and are capable of flight, or by September 30.

To address potential impacts on special-status terrestrial mammals, the CASP EIR recommended the following additional mitigation measures:

CASP EIR MM Bio 1A-3, Salt Marsh Protection: All core habitat areas for salt marsh harvest mouse (i.e., pickleweed-dominated salt marsh habitat within Damon Marsh and Arrowhead Marsh) shall be avoided and protected. If construction activities are within 100 feet of these areas, site-specific buffers shall be established in coordination with a qualified biologist, approved by USFWS or CDFW as appropriate.

a) Buffers shall be designed to preclude changes to water and soil salinity and flooding/inundation regime. The buffers shall be at least 100 feet wide or extend to the current boundary of existing roads or development (includes vacant but graded lots and filled building pads). The qualified biologist may modify these buffers depending on site conditions.
b) The construction work area shall be fenced on the side closest to salt marsh habitat to delineate the extent of construction, preclude construction personnel and equipment from entering non-work areas, and prevent debris from entering avoided habitats. The construction boundary fencing may also inhibit movement of species such as the salt marsh harvest mouse and salt marsh wandering shrew into the construction area.
c) The qualified biologist shall be present during work on-site until the construction barrier fencing is installed, instruction of workers has been conducted, and any direct habitat disturbance has been completed. After that time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures.
d) The monitor and qualified biologist shall have the authority to halt construction that might result in impacts that exceed anticipated levels

CASP EIR MM Bio 1A-4, Public Access Design: All new or additional public access to San Francisco Bay, the Bay shoreline, Damon Marsh and San Leandro Creek shall be implemented in a manner consistent with the San Francisco Bay Conservation and Development Commission's Public Access Design Guidelines for the San Francisco Bay, in particular its recommendations for avoiding adverse effects on wildlife. These Design Guidelines include the following:

a) Preparation of individual site analyses to generate information on wildlife species and habitats existing at the site, and the likely human use of the site
b) Employing appropriate siting, design and management strategies (such as buffers or use restrictions) to reduce or prevent adverse human and wildlife interactions
c) Planning public access in a way that balances the needs of wildlife and people on an areawide scale, where possible
d) Providing visitors with diverse and satisfying public access opportunities to focus activities in designated areas and avoid habitat fragmentation, vegetation trampling and erosion
e) Evaluating wildlife predator access and control in site design
f) Retaining existing marsh and tidal flats and restoring or enhancing wildlife habitat, wherever possible

Further Recommendations of this Assessment

Mitigation Measure Bio 1A-1 from CASP EIR calls for a restriction on construction activities within 500 feet of Damon Marsh to the period from August 1 to January 31 to protect nesting Ridgway's rail and other salt marsh bird species. However, the USFWS typically considers any disturbance within 700 feet direct line of sight of occupied nesting habitat to be a potential take of the federally endangered Ridgeway's rail. Some low growing trees and shrubs occur along the western edge of the Project site, and could serve as partial screening between construction activities and suitable nesting habitat in Damon Marsh. But unless further consultation is provided with the USFWS to confirm any adjustments to standard setback requirements, the 500-foot distance specified in the CASP EIR could be insufficient, and should be increased to 700 feet to adhere to typical USFWS standards, as indicated below:

a) Construction activities within 700 ~~500~~ feet of Damon Marsh and Arrowhead Marsh shall be conducted during the period from August 1 to January 31 to protect potentially nesting Ridgeway's rail, California black rail, Alameda song sparrow and San Francisco saltmarsh common yellowthroat.

The SCA in the CASP EIR calling for regulatory permits and authorizations (SCA Bio-12: Regulatory Permits and Authorizations) would not automatically trigger consultation with the USFWS as part of a Section 7 consultation with the U.S. Army Corps of Engineers (Corps) for the proposed Project, because no federally regulated wetlands or waters would be affected as currently proposed. Without a federal nexus that would trigger a Section 7 consultation (such as a Section 404 Permit from the Corps), the only way to address potential take of federally-listed species would be under Section 10 of the Endangered Species Act, which requires preparation of a Habitat Conservation Plan. Adhering to take avoidance standards such as the 700-foot disturbance setback during the rail's nesting season, should serve to avoid the need for further consultation with the USFWS and CDFW on potential take of listed species.

4. Conclusions

Consistent with the conclusions of the CASP EIR, the Project's effects on special-status species and their habitats would be fully addressed through implementation of City SCAs, the additional mitigation measures called for in the CASP EIR (as revised to ensure adequate construction disturbance setbacks from Damon Marsh), and existing regulations. No further analysis or mitigation measures are considered necessary in addressing potential impacts to a level of less-than-significant.

WETLANDS, RIPARIAN HABITAT AND OTHER SENSITIVE NATURAL COMMUNITIES

1. CASP EIR review of Regulated Waters and other Sensitive Natural Communities

The CASP EIR provides a review of regulated waters in the CASP planning area, which include several creeks and the wetlands of Damon Marsh. The CASP EIR found that future development pursuant to the CASP could have a substantial adverse effect on wetlands, riparian habitat, Waters of the State and other sensitive natural communities as identified in local or regional plans, policies and regulations. The CASP EIR determined that such potential impacts caused by construction activities near sensitive communities along the edges of waterways would be fully addressed through implementation of City SCAs, which acknowledge the regulatory permits and authorizations needed from other regulatory agencies in addition to the City of Oakland and requiring compliance with all conditions as may be issued by these applicable agencies, including the RWQCB. Other SCAs required of construction at or near the edges of waterways or Waters of the State require implementation of Best Management Practices (BMPs) for soil and groundwater hazards, and preparation and implementation of Creek Protection Plans. The CASP EIR determined that potential direct impacts to wetlands, riparian habitats, isolated wetlands and headwaters would be reduced through implementation of SCAs.

The CASP Final EIR cited the Porter-Cologne Water Quality Control Act as implementing the federal Clean Water Act (CWA), and providing a mechanism for protecting the quality of the State's waters, providing independent authority to the Reginal Water Quality Control Board (RWQCB) to regulate the discharge of fill material to wetlands outside the jurisdiction of the U.S. Army Corps of Engineers (Corps). The RWQCB protects all waters in its regulatory scope, but has special responsibility for isolated wetlands and headwaters. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge of harmful substances to Waters of the State, the RWQCB has the option to regulate such activities under its State authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

The CASP EIR also acknowledged that the Bay Conservation and Development Commission (BCDC) regulates dredging, filling and public access within 100 feet of the mean high tide line within San Francisco Bay, and has jurisdiction over open water, marshes, mudflats, and the first 100-feet inland from the shoreline, and portions of most creeks, rivers, sloughs and tributaries that flow into San Francisco Bay. BCDC permits would be required for all work within their jurisdictional boundaries. The BCDC policies to maximize public access opportunities also seek to minimize potentially significant adverse impacts upon wildlife. All proposed new or additional public access to San Francisco Bay and the Bay shoreline must be implemented in a manner consistent with the BCDC's Public Access Design Guidelines, in particular its recommendations for avoiding adverse effects on wildlife.

2. Potential Impacts on Regulated Waters

Several wetland delineations have been conducted at the Project site for the applicant and within a larger study area, including an initial delineation conducted by WRA Environmental Consultants in 2019,[2] and a subsequent delineation conducted by First Carbon Solutions in February 2021.[3] The First Carbon Solutions 2021 delineation was verified by the Corps in March of 2021. Although the 2021 delineation by First Carbon Solutions indicates that a small seasonal wetland (Seasonal Wetland SW-01) of an estimated 0.02 acre was a "potentially jurisdictional feature", the Corps determined that the Project site contained no federally regulated waters. The 2019 delineation concluded there was an estimated 0.24 acre of construction-related depressions and 0.03 acre of wetland drainage ditches on the Project site, but no determination was made on whether these features were regulated waters of the State. The 2021 delineation focused on mapping features off of the Project site along the Oakport Street corridor, and concluded that there was an estimated 0.157 acre of State-regulated waters present within the expanded study area.

[2] WRA Environmental Consultants, 2019. *Aquatic Resources Delineation Report, SupplyBank.Org Office & Distribution Center, Oakland*. Prepared for SupplyBank.Org. September, revised October 20.

[3] First Carbon Solutions, 2021. *Delineation of Aquatic Resources of Additional Areas at the Oakport Street Project and Regulatory Considerations*. Letter to Benito Delgado-Olson, Executive Director, SupplyBank.org, from Bernhard Warzecha, Senior Biologist/Project Manager, First Carbon Solutions. February 1.

In addition to the 2019 WRA delineation study and the 2021 First Carbon Solutions delineation, an additional delineation was conducted by LSA at the request of the RWQCB in 2022. This LSA 2022 delineation[4] was conducted at the end of the wet season to more accurately represent conditions for potential seasonal wetlands. It also captured potential jurisdictional waters along the northern portion of the Oakport Street right-of-way and the off-site mitigation area that were outside the study area limits of the previous two wetland delineations. Potential jurisdictional wetland boundaries were mapped based on a combination of the limits of hydrophytic vegetation, evidence of wetland hydrology, and hydric soil indicators. However, the Project site had been scraped and vegetation was cut shortly in advance of the field survey effort, obscuring and eliminating some of the seasonal wetland features observed during the 2019 delineation. Based on the more recent conditions observed, the 2022 delineation determined that SW-01 occupies an estimated 0.03 acre and is a "potential waters of the United States". It concluded that an estimated 0.221 acre of waters of the State were present on the Project site.

Based on the LSA 2022 Section 404(B)(1) Alternatives Analysis (Alternatives Analysis),[5] which was submitted as part of the permit application to the RWQCB, the Project site currently supports 0.244 acre of seasonal wetlands and 0.027 acre of other waters of the State, with a total potential jurisdictional area of 0.271 acre. In addition, approximately 0.240 acre of potential seasonal wetlands were located in the central portion of the site that were likely removed during maintenance activities in spring of 2022. As specified by the RWQCB during permitting negotiations with the applicant, these features are to be included in the assessment of the Project's impact on waters of the State. Therefore, the overall total potential jurisdictional area of Waters of the State is 0.511 acre.

The proposed Project would result in approximately 0.455 acre of permanent impacts to wetlands and other waters of the State. Permanent impacts would result from placement of fills and grading on the Project site, installation of retaining walls, and from construction of City-required improvements to Oakport Street (including street widening, street frontage planter, curb and gutter, and concrete sidewalk). Impacts to the estimated 0.240 acre of former potential seasonal wetlands in the central portion of the Project site were graded away during prior maintenance activities are also included in the permanent impact total, as directed by the RWQCB. The potential waters of the United States associated with Seasonal Wetland SW-01 would be avoided in the southwestern corner of the Project site.

The 2022 Alternatives Analysis was prepared to analyze the Project's compliance with the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures) administered by the RWQCB, which went into effect on May 28, 2020. The purpose of the analysis is to identify the "Least Environmentally Damaging Practicably Alternative" (LEDPA) in accordance with the *U.S. Environmental Protection Agency Section 404(B)1) Guidelines for Specification of Disposal Sites for Dredge or Fill Material* (40 CFR Part 230). As part of the 2022 Alternatives Analysis, it was determined that on-site Alternative 3 would result in an 18 percent reduction of impacts on State Waters in comparison to the proposed Project. This could be accomplished by avoiding seasonal wetlands in the western

[4] LSA 2022. *Request for Verification of Jurisdictional Delineation, SupplyBank.Org/Oakport Street Study Site, Oakland, California*. Letter to Brian Wines, Regional Water Quality Control Board from Chip Bouril, Senior Soil Scientist. August 4.

[5] LSA, 2022. *Section 404(B)(1) Alternatives Analysis, SupplyBank.Org Office & Distribution Center Project, City of Oakland, California*. Submitted to Regional Water Quality Control Board. October.

and southern areas of the Project site. Under Alternative 3 a total of 0.371 acre rather than 0.511 acre of State Waters would be permanently impacted by the Project. Alternative 3 was determined in the Alternatives Analysis to be practicable in terms of cost, technology, and logistics, was identified as the LEDPA, and would presumably be implemented as a refined Project design as a requirement of the permitting by the RWQCB.

The applicant is proposing to provide compensation for the temporary and permanent impacts on regulated waters, including the previous loss of the estimated 0.24 acre of seasonal wetland features on the Project site. The proposed wetland mitigation would consist of a compensatory mitigation area where a seasonal wetland of higher quality habitat would be established, located northwest of the Project site on other lands owned by EBMUD. Detailed engineering plans for the proposed compensatory wetland mitigation site would be prepared once this conceptual mitigation approach is approved by the RWQCB, but it appears to adequately address the concerns of the regulatory agencies.

3. Applicable Mitigation Measures and Standard Conditions of Approval

As concluded in the CASP EIR, implementation of City of Oakland SCAs that require Erosion and Sedimentation Control Plans, Best Management Practices for Soil and Groundwater Hazards and Creek Protection Plans would serve to address potential indirect effects of the Project's construction on water quality and aquatic-dependent special-status species associated with the nearby habitat of the Bay and creeks. Consistent with the CASP EIR and SCA General-12: Regulatory Permits and Authorizations from Other Agencies, the applicant has coordinated with the RWQCB and other agencies to obtain necessary regulatory permits and authorizations for the Project.

4. Conclusions

With RWQCB acceptance of the avoidance strategies and the proposed off-site compensatory mitigation of new wetlands creation, potential impacts of the Project on wetlands and identified Waters of the State would be reduced to a less than significant level. No further analysis or mitigation measures are considered necessary in addressing potential impacts to a level of less-than-significant.

SPECIES MOVEMENT, MIGRATION OR NURSERY SITES

1. CASP EIR identification of Wildlife Movement Opportunities

The CASP EIR found that movement of native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, and native wildlife nursery sites within the CASP planning area include the following:

- San Leandro Bay is identified as an important habitat for listed fish and marine mammal species (i.e., Central California Coast Steelhead, Pacific harbor seals and California sea lions).
- Suitable habitat for nesting birds is found throughout and adjacent to the CASP planning area at East Creek Slough, Damon Slough, Elmhurst Creek, San Leandro Creek, Edgewater Seasonal Wetland and at the Oakland Estuary/San Leandro Bay. Numerous special status bird species (notably Ridgeway's rail and burrowing owl) have the potential to occur within or adjacent to the CASP planning area. Common bird species

also have the potential to breed at the CASP planning area, including red-tailed hawk, killdeer, Anna's hummingbird, mallard and American crow.

- The CASP planning area was also found to possibly support species movement for three special-status bat species and two special-status salt marsh mammals (salt marsh harvest mouse and salt marsh wandering shrew).

2. Potential Impacts to Wildlife Movement, Migration and Nursery Sites

The proposed Project would affect largely ruderal habitat with only limited value to wildlife movement, migration or nursery sites.

However, the proposed Project would be located in close proximity to the sensitive marshland habitat of Damon Marsh and could affect opportunities for wildlife movement, disrupt breeding and nesting habitat, and could result in loss of individual birds from inadvertent collisions with the Project's new structures. Of particular concern is the proposed Office Building, which would have a height of 85 feet and include considerable glass treatment along the facade facing the marsh and open waters of the Bay, and could obstruct bird movement or cast new light into the nearby marsh. As identified in the CASP EIR, birds living or flying through urban areas are subject to numerous hazards including collisions with buildings, power lines and bridges, and bird collisions with buildings are a significant threat to bird populations. Clear glass is invisible to birds and poses both a daytime and nighttime hazard. Songbirds are vulnerable to collisions with structures as many songbird species migrate at night, fly at low altitudes, and they tend to become disoriented by night-time illumination. Transparent glass can also reflect the surrounding environment, and birds that attempt to fly through this reflected habitat collide with the glass. Night-time illumination also has a potential to interfere with bird migrations. For seabirds, water birds and marsh birds, lamplight-reflecting surfaces such as wet roads can be mistaken for water at night, causing birds to land in these areas. Since many of these species have difficulty taking off from land, this can put them at risk of predation and exhaustion.

Disturbance to birds from construction activities during the breeding season could result in nest abandonment and direct impacts to eggs or nestlings. Direct construction disturbance could include physically altering a nest or the substrate where a nest is located. Indirect disturbance could include noise, night lighting, altering of surrounding habitat through vegetation removal, and flight path obstruction. Increased noise could prevent birds from receiving acoustic signals for nest exchanges, feeding and predator alarm.

Additionally, potential indirect impacts to migratory aquatic species could be anticipated if construction activities were to adversely affect water quality.

3. Applicable Mitigation Measures and Standard Conditions of Approval

The following City of Oakland SCAs (as updated) were cited in the CASP EIR as an effective means for addressing impacts related to migratory movement, migratory corridors and nursery sites, and would apply to the Project.

Potential interference with the movement of migratory fish and marine mammals would be substantially reduced through implementation of City of Oakland SCAs including, but not limited to the following:

- SCA Bio-9: Erosion and Sedimentation Control Plan

- SCA Bio-10: Best Management Practices for Soil and Groundwater Hazards
- SCA Bio-11: Creek Protection Plan
- SCA Bio-12: Regulatory Permits and Authorizations
- SCA Bio-13: Creek Monitoring
- SCA Bio-15: Creek Dewatering and Aquatic Life

Disturbance from construction activities during the breeding season that may impact nesting migratory bird and bat species would be reduced through implementation of the following:

- SCA Bio-4: Tree Removal Permit on Creekside Properties
- SCA Bio-5, Tree Removal during Bird Breeding Season
- SCA Bio-6: Tree Removal Permit
- SCA Bio-7: Tree Replacement Plantings
- SCA Bio-8: Tree Protection during Construction

Impacts of increased recreation and residential facilities on migratory birds would be reduced through implementation of the following:

- SCA Bio-1: Operational Noise
- SCA Bio-2: Pile Driving and Other Extreme Noise Generators

For impacts of potential avian collisions with buildings and night lighting on migratory birds, the City of Oakland has adopted strategies to make the city safer for birds. These include SCA Bio-3: Lighting Plan and SCA Bio 17: Bird Collision Reduction Plan. Implementation of these SCAs would result in measures to reduce bird strikes, including night lighting recommendations and restrictions, and building maintenance guidelines. Since the CASP EIR was published in 2015, the City has updated its SCAs, and specifically the SCA pertaining to bird collision reduction plans, the current text of this SCA is as follows:

SCA Bio-17 (as updated), Bird Collision Reduction Plan: The project applicant shall submit a Bird Collision Reduction Plan for City review and approval to reduce potential bird collisions to the maximum feasible extent. The Plan shall include all of the following mandatory measures, as well as applicable Project-specific Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent. The project applicant shall implement the approved Plan. Mandatory measures include all of the following:

a. For large buildings subject to federal aviation safety regulations, install minimum intensity white strobe lighting with three-second flash instead of solid red or rotating lights.
b. Minimize the number of and co-locate rooftop-antennas and other rooftop structures.
c. Monopole structures or antennas shall not include guywires.
d. Avoid the use of mirrors in landscape design.
e. Avoid placement of bird-friendly attractants (i.e., landscaped areas, vegetated roofs, water features) near glass unless shielded by architectural features taller than the

attractant that incorporate bird friendly treatments no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule).

f. Apply bird-friendly glazing treatments to no less than 90 percent of all windows and glass between the ground and 60 feet above ground or to the height of existing adjacent landscape or the height of the proposed landscape. Examples of bird-friendly glazing treatments include the following:

i. Use opaque glass in windowpanes instead of reflective glass.

ii. Uniformly cover the interior or exterior of clear glass surface with patterns (e.g., dots, stripes, decals, images, abstract patterns). Patterns can be etched, fritted, or on films and shall have a density of no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule).

iii. Install paned glass with fenestration patterns with vertical and horizontal mullions no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule).

iv. Install external screens over non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects.

v. Install UV-pattern reflective glass, laminated glass with a patterned UV-reflective coating, or UV-absorbing and UV-reflecting film on the glass since most birds can see ultraviolet light, which is invisible to humans.

vi. Install decorative grilles, screens, netting, or louvers, with openings no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule).

vii. Install awnings, overhangs, sunshades, or light shelves directly adjacent to clear glass which is recessed on all sides.

viii. Install opaque window film or window film with a pattern/design which also adheres to the “two-by-four” rule for coverage.

g. Reduce light pollution. Examples include the following:

i. Extinguish nighttime architectural illumination treatments during bird migration season (February 15 to May 15 and August 15 to November 30).

ii. Install time switch control devices or occupancy sensors on non-emergency interior lights that can be programmed to turn off during non-work hours and between 11:00 p.m. and sunrise.

iii. Reduce perimeter lighting whenever possible.

iv. Install full cut-off, shielded, or directional lighting to minimize light spillage, glare, or light trespass.

v. Do not use beams of lights during the spring (February 15 to May 15) or fall (August 15 to November 30) migration.

h. Develop and implement a building operation and management manual that promotes bird safety. Example measures in the manual include the following:

i. Donation of discovered dead bird specimens to an authorized bird conservation organization or museums (e.g., UC Berkeley Museum of Vertebrate Zoology) to aid in species identification and to benefit scientific study, as per all federal, state and local laws.

ii. Distribute educational materials on bird-safe practices for the building occupants. Contact Golden Gate Audubon Society or American Bird Conservancy for materials.

iii. Asking employees to turn off task lighting at their workstations and draw office blinds, shades, curtains, or other window coverings at end of workday.

iv. Install interior blinds, shades, or other window coverings in windows above the ground floor visible from the exterior as part of the construction contract, lease agreement, or CC&Rs.

v. Schedule nightly maintenance during the day, or so that it concludes before 11 p.m., if possible.

To further address potential impacts on species movement, migration and nursery sites, the CASP EIR recommended the following additional recommendations and mitigation measures:

CASP EIR's Further Recommendations Pursuant to SCA Bio-3: In addition to the standard provisions of the City SCA Lighting Plan requirements, lighting plans for properties within the CASP planning area and near the Bay include the following:

a. Acorn-style lights that are International Dark Sky Association approved "Dark Sky Friendly" will be installed. This type of lighting ensures 0 percent light above 90 degrees, directs light downward and minimizes the amount of backward and side lighting, thereby reducing light pollution on habitat and animals in the surrounding area.
b. Use only the lowest luminaire wattage that still provides safe conditions for vehicular traffic, bicyclists, and pedestrians.
c. If possible, correlated color temperature (an indication of how "warm" or "cool" the light source appears) ranges of the light source to be between 3800 and 4000 Kelvins. This range corresponds to "warm" light that would be less disturbing to animals.
d. Lights shall be directed away and/or screened from Damon Marsh and Arrowhead Marsh.

CASP EIR MM Bio 3-2, Herbicide / Pesticide Control: Maintenance shall require preparation and implementation of a drift control plan for herbicide/pesticide use.

4. Conclusions

As concluded in the CASP EIR, implementation of SCAs calling for a Lighting Plan and a Bird Collision Reduction Plan would address the potential disruption of nighttime lighting and reduce the risk of bird strikes. The Bird Collision Reduction Plan called for in the City's updated SCA would further define building treatments, exterior lighting, and management activities that would serve to reduce bird strikes and disturbance to nearby marsh habitat. Together with other SCAs and the additional mitigation measures called for in the CASP EIR, the required lighting plan and a bird collision reduction plan would serve to protect nesting habitat and minimize disturbance to species movement and migration.

Consistent with the conclusions of the CASP EIR, the Project's effects related to interference with the movement of fish or wildlife, migratory wildlife corridors and wildlife nursery sites would be fully addressed through implementation of City SCAs and additional recommendations and mitigation measures as recommended in the CASP EIR. The City's SCAs require that the Bird Collision Reduction Plan be prepared prior to approval of a construction-related permit, with initial approval by the Bureau of Planning and monitoring/inspection to be conducted by the Bureau of Building. The Project is not currently seeking approval of a construction-related permit and so has not prepared the Bird Collision Reduction Plan. Accordingly, this Biological Assessment does not include a peer review of the efficacy or effectiveness of a Bird Collision Reduction plan for the Project.

CONFLICTS WITH TREE PROTECTION ORDINANCE

1. CASP EIR identification of Ordinance Compliance

The CASP EIR found that future development pursuant to the CASP would not fundamentally conflict with the City of Oakland Tree Protection Ordinance. Prior to removal of any protected tree within the CASP planning area, the City's tree permit criteria for tree removal will be reviewed and a tree removal permit approved with the City of Oakland. Pursuant to SCAs, tree removal permit requirements shall be implemented before and during removal of protected trees, and removal of protected trees would be replaced by new trees that would contribute to the visual framework of the CASP planning area.

2. Potential Impacts to Trees

The Project site (Parcel 1) includes only six existing trees, five located generally within the central portion of Parcel 1, and one tree along the southerly property line near Oakport Street. These trees include:

- Tree #1, a 28-inch diameter eucalyptus
- Tree #2, a 48-inch diameter date palm
- Tree #3, a 12-inch diameter olive tree
- Tree #4, a 12-inch diameter olive tree
- Tree #5, a 10-inch diameter olive tree
- Tree #6, a 48-inch diameter date palm

All of these trees are located in the proposed development area and/or where grading and fill are proposed to occur, and each of these trees are proposed to be removed as part of the Project. All of the other vegetation along the Project site's westerly boundary (adjacent to Damon Marsh) would remain.

3. Applicable Mitigation Measures and Standard Conditions of Approval

The City of Oakland SCA Bio-6, Tree Removal Permit is cited in the CASP EIR as an effective means for addressing the City's tree permit policies and ordinance, and would apply to the Project. Protected trees under the City's Tree Protection Ordinance are Coast live oaks of four inches or larger in diameter, or any other species nine inches in diameter or larger (but not Eucalyptus or Monterey Pine trees). Based on species and trunk diameter, five of the trees on the Project site qualify as protected under the City's Tree Protection Ordinance, and a permit would be required for their removal.

Per the City of Oakland landscape and screening standards, the Project is required to provide street trees along the Oakport Street frontage at a spacing of 25 feet on center (average). With 1,425 linear feet of frontage, the Project is required to provide 58 street trees along Oakport Street. The Project's proposed Landscape Plan does include 58 new trees along Oakport Street frontage, as a mix of Trident Maple, Red Alder, Scarlet Oak and Chinese Pistache trees. Internal parking lot planting islands include an additional mix of California Sycamores and Water Gum. Along the Project's westerly boundary near Damon Marsh, additional tree plantings include primarily Red Alder and California Sycamore.

4. Conclusions

Consistent with the conclusions of the CASP EIR, the Project's effects related to consistency with the City's Tree Protection Ordinance would be fully addressed through implementation of the City SCA and existing regulations, including obtaining a Tree Removal permit prior to grading or construction activities, and planting of new street trees and landscape plantings. With issuance of a Tree permit and implementation of the Project's proposed landscape plans, impact related to inconsistency with the City's Tree Protection Ordinance would be reduced to less than significant.

CONFLICTS WITH CREEK PROTECTION ORDINANCE

1. CASP EIR identification of Ordinance Compliance

The CASP EIR found that new development pursuant to the CASP would not fundamentally conflict with the City of Oakland Creek Protection Ordinance. All future work conducted within areas subject to the Creek Protection Ordinance would require a City of Oakland Creek Protection Permit, to be implemented in accordance with detailed performance requirements. By obtaining the required Creek Protection Permit and conducting the work in accordance with those permits, any impacts were found to be less than significant.

2. Potential Impacts on Creeks

The Project site consists of two parcels, both of which are owned by EBMUD. Because the Project involves both properties, the provisions of the City Creek Protection Ordinance apply to both parcels. Each of these properties have different criteria as to the type of Creek Permits that apply, as discussed below.

Parcel 2 / East Creek Slough

Parcel 2 is the northerly approximately 29-acre parcel that fronts Oakport Street along its eastern perimeter. East Creek Slough is clearly defined as a "creek" based on City criteria, and this creek bisects the northernmost portion of Parcel 2. A small portion of Parcel 2 is located on the northerly side of East Creek Slough, and the larger portion of Parcel 2 is located on the south side of East Creek Slough. According to the City of Oakland's Guide to Oakland's Creek Protection Ordinance, the Creek Permit category that is the best fit for activities proposed at Parcel 2 is a Category II Creek permit, for exterior work that does not include earthwork and is located more than 100 feet from the centerline of the creek. The activities proposed as part of the Project at Parcel 2 are limited to demolition of several smaller sheds and other structures. These sheds and small structures are located well beyond 100 feet from the centerline of East Creek Slough, and no grading or earthwork is required or proposed for removal of these buildings.

Parcel 1 / San Leandro Bay

According to the City of Oakland's Creek Protection Ordinance, the Oakland Estuary, including San Leandro Bay, is considered a waterway. The City of Oakland's Creek Protection Ordinance (OMC Chapter 13.16) is intended to address potential water quality impacts from stormwater and other discharges into identified waterways. The Parcel 1 development area is inclusive of lands that are within 100 feet of the shoreline of the Estuary. Accordingly, the Creek Permit category that is the best fit for activities proposed at Parcel 1 is a Category III Creek permit, for exterior work that does include earthwork and is located within 100 feet from the waterway. The Project (at Parcel 1) is required to comply with the provisions of the Creek Protection Ordinance, and must prepare a Creek Protection Plan.

Parcel 1 / East Creek Slough and Damon Slough

Parcel 1 is the nearly 16-acre southerly parcel that also fronts Oakport Street along its eastern perimeter, with Oakport Street/Zhone Way forming the southerly perimeter. The nearest portion of Parcel 1 is well beyond 1,900 feet to the south of East Creek Slough. South of Parcel 1 and south of the Oakport Street/Zhone Way interchange is Damon Slough. The nearest portion of Parcel 1 is approximately 640 feet to the north of Damon Slough. The development proposed pursuant to the Project is well distant from these traditionally defined creeks.

Parcel 1 / On-Site Drainage

According to the City's Creek Protection Ordinance, the definition of a "creek" includes a continuous waterway that is hydrologically connected to a waterway above and below a site, or connected to a spring, headwaters, lake, the Estuary or the Bay. There are a series of swales, culverts, rough ditch segments and a RWQCB-defined drainage channel located along the easterly boundary of the Project site adjacent to Oakport Street. These features generally extend from the Peppermint Gate Road access drive in Parcel[2], all the way down to Seasonal Wetlands-01 at the southerly end of the Project site and qualify as Waters of the State. However, each of these features are artificial, small in size, and have little to no habitat value. Seasonal Wetland-01 at the southerly end of the Project site is separated from the Bay by a former railroad berm, and these features do not appear to have a hydrological surface connection to the San Francisco Bay, except potentially under extreme rainfall conditions.[6] Accordingly, although these features do qualify as Waters of the State, they are isolated features and do not meet the City definition of a creek.

3. Applicable Mitigation Measures and Standard Conditions of Approval

The Creek Permit category that is the best fit for activities proposed at Parcel 2 is a Category II Creek permit, for exterior work that does not include earthwork and is located more than 100 feet from the centerline of the creek. The Creek Permit category that is the best fit for activities proposed at Parcel 1 is a Category III Creek permit, for exterior work that does include earthwork and is located within 100 feet from the waterway. These Creek Permits require preparation and implementation of a Creek Protection Plan that includes Best Management Practices ("BMPs") to be implemented during construction and after construction to protect the waterways (East Creek Slough and San Leandro Bay). The City's SCA Hydro-4, Creek Protection Plan calls for preparation of a Creek Protection Plan, which would be applicable to the Project.

4. Conclusions

Consistent with the conclusions of the CASP EIR, the Project's effects related to consistency with the City's Creek Protection Ordinance would be fully addressed through implementation of the City SCA and existing regulations, including obtaining a Creek Permit prior to grading or

[6] First Carbon Solutions, *Delineation of Aquatic Resources of Additional Areas at the Oakport Street Project and Regulatory Considerations*, February 1, 2021

construction activities, and complying with the conditions of that permit throughout the construction period. With issuance of a Creek Permit and implementation of the conditions of that permit during the Project's grading operations, impacts related to inconsistency with the City's Creek Protection Permit would be reduced to less than significant.

Although not a direct effect on biological resources, the following additional recommendations are intended to address the appropriateness of proposed tree species for the site, and pertain to the Project's proposed Tree Permit and/or Creek Permit:

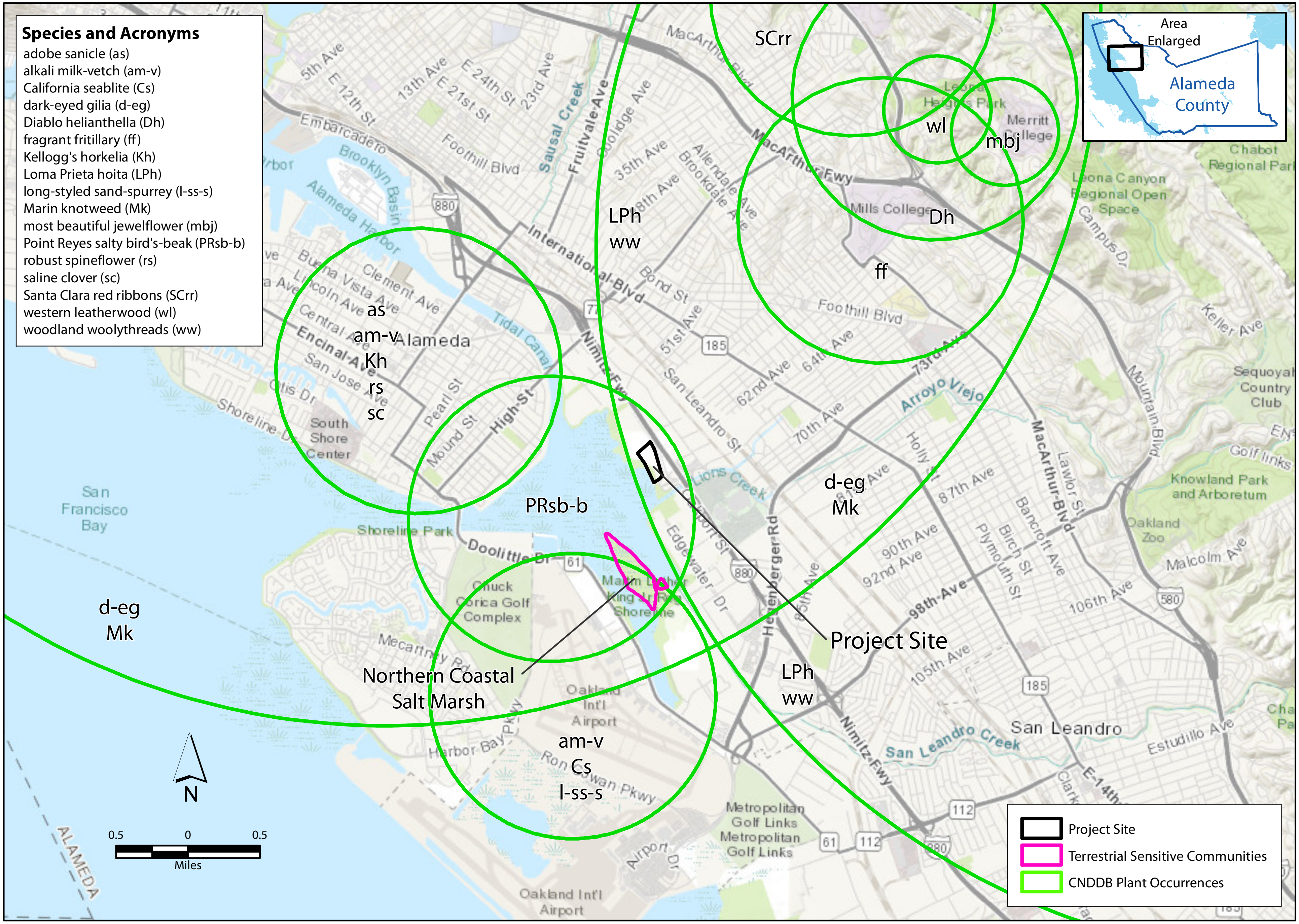
Recommendation Pursuant to SCA Bio-3: Landscape Plan Species: Pursuant to the Project's Tree permit and/or Creek permit, the Project applicant shall reconsider the proposed plant palette to incorporate the following recommendations:

a) The Project's landscape plan should provide for a greater component of native trees, especially along the Project's westerly edge near Damon Marsh.

b) The selection of Chinese Pistache trees within the landscape should be limited to male variety of this species, as the female variety produces berries that are attractive to birds.

Figure 1. Special-Status Plant Species and Sensitive Natural Communities

Oakland Supplybank Project



SOURCES: California Natural Diversity Database accessed on April 16, 2019; USGS base map by ESRI and NGS. Map produced by www.digitalmappingsolutions.com on 4/16/2019.

Figure 2. Special-Status Animal Species and Critical Habitat

Oakland Supplybank Project

SOURCES: California Natural Diversity Database accessed on April 16, 2019; USGS base map by ESRI and NGS. Map produced by www.digitalmappingsolutions.com on 4/16/2019.

Appendix E

Aquatic Resources Delineation Report

WRA Environmental Consultants, August 2019

Aquatic Resources Delineation Report

SUPPLYBANK.ORG OFFICE & DISTRIBUTION CENTER

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Revised: October 29, 2019

WRA Project: 29251

ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CSRL	California Soil Resource Lab
CWA	Clean Water Act
DEM	Digital Elevation Model
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
EPA	Federal Environmental Protection Agency
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
HTL	High Tide Line
MHW	Mean High Water
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OBL	Obligate Wetland Plant
OHWM	Ordinary High Water Mark
RHA	Rivers and Harbors Act
UPL	Upland Plant
USGS	U.S. Geological Survey
WRA	WRA, Inc.

EXECUTIVE SUMMARY

The purpose of this report is to provide a summary of the aquatic resources present within the a Study Area comprised of approximately 17.84-acres of land located in Alameda County, California. A proposed SupplyBank.Org Office & Distribution Center project is planned within the Study Area.

On August 27, 2019 WRA, Inc. (WRA) conducted a routine wetland delineation throughout the Study Area. Within the Study Area WRA observed approximately 0.02 acres of potentially jurisdictional seasonal wetlands in the southwest portion of the Study Area, 0.03 acres (373 linear feet) of potentially non-jurisdictional wetland drainage ditch in the northeast portion of the Study Area, and 0.24 acres of potentially non-jurisdictional construction-related depressions within the western portion of the Study Area. The wetland drainage ditch feature is considered non-jurisdictional per current Corps of Engineers regulations (e.g. not a waters of the United States as defined in 33 CFR 328.3), because it is a ditch created in uplands for the purpose of conveying drainage with ephemeral flow that is not a relocated tributary or excavated in a tributary. The construction-related depressions are considered non-jurisdictional per 33 CFR 328.3, because they are manmade aquatic features in otherwise dry land such as small depressions that were created incidental to construction activity.

1.0 INTRODUCTION

This report describes the methods and results of a delineation of aquatic resources conducted within the boundaries of the proposed SupplyBank.Org Office & Distribution Center (Assessor Parcel Numbers [APN]s 41-3903-02-8 and 41-3904-10-5) located in Oakland, Alameda County, California (Study Area; Figure 1). The Study Area consists of approximately 17.84 acres of land within south Oakland and consists of a developed lot previously utilized as a pipe storage, parking lot, and event venue (Figure 2). Property owned by City of Oakland, along the road frontage on the eastern edge of the site, and along the southernmost edge or the site, is excluded from the Study Area. The Project proposes to redevelop a portion of the property within the Study Area into a warehouse and office building development.

On August 27, 2019, WRA conducted a routine delineation within the Study Area to identify wetlands and non-wetland waters (also referred to as "other waters") potentially subject to jurisdiction by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA). The following sections describe the regulatory background and methods used to guide the delineation and provide a description of potentially jurisdictional wetlands and non-wetland waters within the Study Area.

2.0 REGULATORY BACKGROUND

Section 404 of the Clean Water Act gives the Environmental Protection Agency (EPA) and the Corps regulatory and permitting authority regarding discharge of dredged or fill material into "navigable waters of the United States." Section 502(7) of the CWA defines "navigable waters" as "waters of the United States, including territorial seas." Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term "waters of the United States" as it applies to the jurisdictional limits of the authority of the Corps under the CWA. A summary of the definition of "waters of the United States" in 33 CFR 328.3 (a) includes (1) waters used for commerce; (2) interstate waters and wetlands; (3) territorial seas; (4) impoundments of waters listed here; (5) tributaries to the above waters; (6) waters and wetlands adjacent to the above waters; and (7) prairie potholes, Carolina and Delmarva bays, pocosins, western vernal pools, and Texas coastal prairie wetlands, provided these features have a significant nexus to the above listed waters[1]; (8) all waters located within the 100-year floodplain of waters listed above in items 1-3 or within 4,000 feet of the high tide line (HTL) or ordinary high water mark (OHWM) of a water listed above in items 1-5, provided those waters are determined to have a significant nexus to waters identified in items 1-3 above. For purposes of the determining Corps jurisdiction under the CWA, "navigable waters" as defined in the CWA are the same as "waters of the U.S." defined in 33 CFR 328.3.

Areas not considered to be "waters of the United States" as defined in 33 CFR 328.3 (b), are summarized as follows: (1) waste treatment systems; (2) prior converted cropland; (3) specific classes of ditches, including (i) ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary, (ii) ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands, and (iii) ditches that do not flow, either directly or through another water, into a water identified in 33 CFR 328.3 paragraphs (a) (1) through (3); (4) artificially irrigated areas that would otherwise revert to dry land and manmade aquatic features in otherwise dry land such as stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, cooling ponds, reflecting pools, swimming pools, small

[1] Wetlands and non-wetland waters in this category are similarly situated and are combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of 33 CFR 328.3.

ornamental waters, depressions incidental to mining and construction activity, erosional features, and puddles; (5) groundwater; (6) stormwater control features; (7) wastewater recycling structures, groundwater recharge basins, percolation ponds for wastewater recycling, and distribution networks for wastewater recycling.

At the time of this study, changes are being made to the federal definition of waters of the U.S. These changes include repeal of a 2015-era rule (2015 Clean Water Rule) and re-codification of the federal definition. Despite possible changes to the federal definition, the exemptions given in 33 CFR 328.3 for purpose-built ditches created in dry land and for depressions created incidental to mining and construction activities will likely still apply.

2.1 Wetlands

Wetlands are defined in 33 CFR 328.3 (c) as:

> *…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The basis for determining whether a given area is a wetland for the purposes of Section 404 of the CWA is outlined in the Corps *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers* Delineation Manual for the respective region. As defined in 33 CFR 328.4 (c), the extent of federal jurisdiction within wetlands is defined as extending to the limit of the wetland as determined using the methods outlined in the manuals.

2.2 Non-Wetland Waters

The limit of federal jurisdiction in tidal non-wetland waters extends to the HTL which is defined in 33 CFR 328.4 (a) as:

> *...the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.*

The limit of federal jurisdiction in non-tidal non-wetland waters extends to the OHWM which is defined in 33 CFR 328.3 (e) as:

> *...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

3.0 STUDY AREA DESCRIPTION

The approximately 17.8-acre Study Area is located in Oakland, Alameda County, California (Figure 1). The Study Area can be reached from Exit 37 off Highway 880 towards 66th Avenue before making a left on Zhone Way then a right on S Street and the Study Area is on the left. The Study Area is bounded by the East Bay Municipal Utility District Corporation Yards to the north, Highway 880 and commercial development to the east, more commercial development to the south, and San Francisco Bay to the west. Land uses within the Study Area include previously being utilized as a pipe storage yard by the East Bay Municipal Utility District (EBMUD) and a parking lot for events attended by the public such as those at the nearby RingCentral Coliseum. Habitat conditions within the Study Area are disturbed due to the historical development and utilization for commercial and industrial uses.

3.1 Vegetation

The Study Area primarily consists of developed areas, ruderal vegetation, and hydrophytes. Developed areas are a result of historical usage as a parking lot, circus venue, and pipe storage yard. These areas have some mixed patches of annual ruderal species such as Bermuda grass (*Cynodon dactylon,* FACU) and cut leaf plantain (*Plantago coronopus,* FAC) within the gravel and paved portions of these uplands. Other upland areas within the Study Area are actively maintained (mowed) by the EBMUD and contain more vegetation density and diversity with species such as bermudagrass, bristly ox-tongue (*Helminthotheca echioides*, FAC), and annual grasses. Wetlands within the Study Area contain a mixture of native and non-native species depending on the location. Dominant species include rabbitsfoot grass (*Polypogon monspeliensis*, FACW), swamp grass (*Crypsis schoenoides*, FACW), curly dock (*Rumex crispus,* FAC), pennyroyal (*Mentha pulegium*, OBL), Italian rye grass (*Festuca perennis,* FAC), and cosmopolitan bulrush (*Bolboschoenus maritimus,* OBL).

3.2 Soils

The Soil Survey of Alameda County (USDA 1961) and the California Soil Resource Lab's (CSRL) online soil viewer (CSRL 2019) list one soil mapping unit within the Study Area: *Urban land*. Descriptions of each soil series are provided below. The distribution of these soil mapping units within the Study Area is depicted in Figure 3.

> **Urban land:** Urban land soils consist of ground surfaces covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soils material. Runoff is extremely high and drainage is nonexistent in urban land soils due to the presence of impervious surfaces. Soil present may contain high amounts of fill or other debris from development presence. This soil isn't considered hydric by the Soil Survey of Alameda County (USDA 1961).

3.3 Hydrology

The Study Area's natural hydrology has been permanently altered by the historical commercial usages and the associated placing of fill and paving throughout the site. The Study Area has been disconnected from tidal influence and natural wetlands hydrology by development for the entirety of available aerial imagery going back to 1993 (Google Earth 2019). In addition, the Study Area has been subjected to routine and frequent maintenance, grading and levelling to support various uses, including but not limited to vehicle parking, entertainment events, and materials storage, stockpiling and laydown activities. Hydrological sources for the Study Area include precipitation and runoff from the surrounding impermeable urban surfaces. Water from the Study Area drains either south via a vegetated ditch on the southeastern border of the site into the large depression separated from the tidal influence by a berm that supports a hiking trail or north via a vegetated ditch off-site through a series of culverts. Water from the Study Area also runs off the uplands with impermeable paved surfaces or well-draining gravel into low depressional areas on the western side of the site before dissipating into existing vegetation. The site is entirely within the San Francisco Bay HUC-8 watershed (NRCS 2019).

4.0 METHODS

WRA biologists performed a delineation of aquatic resources within the Study Area on August 27, 2019. Prior to conducting the evaluation, WRA reviewed a range of background materials including the *Soil Survey of Alameda County* (USDA 1961, the CSRL online soil viewer (CSRL 2019), the National Wetland Inventory (NWI; USFWS 2019), the California Aquatic Resource Inventory (CARI; SFEI 2017) and the U.S. Geological Survey (USGS) Oakland East 7.5-minute quadrangle map (USGS 1916, 2015). WRA also reviewed historic aerial imagery from Google Earth (1993-2019).

During the on-site evaluation, WRA followed the methods outlined in *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Supplement; Corps 2008) and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* ("OHWM Guide"; Lichvar and McColley 2008). Potentially jurisdictional wetlands were identified and their boundaries mapped using the Routine Method described in the Corps Manual.

4.1 Wetlands

4.1.1 Routine Method

WRA followed the Routine Method to evaluate the Study Area for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (Corps 2008). Data on vegetation, hydrology, and soils were collected at sample points within potential wetland communities and adjacent upland areas. Sample points that contained positive indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were considered to be wetland. Except in cases of atypical or problematic wetland situations (i.e., difficult wetland situations, as described below), sample points that lacked one or more indicators were considered to be upland. Sample point data were reported on Arid West Supplement data forms. Sample point locations were recorded using a handheld GPS unit with sub-meter accuracy.

Wetland boundaries were identified using a combination of indicators observed on the ground, most often minor shifts in topography and changes in dominant vegetation, in addition to other indicators. Where wetland boundaries were broad and difficult to determine in the field, wetland signatures visible in recent and historical aerial imagery from Google Earth 1993 to 2019 were used to determine wetland boundaries. Based on a WETS hydrological analysis (see summary below and full analysis in Appendix A), WRA determined that the photos represent periods with normal to slightly below normal precipitation levels. Using imagery from normal periods allowed WRA to identify the normal extent of wetland conditions across the site. Using imagery from drier than normal periods allowed WRA to more easily visualize trends in vegetation and soil conditions due to the stronger juxtaposition of wet and dry areas.

4.1.2 Wetland Indicators

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. According to the Corps Manual, for areas not considered "problem areas" or "atypical situations":

> *"....[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."*

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visit were reported on Arid West Supplement data forms. Once an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using GPS equipment and mapped on a topographic map. The areas of potential jurisdictional wetlands were measured digitally using ArcGIS software. Indicators described in the Arid West Supplement were used to make wetland determinations at each sample point in the Study Area and are summarized below.

Vegetation

Plant species observed in the Study Area were identified using the Jepson Manual, Second Edition (Baldwin et al. 2012) and subsequent revisions by the Jepson Flora Project (2019). Plant species identified in the Study Area were assigned a wetland status according to the National Wetland Plant List (Lichvar et al. 2016). This wetland classification system is based on the expected frequency of plant species occurrence in wetlands as follows:

Classification (Abbreviation)	**Definition***	**Hydrophytic Species? (Y/N)**
Obligate (OBL)	Almost always is a hydrophyte, rarely in uplands	Y
Facultative Wetland (FACW)	Usually is a hydrophyte, but occasionally found in uplands	Y
Facultative (FAC)	Commonly occurs as either a hydrophyte or non-hydrophyte	Y
Facultative Upland (FACU)	Occasionally is a hydrophyte, but usually occurs in uplands	N
Upland/Not Listed (UPL/NL)	Rarely is a hydrophyte, almost always in uplands	N

*See Lichvar et al. (2016).

The presence of hydrophytic vegetation was then determined based on indicator tests described in the Arid West Supplement. The Arid West Supplement requires that a three-step process be conducted to determine if hydrophytic vegetation is present. The procedure first requires the delineator to apply the “50/20 rule” (Indicator 1; Dominance Test) described in the manual. To apply the “50/20 rule”, dominant species are chosen independently from each stratum of the community. Dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominants are the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total vegetative cover. If greater than 50 percent of the dominant species have an OBL, FACW, or FAC status, the sample point meets the hydrophytic vegetation criterion.

If the sample point fails Indicator 1 and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 1 but hydric soils and wetland hydrology are both present, the delineator must apply Indicator 2.

Indicator 2 is known as the Prevalence Index (PI). The prevalence index is a weighted average of the wetland indicator status for all plant species within the sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). Indicator 2 requires the delineator to estimate the percent cover of each species in every stratum of the community and sum the cover estimates for any species that is present in more than one stratum. The delineator must then organize all species into groups according to their wetland indicator status and calculate the Prevalence Index using the following formula, where A equals total absolute percent cover:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

The Prevalence Index will yield a number between 1 and 5. If the Prevalence Index is equal to or less than 3, the sample point meets the hydrophytic vegetation criterion. However, if the community fails Indicator 2, the delineator must proceed to Indicator 3.

Indicator 3 is known as Morphological Adaptations. If more than 50 percent of the individuals of a FACU species have morphological adaptations for life in wetlands, that species is considered to be a hydrophyte and its indicator status should be reassigned to FAC. If such observations are made, the delineator must recalculate Indicators 1 and 2 using a FAC indicator status for this species. The sample point meets the hydrophytic vegetation criterion if either test is satisfied.

Hydrology

The Corps’ jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The Arid West Supplement contains 16 primary hydrology indicators and 10 secondary hydrology indicators. Only one primary indicator is required to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

The presence or absence of the primary or secondary indicators described in the Arid West Supplement was used to determine if sample points within the Study Area met the wetland hydrology criterion.

<u>Soils</u>

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

> *"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part."*
>
> Federal Register July 13, 1994, U.S. Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can have a hydrogen sulfide (rotten egg) odor, low chroma matrix color, generally designated 0, 1, or 2, used to identify them as hydric, presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Specific indicators that can be used to determine whether a soil is hydric for the purposes of wetland delineation are provided in the NRCS *Field Indicators of Hydric Soils in the U.S.* (USDA 2010). The Arid West Supplement provides a list of 23 of these hydric soil indicators which are known to occur in the Arid West region. Soil samples were collected and described according to the methodology provided in the Arid West Supplement. Soil chroma and values were determined using a standard Munsell soil color chart (Munsell Color 2009).

Hydric soils were determined to be present if any of the soil samples met one or more of the 23 hydric soil indicators described in the Arid West Supplement.

4.1.3 Difficult Wetland Situations

The Arid West Supplement (Corps 2008) includes recommended procedures for completing wetland delineations in areas of "difficult wetland situations" in which wetlands may lack one or more indicators due to natural or anthropogenic factors; these are discussed as atypical or problematic wetland conditions in the Corps Manual (Environmental Laboratory 1987). Although the Corps Manual and Arid West Supplement (Corps 2008) were utilized in the wetland determination, they do not provide exhaustive lists of the difficult situations and problem areas that can arise during delineations in the Arid West. In these situations, the Corps Manual and Regional Supplements stress the importance of using best professional judgment and knowledge of the ecology of the wetlands in the region during the collection and interpretation of data in difficult sites.

The Study Area is regularly maintained by EBMUD which consists of mowing vegetation within portions of the site that aren't paved or gravel. At the time of the site visit, vegetation had recently been mowed within portions of the northwest part of the Study Area. Therefore when delineating boundaries of wetland features within this part of the site, aerial imagery from Google Earth was used to determine the boundaries (Google Earth, 2019). These instances occurred where changes in topography were too slight to delineate boundaries, and upland vegetation wasn't present to provide a clear indication of shift to upland conditions.

4.1.4 WETS Analysis

A hydrologic analysis (i.e., WETS analysis; USDA 1997; Sprecher and Warne 2000) was conducted to determine whether precipitation levels during the three months prior to each aerial image used by WRA and prior to each site visit were above, below, or within the 30-year average for the region. Long-term precipitation data (i.e., the WETS table) were obtained from the weather station in Oakland, located approximately 4 miles northwest of the Study Area, part of the National Weather Service Cooperative Network. Daily precipitation data for the three months preceding the date of each aerial image used by WRA, as well as for the date of each site visit by WRA, were obtained from the Oakland Museum (OAMC1) weather station located approximately 4 miles northwest of the Study Area. A summary of the results of the WETS analysis is provided below in Table 1; the full analyses are provided as Appendix A.

Table 1. Summary of WETS Precipitation Analysis

Date	Description	Relative Precipitation Levels
October, 2014	Google Earth Aerial Image	Drier than Normal
March, 2017	Google Earth Aerial Image	Wetter than Normal
October, 2018	Google Earth Aerial Image	Normal
August 27, 2019	Delineation Site Visit	Normal

4.2 Non-Wetland Waters

This study also evaluated the presence of non-wetland waters potentially subject to Corps jurisdiction under Section 404 of the CWA. Non-wetland waters subject to Corps jurisdiction include lakes, rivers, and streams (including intermittent and ephemeral streams) in addition to all areas below the HTL in areas subject to tidal influence or to all areas below the OHWM in non-tidal areas. No non-wetland waters were found within the Study Area.

5.0 RESULTS

As described in Section 3.0, the site is primarily fill (gravel) and paved which leads to high runoff into any concave topography (e.g. depressions) present. Precipitation and urban runoff from the surrounding area lead to the presence of surface water within these concavities and allow for annual hydrophytic vegetation to establish year to year despite the historic usage of the site for commercial activities and active maintenance. Areas excluded from these historical commercial usages contain perennial vegetation (as well as annual vegetation) that persists year to year due to the lack of disturbance that the rest of the site receives.

Water from the Study Area doesn't drain into a traditional navigable water of the United States due to the presence of a large berm that runs along the entirety of the west side and prevents tidal exchange from the San Francisco Bay to the lowest point of the site in the southern corner.

Descriptions of the aquatic resources identified within the Study Area that are or are not potentially subject to federal jurisdiction under Section 404 of the CWA and/or Section 10 of the RHA are provided in the following sections. An overview of aquatic resources mapped within the Study Area is provided in Figure 4, and a summary of aquatic resource acreages is provided in Table 2.

Maps showing the location and extent of aquatic resources mapped within the Study Area are provided as Appendix B. Wetland Determination Data Forms are provided as Appendix C. Photographs of the Study Area are provided as Appendix D. A list of all plant species observed during the delineation site visits is included as Appendix E.

Table 2. Summary of Potentially Jurisdictional and Non-jurisdictional Features Mapped within the Study Area

Habitat Type	Classification*	Acres	Potentially Jurisdictional
Seasonal Wetland	PEM2A/C	0.02	Yes, 0.02 ac.
Wetland Drainage Ditch	PEM2A	0.03	No**
Construction-related Depressions	N/A	0.24	No***
Total:		**0.29**	**0.02**

*See Federal Geographic Data Committee 2013
**(33 CFR 328.3) 3(ii).; ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands
***(33 CFR 328.3) 4.; manmade aquatic features in otherwise dry land such as small depressions that were created incidental to construction activity

5.1 Section 404 of the Clean Water Act Potentially Jurisdictional Features

5.1.1 Wetlands

<u>Seasonal Wetland PEM2A/C</u>

Seasonal wetlands within the Study Area are seasonally flooded. The southernmost corner of the Study Area contains the seasonally flooded seasonal wetland.

PEM2C

The seasonally flooded seasonal wetland within the southernmost corner of the Study Area ("SW-01") was delineated using changes in vegetation and a shift in topography. This feature was filled with dense vegetation except for the deepest part of the feature (located outside of the Study Area to the south), which was denuded and showed evidence of inundation in the form of soil cracking.

This feature contained hydrophytic vegetation such as cocklebur (*Xanthium strumarium*, FAC), cosmopolitan bulrush (OBL), tall flatsedge (*Cyperus eragrostis*, FACW), pennyroyal (OBL), and rabbitsfoot grass (FACW). Obligate perennial hydrophytes like cosmopolitan bulrush were present within this feature, but were not found within seasonal wetlands with temporarily flooded hydrology regimes. Soils within this feature were clay loams with none of the fill material present within other seasonal wetlands and the surrounding uplands. Soils were very dark grey (10YR 2/1) with 8 percent cover of concentrations in both the matrix and pore linings that were strong brown (7.5YR 4/6). Soils met the Redox Dark Surface (F6) indicator. Indicators of wetland hydrology consisted of primary indicators (B6) Surface Soil Cracks and (B7) Inundation Visible on Aerial Imagery (Google Earth 2019).

The seasonal wetland features were classified as PEM2A: Palustrine (P), emergent (EM), non-persistent (2), seasonally flooded (C). Wetland (SP03) and paired upland (SP04) sample points were prepared based on observations of the southwestern corner of the site. Data sheets can be found within Appendix C and photos of this feature type within Appendix D.

5.2 Potentially Non-Jurisdictional Features

Wetland Drainage Ditches

Seasonal wetlands within ditches were observed within the Study Area and ran along the northeastern border of the site and were delineated using changes in vegetation and a discernible shift in topography (feature labelled “WDD-01” and “WDD-02”). These features were comprised of an open ditch with open water in the center and dense vegetation along the fringes.

The seasonal wetland within the ditch contained hydrophytic vegetation such as hyssop loostrife (*Lythrum hyssopifolia*, OBL), rabbitsfoot grass (FACW), and tall flatsedge (FACW), as well as ruderal facultative vegetation such as Italian rye grass (FAC), bristly ox tongue (FAC), and curly dock (FAC). Soils were dark brown (10YR 3/2), gravelly clay and with increasing density of fill (gravel) with depth until shovel rejection at six inches. Shovel rejection due to fill was approximately six inches for the potential wetland feature. Soils were problematic as their dark colors and presence of fill may have masked redoximorphic features, but assumed to be hydric due to the dominant vegetation being FACW or OBL in nature and the observations of multiple primary wetland hydrology indicators. Indicators of wetland hydrology consisted of primary indicators (B6) Surface Soil Cracks and (B7) Inundation Visible on Aerial Imagery (Google Earth 2019).

While the wetland drainage ditch feature (“WDD-01” and “WDD-02”) met the three indicator test outlined in the 1987 Corps Manual, wetland drainage ditches within the Study Area are gravel lined, manmade, and built to convey stormwater therefore as defined by 33 CFR 328.3 (b) 3(ii) these features have been determined to be non-jurisdictional and therefore not Waters of the U.S. Per 33 CFR 328.3 (b) 3(ii):

> *“The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section[…], ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands”*

Construction-related Depression

Construction-related depressions were found within the western half of the Study Area (features labeled “CD-01” through “CD-06”). These features are concave topographic features that were incidentally created in uplands during routine and ongoing grading and levelling to support various site uses. These depressional features were filled with annual vegetation, some of which was the same ruderal vegetation found throughout the surrounding uplands. Vegetation within the western portion of the Study Area is regularly maintained (mowing) by EBMUD. During the site visit, the areas on the western side had been recently mowed and therefore little vegetation was observed within some of the construction-related depressions. As discussed in Section 4.1.3 due to this disturbance, the upland boundary for these features with mowed vegetation were delineated using aerial imagery (Google Earth 2019).

Features with observable vegetation contained species such as swampgrass (FACW) and pennyroyal (OBL), as well as other ruderal vegetation such as bristly ox-tongue (FAC) and bird’s-foot trefoil (*Lotus corniculatus,* FAC). Soils were dark brown (10YR 3/2), gravelly loam and with increasing density of fill (gravel) with depth until shovel rejection at six inches. Shovel rejection due to fill was approximately six inches for all these wetland features. Soils were problematic as their dark colors and presence of fill may have masked redoximorphic features. Indicators of wetland hydrology consisted of primary indicators (B6) Surface Soil Cracks and (B7) Inundation Visible on Aerial Imagery (Google Earth 2019).

These construction-related depression features are not classified by Cowardin et al. (See Federal Geographic Data Committee 2013). Paired sample points ("SP05" through "SP09") are shown in Figure 4. Sample points data sheets can be found within Appendix C and photos of this feature type within Appendix D.

While the construction-related depression features ("CD-01" through "CD-06") met the three indicator test outlined in the 1987 Corps Manual, construction-related depressions within the Study Area are gravel lined, manmade, and incidentally created during routine and ongoing maintenance and operations, therefore, as defined by 33 CFR 328.3 (b) 4, these features have been determined to be non-jurisdictional and therefore not Waters of the U.S. Per 33 CFR 328.3 4:

"The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section[…], manmade aquatic features in otherwise dry land such as small depressions that were created incidental to construction activity"

6.0 CONCLUSION

The results of this delineation of aquatic resources were based on conditions observed during the time of the assessment and information provided to WRA by SupplyBank.org. It should be noted that the Corps makes all final decisions regarding regulatory jurisdiction, and WRA recommends securing a Jurisdictional Determination from the Corps before embarking on any project activities that could result in the loss of Waters of the United States.

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USDA 1962	U.S. Department of Agriculture. 1962. Soil Survey of Madera Area, California. Soil Conservation Service and Forest Service. In cooperation with the California Agricultural Experiment Station.
USDA 1973	U.S. Department of Agriculture. 1973. Soil Survey of San Diego Area, California. Soil Conservation Service and Forest Service. In cooperation with the University of California Agricultural Experiment Station. December.
USDA 1978	U.S. Department of Agriculture. 1978. Soil Survey of Napa County, California. Soil Conservation Service. In cooperation with the U.C. Agricultural Experiment Station.
USDA 1980	U.S. Department of Agriculture. 1980. Soil Survey of Santa Cruz County, California. Soil Conservation Service and Forest Service. In cooperation with the California Agricultural Experiment Station. August.
USDA 1981	U.S. Department of Agriculture. 1981. Soil Survey of Alameda County, California, Western Part. Soil Conservation Service and Forest Service. In cooperation with the California Agricultural Experiment Station. March.
USDA 1993	U.S. Department of Agriculture. 1993. Soil Survey of Sacramento County, California. Soil Conservation Service. In cooperation with the University of California Agricultural Experiment Station.

USDA 1997	U.S. Department of Agriculture. 1997. Chapter 19. Hydrology tools for wetland determination. Engineering Field Handbook.
USDA 2019	U.S. Department of Agriculture. 2019. National List of Hydric Soils. Natural Resources Conservation Service. Available online at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/; most recently accessed: September 2019.
USFWS 2019	U.S. Fish and Wildlife Service. 2019. National Wetlands Inventory. Online at: http://www.fws.gov/nwi; most recently accessed: September 2019.
USGS 2019	U.S. Geological Survey. 2018. Oakland East Quadrangle, California. 7.5-minute topographic map.

WETS historic data from climate station: Oakland Museum, CA
2019 observed rainfall data from climate station: Oakland Museum, CA
Date of site visit: 2/1/2014

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	January	1.76	4.03	4.91	0.04	Dry	1	3	3
2nd month prior	December	1.81	4.27	5.07	0.15	Dry	1	2	2
3rd month prior	November	1.27	2.80	3.41	0.57	Dry	1	1	1
								SUM=	**6**

Note: If sum is:

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values: Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Upper San Leandro Filters, CA
2019 observed rainfall data from climate station: Upper San Leandro Filters, CA
Date of site visit: 3/1/2017

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	February	1.98	4.27	5.44	11.17	Wet	3	3	9
2nd month prior	January	1.81	4.46	5.08	12.09	Wet	3	2	6
3rd month prior	December	2.09	5.09	6.19	6.32	Wet	3	1	3
								SUM=	**18**

Note: If sum is:

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values: Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Oakland Museum, CA
2019 observed rainfall data from climate station: Oakland Museum, CA
Date of site visit: 10/1/2018

	Month	Rainfall Data from WETS: 3 yrs in 10 less than	Rainfall Data from WETS: Average	Rainfall Data from WETS: 3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	September	0.00	0.15	0.00	0.00	Normal	2	3	6
2nd month prior	August	0.00	0.06	0.00	0.00	Normal	2	2	4
3rd month prior	July	0.00	0.00	0.11	0.00	Normal	2	1	2
								SUM=	**12**

Note: If sum is:

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values: Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Oakland Museum, CA
2019 observed rainfall data from climate station: Oakland Museum, CA
Date of site visit: 8/27/2019

	Month	Rainfall Data from WETS: 3 yrs in 10 less than	Rainfall Data from WETS: Average	Rainfall Data from WETS: 3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	July	0.00	0.00	0.00	0.00	Normal	2	3	6
2nd month prior	June	0.00	0.21	0.14	0.00	Normal	2	2	4
3rd month prior	May	0.22	0.78	0.80	2.37	Wet	3	1	3
								SUM=	**13**

Note: If sum is:
- 6-9 prior period has been drier than normal
- 10-14 prior period has been normal
- 15-18 prior period has been wetter than normal

Condition Values: Dry=1
Normal=2
Wet=3

Path: L:\Acad 2000 Files\29000\29251\GIS\ArcMap\Figure 1 Location.mxd

Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/24/2019

Figure 1. Study Area Location

SupplyBank.Org Office & Distribution Center
Alameda County, California

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Path: L:\Acad 2000 Files\29000\29251\GIS\ArcMap\Figure 2 Study Area.mxd

Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/24/2019

Figure 2. Study Area Detail

SupplyBank.Org Office & Distribution Center
Alameda County, California

0 100 200 Feet
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Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/24/2019

Figure 3. Soil Types within Study Area

SupplyBank.Org Office & Distribution Center
Alameda County, California

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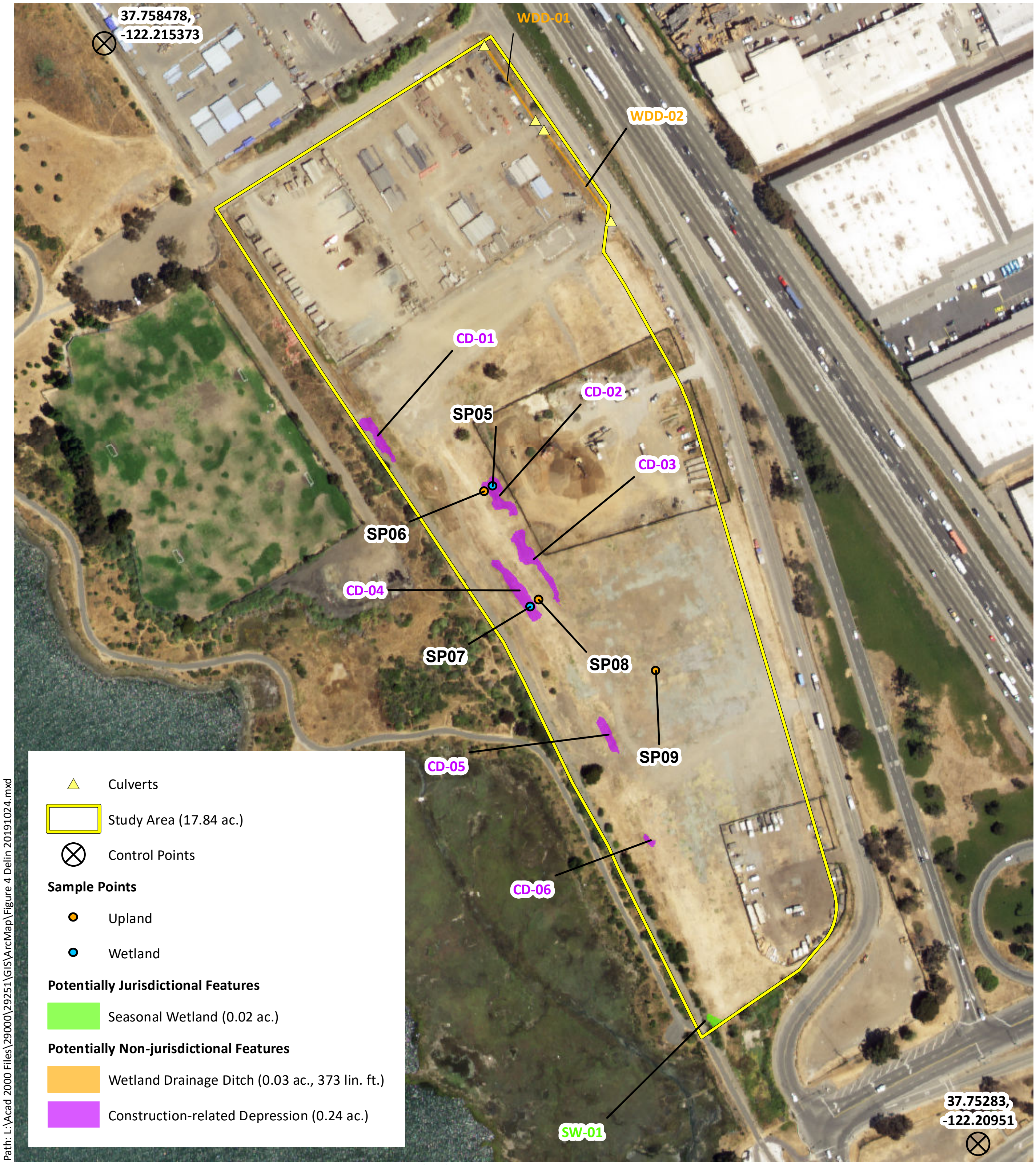

Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/24/2019

Figure 4. Wetland Delineation and Preliminary Jurisdictional Determination

SupplyBank.Org Office & Distribution Center
Alameda County, California

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Appendix F

Subject: File Number 2020-00081S

U.S. Army Corps of Engineers, March 2021

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

March 8, 2021

Regulatory Division

Subject: File Number 2020-00081S

Mr. Bernhard Warzecha
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, California 94597
bwarzecha@fcs-intl.com

Dear Mr. Warzecha:

This correspondence is in response to your submittal of July 29, 2020, on behalf of SupplyBank.Org, requesting an approved jurisdictional determination of the extent of waters of the United States occurring on a 17.84-acre site located at 5872-5800 Oakport Street in the City of Oakland, Alameda County, California (Lat: 37.755957°, Long: -122.212086°; APNs 41-3903-02-8 and 41-3904-10-5).

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; or within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act of 1972, as amended (33 U.S.C. § 1344 *et seq*.). Waters of the United States generally include the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries; lakes and ponds, and impoundments of jurisdictional waters; and adjacent wetlands.

All proposed structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States, typically require Department of the Army authorization and the issuance of a permit under Section 10 of the Rivers and Harbors Act of 1899, as amended (33 U.S.C. § 403 *et seq*.). Navigable waters of the United States generally include all waters subject to the ebb and flow of the tide; and/or all waters presently used, or have been used in the past, or may be susceptible for future use to transport interstate or foreign commerce.

The enclosed delineation map titled “Approved Jurisdictional Determination, SupplyBank.Org Office and Distribution Center, Alameda County, California, File No: 2020-

00081S," in one sheet and date certified March 4, 2021, accurately depicts the extent and location of wetlands and ditches within the boundary area of the site that are **not** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. These particular water bodies are non-jurisdictional waters pursuant to 33 C.F.R. §§ 328.3(b)(1) and 328.3(b)(5). This approved jurisdictional determination is based on the current conditions of the site, as verified during a field investigation of March 4, 2020, a review of available digital photographic imagery, and a review of other data included in your submittal. This approved jurisdictional determination will expire in five years from the date of this letter unless new information or a change in field conditions warrants a revision to the delineation map prior to the expiration date. The basis for this approved jurisdictional determination is explained in the enclosed *Approved Jurisdictional Determination Form (Interim) Navigable Waters Protection Rule*.

The current absence of jurisdictional waters of the United States within the boundary area of the site does not obviate any requirement to obtain other Federal, State, or local approvals necessitated by law. Any impacts to federally-listed threatened or endangered species and/or designated critical habitat may be subject to regulation by the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service under Section 10 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq*.). If "waters of the state" are potentially present, the site may be subject to regulation by the California Regional Water Quality Control Board, San Francisco Bay Region, under the Porter-Cologne Water Quality Control Act, as amended (California Water Code § 1300 *et seq*.). Sites located along the margins of San Francisco Bay may be subject to regulation by the San Francisco Bay Conservation and Development Commission under the McAteer-Petris Act of 1965, as amended (Public Resources Code § 66600 *et seq*.), or the Suisun Marsh Preservation Act of 1977, as amended (Public Resources Code §§ 29000-29612 *et seq*.). You are, therefore, urged to contact these agencies directly to determine the need for other authorizations or permits.

You are advised that the approved jurisdictional determination may be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; Mar. 28, 2000) and outlined in the enclosed flowchart and *Notification of Administrative Appeal Options, Process, and Request for Appeal* (NAO-RFA) Form. If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to this office for reconsideration of this decision. If you do not provide new information to this office, you may elect to submit a completed NAO-RFA Form to the Division Engineer to initiate the appeal process; the completed NAO-RFA Form must be submitted directly to the Appeal Review Officer at the address specified on the NAO-RFA Form. You will relinquish all rights to a review or an appeal unless this office or the Division Engineer receives new information or a completed NAO-RFA Form within 60 days of the date on the NAO-RFA Form. If you intend to accept the approved jurisdictional determination, you do not need to take any further action associated with the Administrative Appeal Process.

You may refer any questions on this matter to Katerina Galacatos by telephone at 415-503-6778 or by e-mail at Katerina.Galacatos@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. The Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website:
http://www.spn.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

Bryan Matsumoto
Senior Project Manager
Regulatory Division

Enclosures

Electronic Copies Furnished (w/ encls):

SupplyBank.Org, Oakland, CA (Benito Delgado-Olson, Benito@supplybank.org)
CA RWQCB, Oakland, CA (Katie Hart, Kathryn.Hart@waterboards.ca.gov)

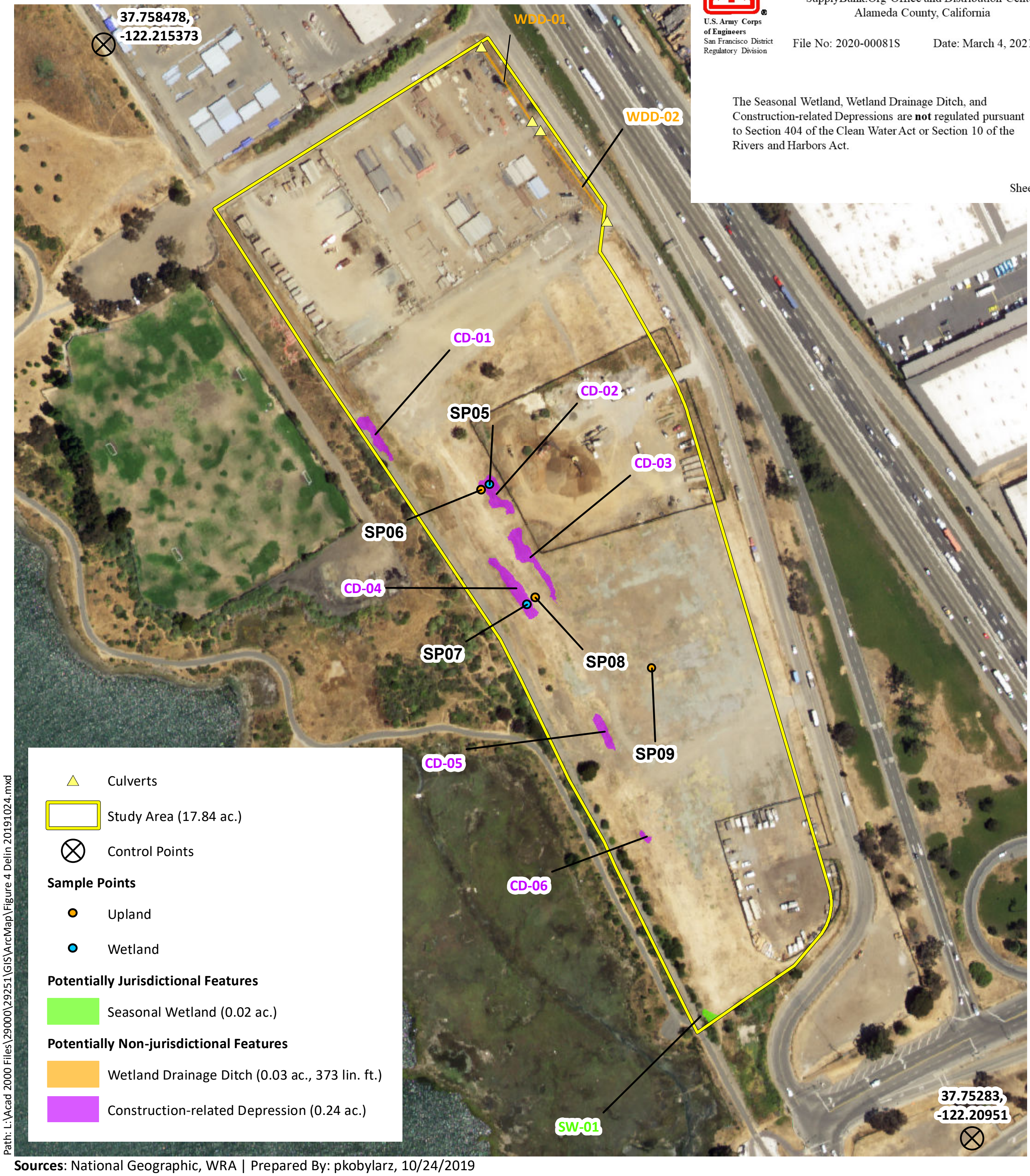
Approved Jurisdictional Determination
SupplyBank.Org Office and Distribution Center
Alameda County, California

U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

File No: 2020-00081S   Date: March 4, 2021

The Seasonal Wetland, Wetland Drainage Ditch, and Construction-related Depressions are **not** regulated pursuant to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

Sheet 1 of 1



Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/24/2019

Figure 4. Wetland Delineation and Preliminary Jurisdictional Determination

SupplyBank.Org Office & Distribution Center
Alameda County, California

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Appendix G

Delineation of Aquatic Resources of Additional Areas at the Oakport Street Project and Regulatory Considerations

First Carbon Solutions, February 2021

UNITED STATES

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San Bernardino, CA 92407

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Rocklin, CA 95765

Utah
2901 Bluegrass Boulevard
Suite 200-62
Lehi, UT 84043

Connecticut
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Suite 450
Shelton, CT 06484

New York
10 Monument Street
Deposit, NY 13754

56 Broome Corporate Parkway
Conklin, NY 13748

CANADA

UNITED KINGDOM

PORTUGAL

FRANCE

KENYA

AUSTRALIA

PHILIPPINES

CHINA

MALAYSIA

SINGAPORE

February 1, 2021

Benito Delgado-Olson
Executive Director, SupplyBank.org
7730 Pardee Lane
Oakland, CA 94621

Subject: Delineation of Aquatic Resources of Additional Areas at the Oakport Street Project and Regulatory Considerations

Dear Mr. Delgado-Olson:

This letter report serves as an amendment to the *Aquatic Resources Delineation Report for the Supplybank.Org Office & Distribution Center* prepared by WRA, revised October 29, 2019, (hereafter identified as "*WRA JD*"). This amendment addresses potential additional aquatic resources located east of the study area covered in the WRA JD, which are potentially regulated by the Regional Water Quality Control Board (RWQCB). The area covered in this report is shown as Study Area on Exhibit 1.

The letter report summarizes the methods, results, and gives recommendations related to regulatory implications. Attached to this letter is an Aquatic Resources Delineation Map (Exhibit 1), which proposes a determination of State-jurisdiction per the Porter-Cologne Water Quality Control Act. Also attached are photographs depicting the conditions of relevant areas (Attachment A), and seven United States Army Corps of Engineers (USACE) Wetland Determination Data Forms for the Arid West Region (Attachment B).

METHODS

The delineation of aquatic resources was conducted by certified wetland delineator and Senior Biologist Bernhard Warzecha, MSc., on January 20, 2021, following the USACE protocol for wetland delineations and the procedures outlined in the USACE Wetland Delineation Manual,[1] the USACE Regional Supplement,[2] the current National Wetland Plant List,[3] and others. These methods are consistent with the methods stated and described in the WRA JD. Specifically, the methods included establishing sample points to determine extent of wetland indicators related to vegetation, soils, and hydrology; and mapping of all features using a submeter-accurate Trimble R1 GPS device (Exhibit 1).

1 Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Corps of Engineers.
2 United States Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). U.S. Army Engineer Research and Development Center Environmental Laboratory 3909 Halls Ferry Road Vicksburg.
3 United States Army Corps of Engineers (USACE). 2018. National Wetland Plant List 2018 - Arid West Version 1.

RESULTS

The following aquatic features were detected and evaluated. Their location and dimensions are shown on Exhibit 1.

Seasonal Wetland Ditch Sections A and B

Artificially constructed Seasonal Wetland Ditch Sections A (Attachment A, Photo 1) and B (Attachment A, Photo 2) are extensions of the drainage ditches WDD-01 and WDD-02 mapped and described in the WRA JD, which are draining north and west to the San Francisco Bay. Conditions are therefore similar as those described in the WRA JD; and confirmed through Sample Points 1 and 2 (Attachment B). However, it appears that the Ditch Sections A and B do not readily drain north and to the San Francisco Bay because of clogged culverts to the north of each section as shown on Exhibit 1. The clogged culverts appear to allow the ditches to pool water for long enough to develop and retain marginal wetland vegetation, faint redoximorphic features, and some seasonal ponding visible on aerial photography. Therefore, this feature could potentially be regulated as a water of the State by the RWQCB.

Seasonal Wetland Puddle C

Seasonal Wetland Puddle C (Attachment A, Photo 3) appears to be the result of a restricting layer of compacted fill (potentially associated with the embankment along Oakport Street), and lack of adequate drainage. About 3 inches of soil have built up over the compacted fill and currently supports approximately 20 percent cover of invasive wetland weeds. The seasonal wetland puddle ponds after rainfall, as indicated by the presence of an ordinary high-water mark, as well as the ponding that is visible on aerial photography. Therefore, this feature could potentially be regulated as a water of the State by the RWQCB.

Seasonal Wetland D

Seasonal Wetland D (Attachment A, Photo 6) is the only aquatic feature located east of Oakport Street within the Study Area and consists of a small but dense patch of narrow-leaf cattails (*Typha angustifolia*), which is a native obligate wetland species. Therefore, this feature could potentially be regulated as a water of the State by the RWQCB.

CONCLUSION AND RECOMMENDATIONS

All aquatic features detected within the Study Area are shown on Exhibit 1 and are described here. No additional aquatic features are present within the Study Area. Specifically, the only aquatic feature between Oakport Street and the I-880 off ramp is the small Seasonal Wetland D (Attachment A, Photo 6). The remainder of this area is upland (Sample Point 5; Attachment A, Photo 5 and Photo 7).

The aquatic features listed above and shown on Exhibit 1 are potentially considered by the RWQCB as waters of the State. However, all features are artificial, small, and have little to no habitat value. Furthermore, the mapped features west of Oakport Street (Features A, B, and C) do not appear to have a hydrological surface connection to the San Francisco Bay, except potentially under extreme rainfall conditions.

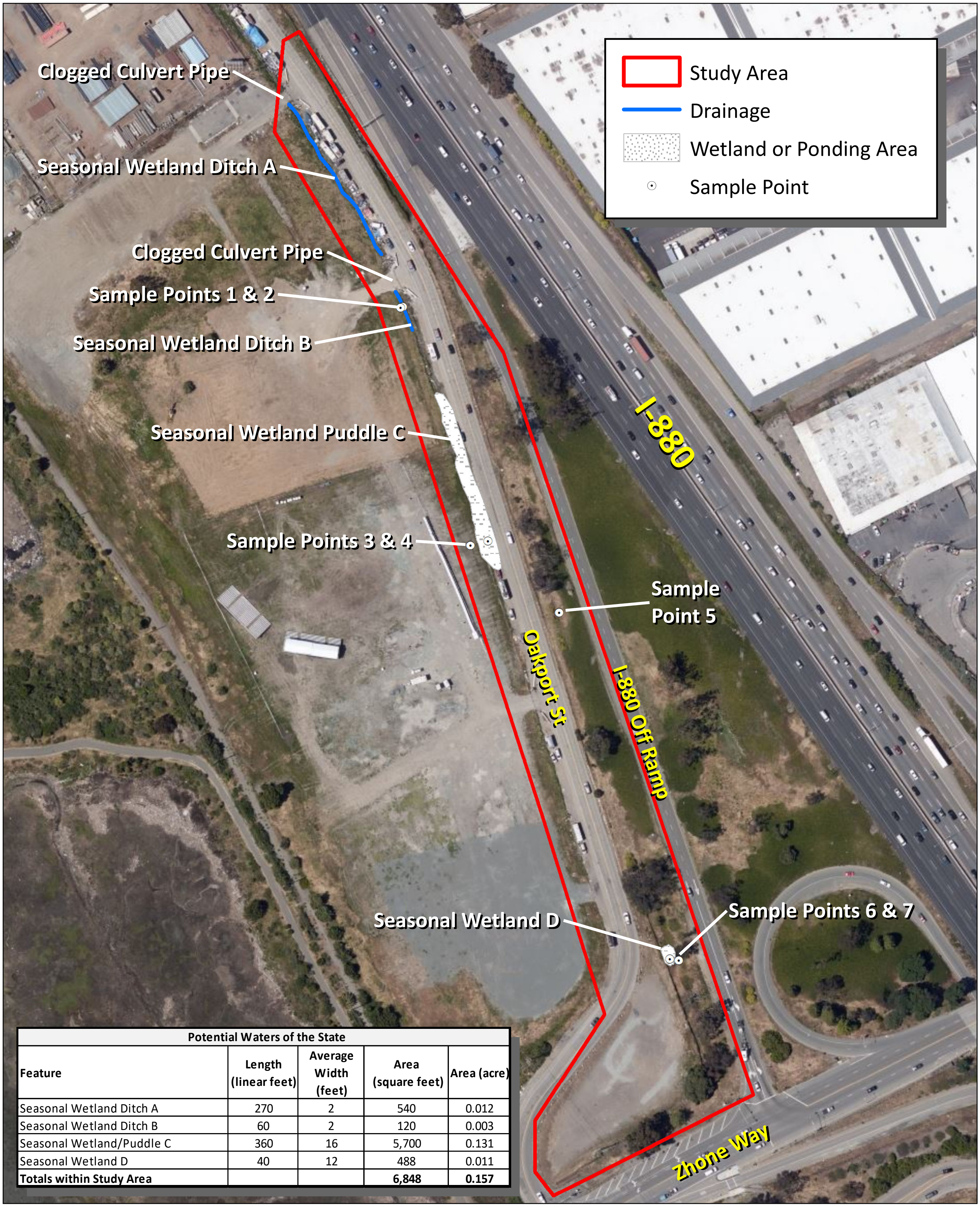
The RWQCB can, on a case-by-case basis, exempt certain artificial features of this type from certain permit requirements associated with the Porter-Cologne Water Quality Control Act and established through the RWQCB dredge and fill permitting program. Therefore, we recommend reaching out to the RWQCB to determine whether or not impacts (e.g., fill) of the features listed here would require an RWQCB Dredge or Fill Permit and to what extent mitigation requirements would be applicable.

If you should have any questions or concerns, please contact me at bwarzecha@fcs-intl.com.

Sincerely,

Bernhard Warzecha, Senior Biologist/Project Manager
FirstCarbon Solutions
1350 Treat Boulevard
Suite 380 Walnut Creek, CA 94597

Attachment A: Site Photographs
Attachment B: Wetland Determination Data Forms



Potential Waters of the State				
Feature	Length (linear feet)	Average Width (feet)	Area (square feet)	Area (acre)
Seasonal Wetland Ditch A	270	2	540	0.012
Seasonal Wetland Ditch B	60	2	120	0.003
Seasonal Wetland/Puddle C	360	16	5,700	0.131
Seasonal Wetland D	40	12	488	0.011
Totals within Study Area			**6,848**	**0.157**

Source: BING | FCS

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Feet

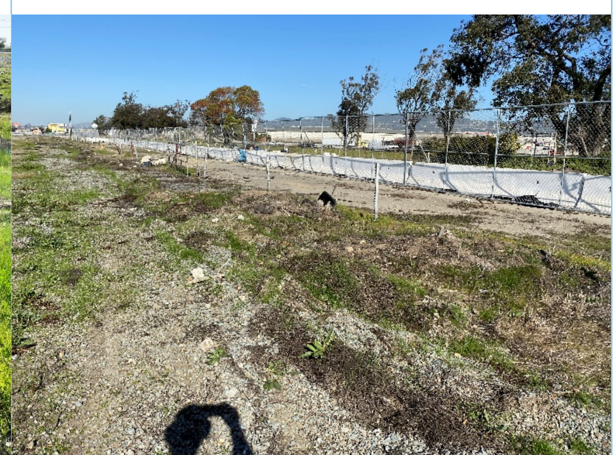
Exhibit 1
Aquatic Resources Delineation January 20, 2021

Attachment A:
Site Photographs

Photograph 1: Current conditions at Seasonal Wetland Ditch A, looking south from clogged culvert.

Photograph 2: Current Conditions at Seasonal Wetland Ditch B, looking south from clogged culvert. Location of Sample Points 1 and 2.

Photograph 3: Seasonal Wetland Puddle C, looking south. Oakport Street is to the left hand.



Photograph 4: Condition south of Seasonal Wetland Puddle C, looking northeast.

Photograph 5: Conditions between I-880 off ramp and Oakport Street, looking south. Location of Sample Point 5.

Photograph 6: Seasonal Wetland D, looking south. Senescent but robust stand of narrow-leaf cattails.

Photograph 7: Conditions of the vacant lot between Oakport Street, Zhone Way, and I-880 off-ramp, in the most southern portion of the Study Area.

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Attachment B:
Wetlands Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-1

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.757458° Long: -122.211910° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ___	**Is the Sampled Area within a Wetland?** Yes ✔ No ___
Hydric Soil Present?	Yes ✔ No ___	
Wetland Hydrology Present?	Yes ✔ No ___	

Remarks:

SP within 2-wide vegetated ditch; soils include compacted fill; plants ruderal; site heavily disturbed by encampments, repeated grading and fill, land use as fairground, maintenance yard etc.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. Geranium molle	30	Y	n/a
2. Lythrum hyssopifolia	15	N	OBL
3. Festuca perennis [syn. Lolium perenne]	30	Y	FAC
4. Distichlis spicata	25	Y	FAC
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks:

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
12	(+/-) 10Yr 3/3	97	2.5YR 5/6	3	C	PL	SL	includes pockets of sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ✔ No ______

Remarks:

includes fill; substrate heavily disturbed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✔ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ________

Water Table Present? Yes ______ No ✔ Depth (inches): ________

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ________

Wetland Hydrology Present? Yes ✔ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-2

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.757458° Long: -122.211910° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✔
Hydric Soil Present?	Yes ___	No ✔
Wetland Hydrology Present?	Yes ___	No ✔

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✔

Remarks:

Sample point 2 feet from vegetated ditch; soils include compacted fill; plants ruderal; site heavily disturbed by encampments, repeated grading and fill, land use as fairground, maintenance yard etc.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 1m^2)			
1. Geranium molle	20	Y	n/a
2. Poaceae	60	Y	
3. Festuca perennis [syn. Lolium perenne]	15	N	FAC
4. Distichlis spicata	2	N	FAC
5. Plantago lanceolata	3	N	FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species	80	x 5 =	400
Column Totals:	100 (A)		460 (B)

Prevalence Index = B/A = 4.6

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

Plants heavily disturbed, ruderal

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
12	(+/-) 10Yr 3/3	100						includes pockets of sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✔

Remarks:

includes fill; substrate heavily disturbed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-3

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.755730° Long: -122.210984° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ___	**Is the Sampled Area within a Wetland?** Yes ✔ No ___
Hydric Soil Present?	Yes ✔ No ___	
Wetland Hydrology Present?	Yes ✔ No ___	

Remarks:

Area a shallow depression (puddle) next to street with 3 inches of soil, then restrictive fill layer. Pools after rain, has ordinary high water mark.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. Plantago coronopus	5	Y	FAC
2. Lythrum hyssopifolia	5	Y	OBL
3. Lepidium latifolium	3	Y	FAC
4. Distichlis spicata	3	Y	FAC
5.			
6.			
7.			
8.			
= Total Cover	16		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 84 % Cover of Biotic Crust 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks:

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
3	(+/-) 10Yr 2/2	100	2.5YR 5/6	3	C	PL	SL	includes pockets of sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted fill

Depth (inches): 3

Hydric Soil Present? Yes ✔ No ______

Remarks:

includes fill; substrate heavily disturbed;

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ✔ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ✔ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✔ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ____________

Water Table Present? Yes ______ No ✔ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ✔ No ______ Depth (inches): 1

Wetland Hydrology Present? Yes ✔ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area pools water after rain as it sits on compacted fill at 3 inch depth

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-4

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.755730° Long: -122.211009° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ✔	**Is the Sampled Area within a Wetland?**	**Yes** ___ **No** ✔
Hydric Soil Present?	Yes ___ No ✔		
Wetland Hydrology Present?	Yes ___ No ✔		

Remarks:

SP next to shallow depression (puddle) next to street with 3 inches of soil, then restrictive fill layer. Pools after rain, has ordinary high water mark.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. Plantago coronopus	5	N	FAC
2. Lythrum hyssopifolia	2	N	OBL
3. Geranium molle	15	N	FAC
4. Distichlis spicata	5	N	FAC
5. Poaceae	73	Y	
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
6	(+/-) 10Yr 2/2	100					SL	includes pockets of sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5) (**LRR C**)
__ 1 cm Muck (A9) (**LRR D**)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

__ 1 cm Muck (A9) (**LRR C**)
__ 2 cm Muck (A10) (**LRR B**)
__ Reduced Vertic (F18)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted fill

Depth (inches): 6

Hydric Soil Present? Yes ______ No ✔

Remarks:

includes fill; substrate heavily disturbed;

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1) (**Nonriverine**)
__ Sediment Deposits (B2) (**Nonriverine**)
__ Drift Deposits (B3) (**Nonriverine**)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Water-Stained Leaves (B9)
__ Salt Crust (B11)
__ Biotic Crust (B12)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Thin Muck Surface (C7)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water Marks (B1) (**Riverine**)
__ Sediment Deposits (B2) (**Riverine**)
__ Drift Deposits (B3) (**Riverine**)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Crayfish Burrows (C8)
__ Saturation Visible on Aerial Imagery (C9)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): __________
Water Table Present? Yes ______ No ✔ Depth (inches): __________
Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): __________

Wetland Hydrology Present? Yes ______ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-5

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.755463° Long: -122.210626° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ___, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Sample point within low point of shallow vegetated depression between Oakport St and off ramp

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. Bromus hordeaceous	50	Y	FACU
2. Carpobrotus chilensis	30	Y	FACU
3. Geranium molle	15	N	n/a
4. Unidentifiable Poaceae	15	N	
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
12	(+/-) 10Yr 3/4	100					SL	includes pockets of sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes ______ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-6

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.753890° Long: -122.209974° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ___	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** ___
Hydric Soil Present?	Yes ✔ No ___	
Wetland Hydrology Present?	Yes ✔ No ___	

Remarks:

Sample point within small but dense patch of Typha angustifolia between Oakport St and I-880 off ramp

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. Typha angustifolia	95	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks:

SOIL

Sampling Point: SP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
12	10YR 3/4	95	2.5YR 5/6	5	c	pl/m	SL	includes fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✔ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		✔	
Water Table Present?		✔	
Saturation Present? (includes capillary fringe)	✔		6

Wetland Hydrology Present? **Yes** ✔ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oakport Street City/County: Oakland, Alameda Co Sampling Date: 1/20/21

Applicant/Owner: Supplybank.org State: CA Sampling Point: SP-7

Investigator(s): Bernhard Warzecha Section, Township, Range: T2S R3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): ______ Lat: 37.755463° Long: -122.209860° Datum: WGS 84

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✔
Hydric Soil Present?	Yes ___	No ✔
Wetland Hydrology Present?	Yes ___	No ✔

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✔

Remarks:

Sample point between Typha patch and culvert pipe

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. Bromus hordeaceous	40	Y	FACU
2. Carpobrotus chilensis	25	Y	FACU
3. Geranium molle	10	N	n/a
4. Unidentifiable Poaceae	15	N	
5. Helminthotheca echioides	10	N	FAC
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

Remarks:

SOIL

Sampling Point: SP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
12	(+/-) 10Yr 3/3	100					SL	includes pockets of sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix H

Draft Compensatory Mitigation and Monitoring Plan for the Supplybank.Org Offices & Distribution Facility

First Carbon Solutions, April 3, 2022

FIRSTCARBON SOLUTIONS™

Draft Compensatory Mitigation and Monitoring Plan for the Supplybank.Org Offices & Distribution Facility

Prepared for:
Supplybank.org
SupplyBank.org
7730 Pardee Lane
Oakland, CA 94621

Prepared by:
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597
925.357.2562

Contact: Mary Bean, Project Director
Bernhard Warzecha, Senior Biologist, Project Manager

Date: April 1, 2022

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List of Tables

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Appendices

Appendix A: Engineering Plan Drawings

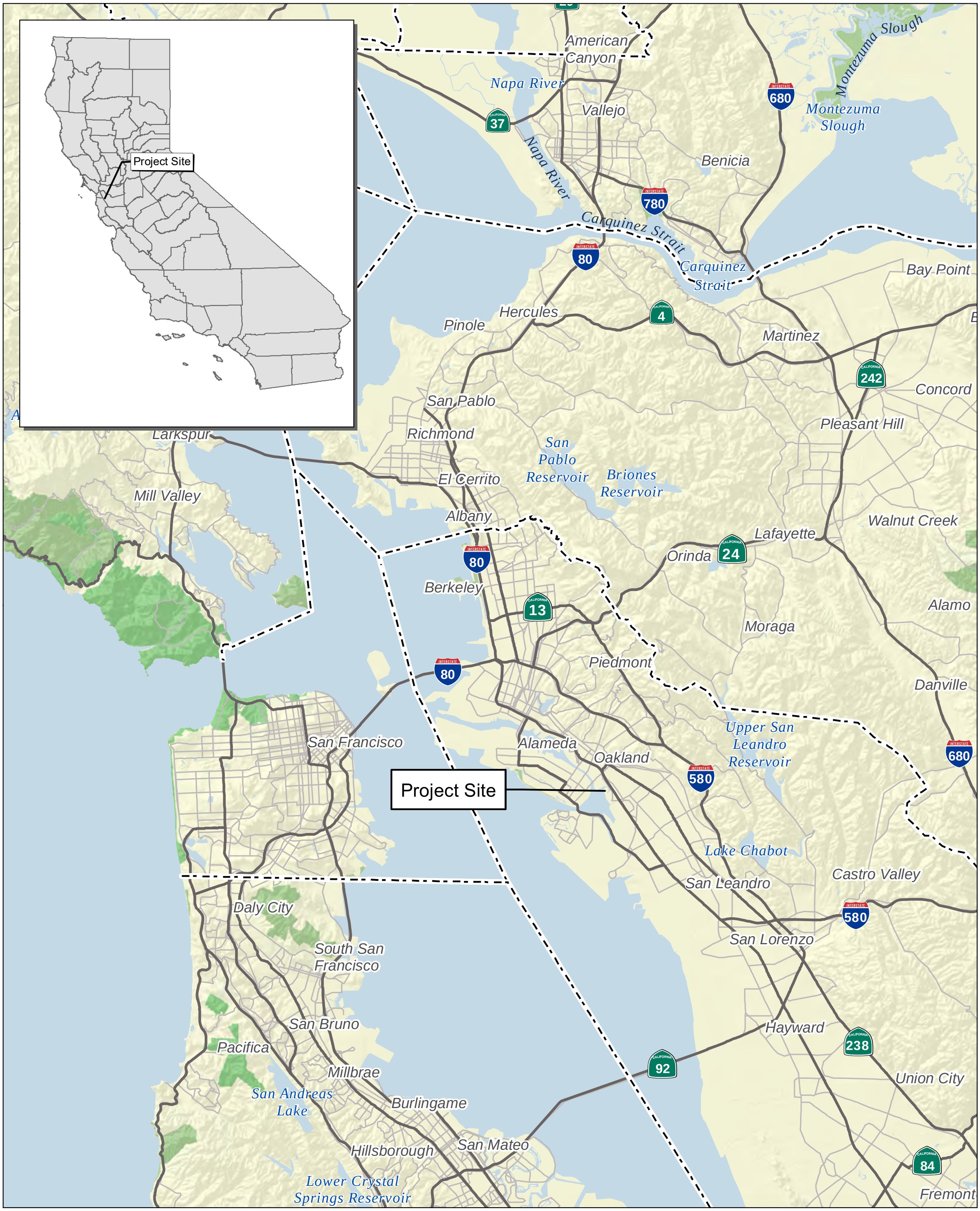
SECTION 1: INTRODUCTION

The following Draft Compensatory Mitigation and Monitoring Plan (Draft CMMP) for the Supplybank.Org Offices & Distribution Facility (Project) will guide implementation of compensatory mitigation intended to offset impacts related to unavoidable fill of potential waters of the State.

This CMMP is based in part on the *Aquatic Features Delineation Report* (WRA 2019), the *Delineation of Aquatic Resources of Additional Areas at the Oakport Street Project and Regulatory Considerations* (FCS 2021); and is intended to complement theProject's *Report of Waste Discharge* (*i.e.*, fill permit application for waters of the State) to the Regional Water Quality Control Board (RWQCB).

The purpose of this Draft CMMP is to define the specific approach, implementation, performance criteria, monitoring and reporting for the compensatory mitigation features intended to satisfy compliance with the Porter-Cologne Water Quality Control Act and the RWQCB's no-net-loss policy for waters of the State.

The regional location of the Project Site is depicted in Exhibit 1, and a spatial project overview including all relevant wetland elements is presented in Exhibit 2 and 4.



Source: Census 2000 Data, The CaSIL, FCS GIS 2016.

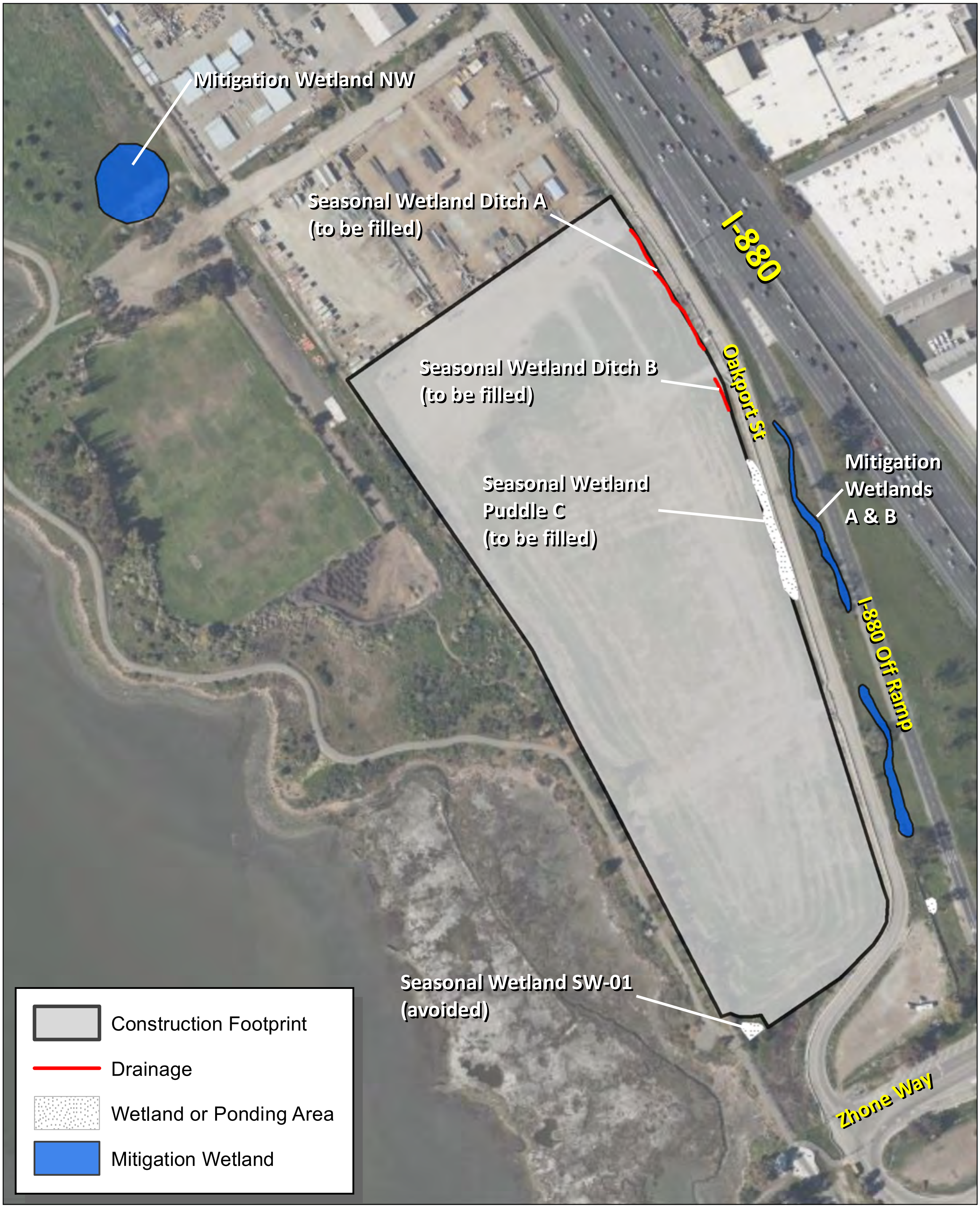
FIRSTCARBON SOLUTIONS™

5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

5427.0001 • 12/2021 | 1_regional.mxd

SUPPLYBANK.ORG • OFFICES & DISTRIBUTION FACILITY PROJECT
COMPENSATORY MITIGATION AND MONITORING PLAN



Source: BING | FCS

FIRSTCARBON SOLUTIONS™

130 65 0 130
Feet

Exhibit 2
Project Overview

SECTION 2: WATERSHED PROFILE

A watershed profile is defined in Procedures section IV.D as "a compilation of data or information on the abundance, diversity, and condition of aquatic resources in a project evaluation area. The watershed profile shall include a map and a report characterizing the location, abundance, and diversity of aquatic resources in the project evaluation area, assessing the condition of aquatic resources in the project evaluation area, and describing the environmental stress factors affecting that condition. The scope and detail of the watershed profile is commensurate with the magnitude of impact associated with the proposed project, following guidance of the RWQCB.

2.1.1 - Evaluation Area

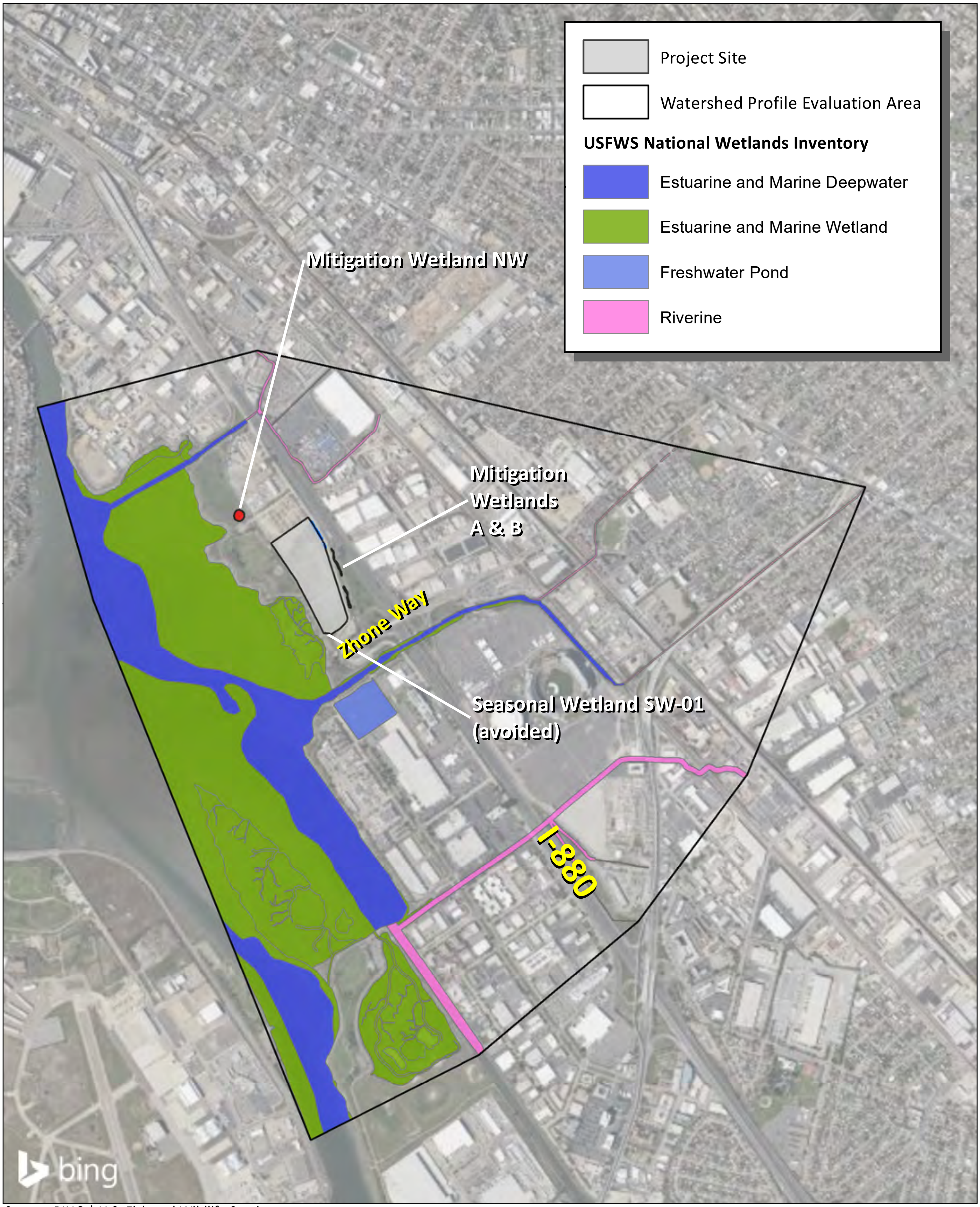
The 1,580-acre Evaluation Area (Exhibit 3) includes or intersects with all surrounding aquatic resources relevant to the Project Site and the proposed mitigation wetland sites.

2.1.2 - Location, Abundance and Diversity of Aquatic Resources

Location, abundance and diversity of aquatic resources in the evaluation area as mapped by the USFWS are shown on Exhibit 3, and include the Cowardin Types Estuarine and Marine Deepwater and Wetland; Freshwater Pond; and Riverine. Additional smaller wetlands (predominantly seasonal wetlands) not mapped by USFWS occur within the evaluation area, e.g., directly south of the Project site. Both the impacted resources and the proposed mitigation wetland sites are in close proximity to existing large and diverse aquatic resources, specifically the San Francisco Bay and associated tidal wetlands and tributaries

2.1.3 - Impacts, Constraints and Opportunities

The watershed analysis shows that project-related impacts to 0.147 acre of seasonal ditch wetlands (Exhibit 2; Table 1) would be relatively minor when compared to the existing extent of the adjacent aquatic resources of San Francisco Bay. However, due to the proximity of the impacted features to San Francisco Bay, certain beneficial functions of filtration and retention may be lost. This potential loss will be compensated for by implementing construction of mitigation wetlands as proposed in this plan, and the stormwater treatment infrastructure integrated into Project design. Therefore, the Project is anticipated to result in a net-benefit to beneficial uses and water quality of San Francisco Bay.



Source: BING | U.S. Fish and Wildlife Service

FIRSTCARBON SOLUTIONS™

1,000 500 0 1,000
Feet

Exhibit 3
Watershed Profile

SECTION 3: APPROACH TO COMPENSATORY MITIGATION

The Project proposes to establish 3 mitigation wetlands, as shown on Exhibit 2 and Appendix A and discussed in more detail here.

3.1.1 - Mitigation Wetlands A & B (linear)

The linear Mitigation Wetlands A & B are proposed to compensate for the loss of 2 sections of ephemeral, low-quality vegetated roadside drainage ditches (Seasonal Wetland Ditch A & B) and one unvegetated linear puddle (Seasonal Wetland/Puddle C) along Oakport Street determined by RWQCB in early 2021 to be regulated as a water of the State.

Nevertheless, adequate compensation will be achieved by establishing features similar in extent but higher quality on the east side of Oakport Street, as shown on the overview map (Exhibit 2) and the more detailed engineering drawings for these wetlands (Appendix A). Numerical dimensions of impacts, mitigation features and resulting ratios are presented in Section 1.2, below.

3.1.2 - Mitigation Wetland NW

Mitigation Wetland NW (Exhibit 4) is proposed to provide additional compensation for a) loss of temporary wetland function; and b) for potential previous loss of 0.24 acre of features identified throughout the site as "potential waters of the State" by the *Aquatic Features Delineation Report* (WRA 2019). However, these previously areas identified as construction-related depressions did not show soil wetland parameters or wetland hydrology, but these paramters were assumed by WRA to be present, and no wetlands were present during a 2021 follow up survey. If loss occurred, it resulted from routine EBMUD maintenance, including annual grading and gravelling unrelated to the proposed Project.

Nevertheless, additional compensatory mitigation for potential loss unrelated to the proposed project is pursued on request of RWQCB and will be achieved by establishing a 0.5-acre seasonal wetland of higher quality northwest of the project site (off-site), as shown on Exhibit 2 and 4. Numerical dimensions of impacts, mitigation features and resulting ratios are presented in Section 1.2, below. Detailed engineering plans for the proposed Mitigation Wetland NW will be provided once the conceptual mitigation approach presented here is approved by the RWQCB.

Source: BING | FCS

FIRSTCARBON SOLUTIONS™

130 65 0 130
Feet

Exhibit 4
Project Overview

3.2 - Summary of Impacts and Compensatory Mitigation

The following table presents a comparison of impacts and compensatory mitigation, including mitigation ratios.

Table 1: Impact and Mitigation

	Length (ft)	Average Width (ft)	Square feet	Acres
Impacts				
Permanent Impact on Seasonal Wetland Ditch A	270	2	540	0.012
Permanent Impact on Seasonal Wetland Ditch B	60	2	120	0.003
Permanent Impact on Seasonal Wetland/Puddle C	360	16	5,760	0.132
Sum Project-related Permanent Impacts	690	n/a	6,420	**0.147**
[Potential pre-Project loss of additional features due to EBMUD maintenance activity]	-	-	10,450	0.240
Sum Permanent Impacts	**690**	**1**	**16,870**	**0.387**
Compensatory Mitigation				
Mitigation Wetlands A & B	690	2	1,380	0.032
Mitigation Wetland NW	n/a	n/a	21,780	0.500
Sum Compensatory Mitigation	**690**	**2**	**23,160**	**0.532**
Net Gain Open Drainage Area (Compensatory Mitigation - Impacts)	**0**	**n/a**	**6,290**	**0.144**
Mitigation Ratio (Compensatory Mitigation : Impacted)	**> 1 : 1**		**> 1.3 : 1**	

SECTION 4: MITIGATION IMPLEMENTATION PLAN

The following section defines implementation for the three mitigation wetlands, including alignment and geomorphology, a restoration planting and maintenance plan, and measures to reduce and control erosion and the spread of invasive species.

4.1 - Geomorphology and Alignment

All mitigation wetlands will be excavated and contoured as defined by the engineering plans (Appendix A).

Mitigation Wetlands A & B will be contoured to result in linear wetland swales with concave vegetated banks at an angle not to exceed steepness of 1:2 (vertical: horizontal). These wetland swales will receive runoff from the project site, Oakport Street, and the area of and west of the I-880 off ramp. The swales will be contoured to form depressions that hold water long enough to establish wetland conditions, but will slightly slope to allow for heavy rain to drain to the existing culvert inlet at the south end of Mitigation Wetland B. The swales will be field-fitted to establish sinuosity according to the existing microtopography, and develop into natural seasonal wetland swales.

Mitigation Wetland NW will be contoured to result in a near-circular depressional wetland with vegetated banks. The boundaries will be field-fitted to establish a natural bank alignment according to the existing microtopography. This wetland will receive runoff primarily from the open area to its north and west.

4.2 - Implementation Timetable

Implementation of this CMMP will commence as soon as the entitlement process is complete and all funding is secured; but no later than initial ground disturbance for the overall Project.

4.3 - Revegetation Plan

4.3.1 - Revegetation of Mitigation Wetlands A & B

All newly constructed Mitigation Wetlands will be revegetated with adequate wetland vegetation in the fall following construction. Given the highly disturbed plant community and ubiquitous presence of invasive species surrounding the mitigation wetlands, and the highly variable and seasonal hydrological regime, initial herbaceous wetland revegetation will include only robust wetland species that have a realistic chance of establishing sustainable populations. These species are proposed to be primarily native species, including the species listed in Table 2, below. Additional species (including non-invasive, non-native wetland species if necessary) may be planted/seeded in coordination with a qualified restoration ecologist to maximize revegetation success.

Table 2: Wetland Plant Species Options for Wetlands A & B

Species	Common Name
Carex serratodens	Two toothed sedge
Carex barbarae	Santa Barbara sedge
Eleocharis macrostachya	Creeping spikerush
Juncus xiphioides	Iris-leaved rush
Juncus balticus	Wire rush
Juncus patens	Common rush
Hordeum brachyantherum	Meadow barley
Mimulus guttatus	Seep monkeyflower
Typha spp.	Cattails

4.3.2 - Revegetation of Mitigation Wetland NW

Mitigation Wetland NW is proposed to provide longer hydroperiods, and therefore will support an additional set of obligate wetland plants than listed in Table 2, including woody wetland species or phreatophytes. Therefore, the planting palette for Mitigation Wetland NW will include the species listed in Table 2, and additional species listed in Table 3. Additional native species may be planted/seeded in coordination with a qualified restoration ecologist to maximize revegetation success.

Woody riparian plantings can include live wood cuttings, container plants, or nursery stock. Live woody cuttings provide an economical means to propagate plants and are especially useful for bank stabilization because they have high survival and growth rates. Woody species that can be successfully propagated in the field from cuttings include willows (*Salix* spp.), dogwood (*Cornus* spp.), and cottonwood (*Populus fremontii*). Container plants or nursery stock are used to establish shrubs and trees that are difficult to propagate from seed or cuttings in natural settings. The riparian planting palette may include a selection of the species listed in 3.

Table 3: Additional Wetland/Phreatophyte Species Planting Palette (Options)

Species Name	Common Name
TREES	
Acer macrophyllum	Big leaf maple
Aesculus californica	California buckeye
Alnus rhombifolia	White alder
Fraxinus latifolia	Oregon ash
Juglans hindsii	Black walnut
Populus fremontii	Fremont's cottonwood
Quercus agrifolia	Coast live oak
Quercus lobata	Valley oak
Salix laevigata	Red willow
Salix lasiandra	Arroyo willow
Salix lucida	Shining willow
Umbellularia californica	Bay laurel
SHRUBS	
Baccharis pilularis	Coyote bush
Calycanthus occidentalis	Western spice bush
Heteromoles arbutifolia	Toyon
Rhamnus californica	Coffeeberry
Rosa californica	California wild rose
Symphoricarpos albus	Snowberry

Because the area to be enhanced with woody plantings is expected to provide seasonal wetland conditions during normal rainfall years. In recognition of these conditions, this Draft CMMP allows for plantings of native trees that are not considered riparian but that thrive in the vicinity of the project site, i.e., oak (*Quercus* spp.) which increases the probability for success of native tree cover establishment. All trees shall be planted in the fall or winter, above the bankfull elevation (approximately the 2-year storm event water level), and shall be spaced appropriately based on tree species and the desired canopy extent.

While native plants are adapted to the local weather patterns, irrigation shall be provided for the first 2 years, as necessary depending on rainfall. However, watering shall be kept to the minimum amount needed to keep the cuttings and seedlings alive and in a relatively vibrant condition. This will encourage root growth and adaptation to the California climate, as the intent is to establish self-sustaining native habitat.

Browse protection shall be installed and maintained as needed. Browse protection cages shall be removed after the trees have become well established and tolerant of browse damage. All planted trees shall be inspected and properly maintained, including repairing watering basins, removing weeds around the watering basins, and replacing/re-fastening weed fabric, as necessary. Structurally compromised trees (i.e., broken branches, limbs, etc.) shall be trimmed as necessary to remove structural damage that has the potential to cause mortality.

4.3.3 - Revegetation of Temporarily Disturbed Upland Areas

If currently naturally vegetated upland areas are impacted by construction of these wetlands, these areas will also be revegetated with a native upland seed mix as defined in Table 4, below.

After construction of mitigation wetlands, potentially disturbed surrounding upland areas shall be revegetated using a native seasonal seed mix. The native seed mix should include species listed in 4, below, or follow the guidance of a qualified restoration ecologist or landscape architect to achieve revegetation goals.

Table 4: Native Seed Mix Options for Upland Revegetation

Species	Common Name
Bromus carinatus	California brome
Elymus glaucus	blue wildrye
Hordeum californicum	California barley
Festuca idahoensis	Idaho fescue
Nassella pulchra	purple needlegrass
Poa secunda	pine bluegrass
Eschscholzia californica	California poppy
Lupinus nanus	sky lupine
Clarkia rubicunda,	wine cup clarkia
Achillea millifolium	white yarrow
Sisyrinchium bellum	blue-eyed grass
Vulpia microstachys	sixweeks fescue

All construction debris and trash shall be removed from the area and soil prior seeding. Roughening compacted soil using hand tools or mechanical methods such as discing may be necessary before broadcast seeding.

Broadcast seeding can be implemented by hand or by using mechanical seeding equipment. All seed shall be certified seed free and in conformance with the California State Seed Law of the Department of Agriculture. While native plants are adapted to the local weather patterns, it is helpful to provide additional water during the first 1 to 2 years, depending on rainfall. However, watering shall be kept to the minimum amount needed to keep seeded vegetation alive and in a relatively vibrant condition. This will encourage root growth and adaptation to the California climate, as the intent is to establish self-sustaining native habitat.

Additionally, invasive species shall be removed from all seeded and revegetated areas, as defined in Section 2.2.3, below.

4.3.4 - Invasive Species Control

Mechanical methods shall be implemented to eradicate and control invasive species (i.e., species listed by California Invasive Plant Council as highly invasive) at mitigation sites and areas affected by implementation of mitigation wetlands.

Weed control treatments shall include only legally permitted herbicide approved for application through manual and mechanical methods. The application of herbicides shall comply with all State and federal laws and regulations under the prescription of a Pest Control Advisor and implemented by a Licensed Qualified Applicator. The project shall only use herbicides that are registered for use in, or adjacent to aquatic habitats in California (not just EPA certified). Herbicides shall not be applied during or within 72 hours of a scheduled rain event. Where manual and/or mechanical methods are used, disposal of the plant debris shall take place at an appropriate off-site location. The timing of the weed control treatment shall be determined for each plant species with the goal of controlling populations before they start producing seeds and/or encroach into areas adjacent to rhizomatous shoots.

SECTION 5: PERFORMANCE CRITERIA

The following section defines Performance Criteria (PC) that need to be met for compensatory mitigation to be considered successful.

5.1 - Wetland Extent and Function

PC-1 By the end of the third wet season with normal or above-normal rainfall as defined by the NRCS WETS tool, and all subsequent years following normal or above-normal rainfall years, the aggregate wetland area of Mitigation Wetlands A, B, and NW shall include a minimum of 0.532 acre, as determined by a qualified wetland delineator using the U.S. Army Corps of Engineers (USACE) wetland delineation protocol as it relates to hydrophytic vegetation, hydric soil indicators, and hydrology indicators.

PC-2 Invasive plant species cover (California IPC rating “High”) shall never exceed 5 percent absolute cover for each monitoring year.

5.2 - Geomorphic Conditions

PC-3 The linear Mitigation Wetlands A & B shall not result in excessive erosion or sedimentation that threatens water quality or property.

SECTION 6: MONITORING AND REPORTING

Monitoring shall occur for 10 years, at the end of spring during the following monitoring years: Year 1 - 5, 8, and 10 after construction.

The first year of monitoring should begin in the calendar year after completing the Project. For example, if the Project is completed in 2023, then the first year of monitoring should begin in 2024 and the first monitoring report should be submitted by January 31, 2025.

The Applicant shall submit a monitoring report to RWQCB at the end of each monitoring year. The first annual report will be submitted 12 months after construction has been completed.

6.1 - Monitoring and Reporting for Wetland Extent and Function

The annual reports shall include the results of a wetland delineation for Mitigation Wetland A, B and NW following the requirements of the USACE wetland delineation protocol, specifically as it relates to the three-parameter test of hydrophytic vegetation, hydric soil indicators, and hydrology indicators. No formal wetland delineation report is required, however the report shall include a map of the wetland boundary, a quantification of wetland area, and a minimum of 2 Arid West Wetland Delineation Field Data Forms, covering a minimum of 3 sample point pairs, at a minimum one pair at a representative location of each Mitigation Wetland.

The annual reports shall compare data to previous years and detail progress toward meeting the success criteria. Photographs from four permanent photo documentation points shall be included to document conditions over time. At the end of 10 years, a final report shall be prepared that includes summaries of the monitoring data and representative photographs from the photo-documentation points, and the extent to which all performance criteria have been met.

Additionally, the monitoring report shall include a summary of extent of invasive plants presence, and efforts implemented to remove and control invasive plants.

6.2 - Geomorphic Monitoring and Reporting

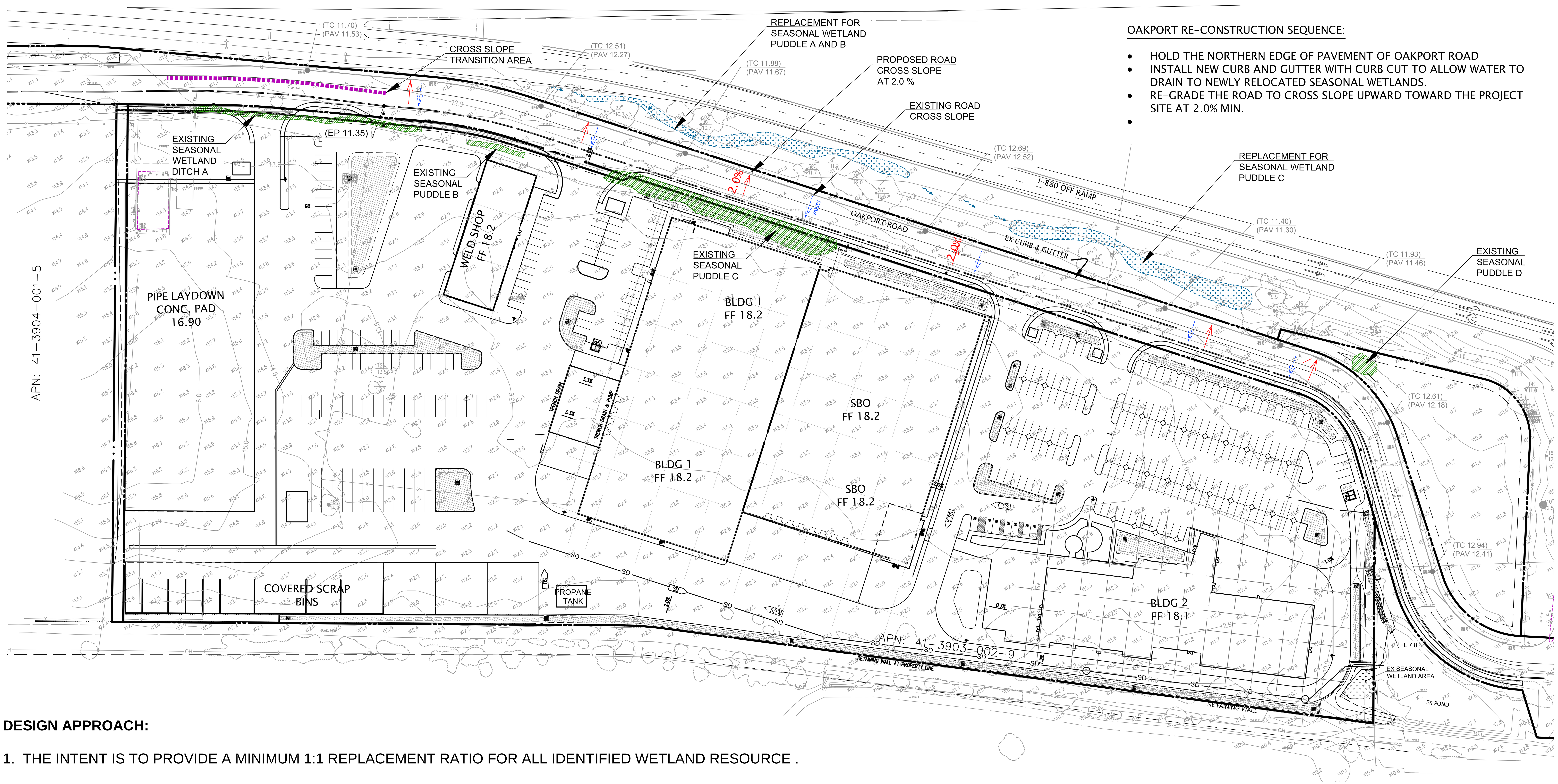
Geomorphic monitoring shall be conducted for a minimum of 5 years to ensure that the proposed linear mitigation wetlands are functioning as designed. Monitoring shall consist of visual inspections and photo-documentation performed annually by a qualified professional during the low flow summer season. Results of each monitoring effort, including a statement related to the extent to which the performance criteria PC-3 is met, shall be submitted to the RWQCB.

SECTION 7: ADAPTIVE MANAGEMENT AND REMEDIATION

If performance criteria are not being achieved, the Applicant shall implement adaptive management methods and remedial measures. Adaptive management and remedial measures, among others, may include increased hand-watering of the plants to improve plant establishment, changing browse protection techniques in response to browse damage, replacing dead plants with native plant species that would be expected to perform better given the specific circumstance of the underperforming area. If performance criteria cannot be achieved through above methods despite normal or above normal rainfall years, the Applicant shall in coordination with the RWQCB, excavate and then restore the Mitigation Wetlands to allow for larger and deeper depressional areas to pond and hold water to allow for longer hydroperiods and therefore to support wetland conditions on site.

Appendix A:
Linear Mitigation Wetlands Plan Drawing

CAUTION: IF THIS SHEET IS NOT 24"x36" IT IS A REDUCED PRINT



DESIGN APPROACH:

1. THE INTENT IS TO PROVIDE A MINIMUM 1:1 REPLACEMENT RATIO FOR ALL IDENTIFIED WETLAND RESOURCE .

2. THE EXISTING WETLAND RESOURCES ARE FED BY THE SEASONAL STORM WATER RUNOFF FROM THE ADJACENT UPLAND OAKPORT STREET PAVEMENT SURFACE AND NEARBY ADJACENT ROADSIDE LANDSCAPE AREAS.

3. THE REPLACEMENT RESOURCE AREAS HAVE BEEN CHOSEN FOR THEIR CLOSE PROXIMITY TO THE EXISTING FEATURES AND THEIR SIMILAR PHYSICAL PROPERTIES.

4. THE EXISTING LOCATION FOR THE REPLACEMENT RESOUCE IS A ROADSIDE LANDSCAPE AREA THAT IS NOT CURRENTLY A WETLAND AREA.

BACKGROUND AND DESCRIPTION OF THE PROPOSED REPLACEMENT OF THE SEASONAL WETLAND RESOURCES:

The location for the proposed replacements of the Seasonal Wetland Resources is across Oakport Street on the opposite roadside landscape buffer area. Currently, the pavement design of Oakport Street is sloped, directing surface runoff to the WEST sides of the road. The updated road will be redesigned to gradually slope the road to the East, or the side of the proposed replacement area. The ground will be modified slightly to create a depression similar the the West side of the road, creating the seasonal ditches and puddles similar to the west side of the road. The soil characteristics will be analyzed to determine the best location with similar attributes found on the west side. the proposed ratio will be at least 1:1, if not slightly more.

Reason for the relocation of the wetland resources: The existing locations of the wetland resources will be developed into a wider sidewalk area that will be in front of the proposed office building and warehouse facility as well as the upgraded and expanded existing EBMUD yard facility. The improvement of the Oakport Street industrial area is part of the Coliseum Master Plan Development.

0 25 50 100
SCALE: 1" = 50'
ORIGINAL GRAPHIC SCALE

Know what's below. Call 811 before you dig.

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REGISTERED PROFESSIONAL ENGINEER
GERRY L PARCO
No. 59608
CIVIL
STATE OF CALIFORNIA
May 05, 2021
FOR AND ON BEHALF OF WARE MALCOMB

SUPPLYBANK.ORG OFFICES & DISTRIBUTION FACILITY
OAKPORT STREET
OAKLAND, CALIFORNIA

NO.	DATE	REMARKS

JOB NO.:	SNR17-0069
PA / PM:	GP
DRAWN BY:	SY
DATE:	JAN 15, 2019

SHEET
EXHIBIT B
Sheet of 11

Appendix I

Request for Verification of Jurisdictional Delineation, SupplyBank.Org/Oakport Street Study Site

LSA, August 4, 2022

August 4, 2022

Brian Wines
Regional Water Quality Control Board
1515 Clay Street # 1400
Oakland, California 94612

Subject: Request for Verification of Jurisdictional Delineation, SupplyBank.Org/Oakport Street Study Site, Oakland, Alameda County, California

Dear Mr. Wines:

On behalf of SupplyBank.Org, LSA is requesting re-verification of the extent of jurisdictional waters of the State of California under the Porter-Cologne Act on the SupplyBank.Org/ Oakport Street Study Site, Oakland, Alameda County, California. This letter reports the results of a delineation performed by LSA of the potential extent of waters of the State conducted on May 6, 2022, including wetlands, on the Study Site.

A previous delineation was conducted by WRA Environmental Consultants (WRA) on the Study Site on August 27, 2019 (WRA 2019) and then again by FirstCarbon Solutions (FCS) in 2021 (FCS 2021). This delineation was verified by the U.S. Army Corps of Engineers (Corps) on March 4, 2021 (see attached Approved Jurisdictional Delineation). The Corps' verification determined that with the exception of Seasonal Wetland SW-01, which is outside of the proposed project footprint, the Study Site does not contain any federally jurisdictional waters. This new delineation was conducted at your request because of your concerns regarding the seasonal timing of vegetation data in the original delineation. Data was collected in the original delineation at the end of the dry season rather than at the end of the wet season, which would have been more suitable for identifying the presence and extent of hydrophytic plant species.

SITE DESCRIPTION

The approximately 28.52-acre Study Site is located within the southern portion of the City of Oakland, along the western side of Interstate 880 and north of its interchange with Zhone Way. The Study Site includes a portion of the I-880 right-of-way west of the southbound off-ramp, Oakport Street, and extends westward to an abandoned railroad bed. The northern edge of the Study Site is the Peppermint Gate Access Road to the Oakport Field and shoreline trail. A separate portion of the Study Site is located north of the Peppermint Gate Access Road and west of the railroad bed.

The Study Site comprises portions of Alameda County Assessor's Parcels 1-3904-1-5, 41-3903-2-8, and 41-3902-3-22. The site is situated within un-sectioned lands with a projected location of Township 2 South, Range 3 West, in Section 17 on the Oakland East, California 7.5-minute USGS quadrangle, and is centered at approximately 37.7560° North Latitude and 122.2121° West

Longitude. Figures 1 and 2 (attached) depict the regional location and Study Site location, respectively.

The majority of the Study Site consists of a graded surface that is regularly used as an East Bay Municipal Utility District corporation and secondary storage yard. The site is also used for community events third-party storage, and as vehicular parking for off-site events. Study Site elevations range between 10 and 15 feet above mean sea level.

Land uses surrounding the Study Site include an East Bay Municipal Utility District Corporation Yards to the north, Highway 880 and commercial development to the east, more commercial development to the south, and San Leandro Bay shoreline to the west.

The Study Site is accessed from I-880 at the 66th Avenue exit and driving westward onto Zhone Way, then turning right/northward on Oakport Street.

Vegetation

The majority of the project site had been recently bladed at the time of the delineation for fire prevention purposes. The site consequently had less than 1 percent vegetation cover of regrowth of ruderal species such as prostrate knotweed (*Polygonum aviculare*), English plantain (*Plantago lanceolata*), buckhorn plantain (*P. coronopus*), curly dock (*Rumex crispus*), mayweed (*Anthemis cotula*), bristly ox-tongue (*Helminthotheca echioides*), filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), cheeseweed (*Malva parviflora*), and unidentified grasses. The western edge of the site was vegetated with grasses, including Italian rye (*Festuca perennis*), Mediterranean barley (*Hordium marinum*), wild oats (*Avena* spp.), and rip-gut (*Bromus diandrus*). Trees along I-880 and in the northern study area are mostly non-native and predominantly Eucalyptus species.

Soil

Soils on the entire Study Site are mapped as *Urban land* (Map Unit Symbol 146) (Web Soil Survey, https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed May 2, 2022). The Urban land soil itself is rated as non-hydric, but has a 5 percent hydric rating because of estimated inclusions of un-named soils in marshes which are assumed hydric. The soils observed on the Study Site appear to be imported fill.

Hydrology

The hydrology of the site was previously described in the 2021 delineation report. Base on observations conducted on the Study Site on May 6, 2022, hydrological conditions have not changed.

METHODS

The field investigations of potential jurisdictional wetlands were conducted using the routine determination method provided in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the*

Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Arid West Supplement; U.S. Army Corps of Engineers 2008).

FIELD METHODS

LSA senior soil scientist Chip Bouril investigated the Study Site on May 6, 2022. Potential jurisdictional wetland boundaries were mapped using a global positioning system (GPS) receiver with potential sub-meter accuracy. Wetland boundaries were determined by following a combination of the limits of hydrophytic vegetation, relative elevation, and topographic breaks. LSA established fifteen sample points on the Study Site; their locations are shown on Figures 3 and 4.

The Study Site had received approximately 1.7 inches of rainfall during the month prior to the site investigation, but all surface soils observed were dry. During the site investigation, the locations previously delineated as potential waters were revisited, and the previous data points from the WRA and FCS delineations were re-established to the extent feasible.

RESULTS

Potential jurisdictional features and sample point locations are shown on Figures 3 and 4. The names of potential wetland features previously mapped by WRA and FCS were continued for consistency even if the feature dimensions changed.

CWA Jurisdiction

Seasonal Wetland D

This feature consists of a basin that drains to a storm drain culvert. A new sample point (SP-6R) was established in this feature at the likely location of the previous FSC Sample Point 6. Much of the immediate location around SP-6R was covered in mowed remains of cattail leaves, but there was only about 5 percent cover of living cattail shoots along with cover of Italian rye, winter vetch (*Vicia villosa*), and small plants that were likely willow weed (most likely *Persicaria lapathifolia*). The vegetation meets the hydrophytic vegetation criterion and the soil contained common redoximorphic mottling, but there was no surface evidence of wetland hydrology. SP-5 5 was established near the culvert inlet and did not meet any of the jurisdictional wetland criteria. The feature surrounding the cattail shoots and containing hydrophytic plant cover is mapped as Seasonal Wetland D, with a potential jurisdictional area of 170 square feet (0.004 acre).

Seasonal Wetland E

SP-8 and SP-9 were established within a subtle basin situated further north from Seasonal Wetland D. This feature meets jurisdictional wetland criteria and its extent is defined by the transition from Mediterranean barley and Italian rye to wild oats and rip-gut grass. The feature is mapped as Seasonal Wetland E with a potential jurisdictional area of 865 square feet (0.020 acre).

Construction Depressions CD-02 – CD-06

The area previously mapped by WRA as containing CD-02 through CD-06. These construction depressions are no longer present. The area had been bladed level and has no vegetation nor topographic evidence of the construction-related depressions. SP-5R and SP-7R were established at WRA's previous sample points 5 and 7, respectively. Vegetation at SP-5R included both hydrophytic and non-hydrophytic species, but total vegetation cover was only about 1 percent. The vegetation species observed meet the hydrophytic vegetation criterion through the dominance test, but not through the prevalence index. There was no evidence of hydric soils or of wetland hydrology. Vegetation at SP-7R also included both hydrophytic and non-hydrophytic species, but total vegetation cover was less than 1 percent. The vegetation species meet the hydrophytic vegetation criterion through the dominance test, but not through the prevalence index. There was no evidence of hydric soils or of wetland hydrology. Some of the graded soil surface at the approximate location of the previously mapped CD-02 have a slightly darker color and perhaps larger-sized pieces, but there was no concave or basin topography observed at any of the previously mapped CD-02 through CD-06 locations.

Seasonal Wetland SW-01

WRA mapped SW-01 in the southwestern corner of the Study Site. (This wetland was the only feature in the Study Site that was verified by the Corps as a jurisdictional water of the United States.) A chain link perimeter security fence extends through this location. SP-4 was established inside the fence in an area that has been rutted by maintenance vehicle tires and contains surface mud cracks. The vegetation cover at SP-4 meets the hydrophytic vegetation criterion, but there are no hydric soil indicators or wetland hydrology indicators other than the tire ruts. The ponding and soil saturation at this location may have been anomalous and too brief to establish wetland hydrology. A second sample Point (SP-7) was established nearby and at a slightly lower elevation outside the fence in an undisturbed location that contained algal matting and a very few ostracode shells, indicating seasonal inundation. The vegetation meets the hydrophytic criterion. The soil contains redoximorphic mottling, but at too low a concentration to meet indictors F6 or F8. SP-7 is located along the northern edge of a large basin that likely seasonally ponds and appears to have ponded after the October atmospheric river storm. This basin meets jurisdictional wetland criterion and is mapped as Seasonal Wetland 01, with a potential jurisdictional area of 1,290 square feet (0.030 acre).

Construction Depression CD-01

WRA previously mapped CD-01 along the western edge of the Study Site. Three new sample points (SP-1, SP-2, and SP-3) were established in this depression which is located outside a chain link perimeter security fence. The elevations in this depression are slightly lower than the maintained graded pad inside the fence to its east and the abandoned gravel railroad bed to its west. The northern end of this area is dammed by a gravel berm that created a shallow basin that had ponded water during the rainy season. SP-1 was placed in the center of the basin. Vegetation at SP-1 meets the hydrophytic vegetation criterion (with two obligate indicator species), and contains algal matting and abundant ostracode shells. However, the thin gravelly soil at SP-1 does not display hydric soil indicators. SP-2, which was placed nearby at a slightly higher elevation, also meets the jurisdictional hydrophytic vegetation criterion (although with facultative grasses), and displays water stains and adventitious grass roots, as well as common redoximorphic mottling in the soil. SP-3 was placed at a patch of rabbit's-foot grass (*Polypogon monspeliensis*) further south. It meets jurisdictional hydrophytic vegetation criteria, has matted roots and ostracode shells as evidence of seasonal ponding, but did not show redoximorphic soil mottling. These three sample points combine to define a shallow, linear basin that appears to seasonally receive and pond runoff from the graded areas to its east. Although this topographic basin was created by past grading and maintenance activities, it does not appear to be currently maintained. This feature is mapped as Seasonal Wetland CD-01, with a potential jurisdictional area of 2,840 square feet (0.065 acre).

Seasonal Wetland Puddle C

A series of formerly graded swales and rough ditch segments extend along some of the western Oakport Street frontage of the study site. FSC mapped a shallow swale as Seasonal Wetland Puddle C in this location. Two new sample points (SP-3R and SP-4R) were placed in this swale in the approximate locations of FCS sample points 3 and 4. The swale is a constructed drainage feature underlain by a gravelly base that is covered by a layer of sediments washed in from the graded area to the west. The swale showed clear evidence of recent ponding such as mud cracks and a few ostracode shells, likely resulting from the October 2021 atmospheric river storm. There was no standing water, soil saturation, or damp soil observed in this swale during the field investigation.

SP-3R was placed within the recently ponded area of the swale. Its vegetation cover was entirely hydrophytic plant species. Its soil above the compacted gravel layer at 4 inches did not display any redoximorphic mottling, but did have a surface layer of dark, organic-rich silt. Wetland hydrology indicators were mud cracks and ostracode shells. There was no algal matting present, implying relatively brief inundation. SP-4R was placed on the adjacent side slope of the swale. Its vegetation was mostly facultative and meets jurisdictional hydrophytic plant criteria, but its soil had no hydric soil indicators and there were no wetland hydrology indicators. The extent of this swale with jurisdictional wetland characteristics is mapped as Seasonal Wetland Puddle C, with a potential jurisdictional area of 3,310 square feet (0.076 acre). It was not clear where any overflow from this swale drains, if it does; there was no evidence of water flow observed in the swale.

Northern Ditches

A constructed ditch occurs north of Seasonal Wetland Puddle C on the western side of Oakport Street. SP-1R was placed in a segment of this ditch at the approximate location of FCS sample point 1. The vegetation in the ditch was a mixture of hydrophytic and non-hydrophytic species that clearly failed to meet the jurisdictional hydrophytic vegetation criterion. The soil contained rust stains adjacent to its common iron debris, but otherwise had no redoximorphic mottling. There were no indicators of wetland hydrology and no evidence of ponded or flowing surface water in this ditch segment. The ditch feature northward from this location is sporadic, having an excavated cross section in some locations and no ditch definition at all in others. At least one completely buried culvert end was observed. This sporadic ditch area contains common garbage and debris, but again shows no evidence of flowing water or wetland characteristics, and does not meet jurisdictional criteria as wetlands nor as other waters.

The northern ditches mapped as WDD-01 and -02 by WRA were not accessible because of chain link fencing and were not directly investigated but were viewed from a distance through the fence. No wetland characteristics were observed other than one potential mowed patch of cattails viewed from a distance through the fencing. Both ditches were described as containing "an open ditch with open water in the center and dense vegetation along the fringes" by WRA on August 27, 2019, but also as having mud cracks, so it is not clear whether there was actually standing water at the time of the delineation. No standing water and no obvious fringe of hydrophytic vegetation was observed on May 6, 2022, which suggests an artificial water source may have been present in the summer of 2019. As a default, these features are mapped following the WRA delineation as Seasonal Wetland Ditch WDD-01 with a potentially jurisdictional area of 515 square feet (0.012 acre) and WDD-02 with a potentially jurisdictional area of 615 square feet (0.014 acre).

Northwest Mitigation Area

This area, located north of the Peppermint Gate Access Road and west of the abandoned railroad grade, has a slightly convex topography and sandy soils that are predominantly vegetated with non-hydrophytic species. Sample Point 6, placed in a slight depression created by a berm of wood chips, displayed no potentially jurisdictional wetland characteristics.

Discussion of Observed Evidence of Seasonal Ponding

No additional WETS analysis was conducted for this delineation, but the analysis completed by WRA in their 2019 delineation is referenced. Rainfall in the 2020-21 and 2021-22 season was well below normal and may have affected wetland characteristics observed, possibly reducing the relative cover of hydrophytic plant species in some locations. Alternatively, the October 2021 atmospheric river storm, which has been described as a 50-year to 100-year storm, delivered high rainfall amounts in a short amount of time. In this predominantly flat and level study area with no clear or maintained drainage system, this storm event would be expected to have created abnormal surface runoff and ponding in any topographic basins. Thus, the observed evidence of ponding such as mud cracks may be of greater extent than typical of site hydrology. The early season soil saturation and ponding may also have increased the hydrophytic plant cover observed in and near the seasonally inundated areas from that of a more typical rainfall year.

Porter-Cologne Water Quality Control Act (RWQCB) Jurisdiction

Potentially jurisdictional waters of the State are shown on Figures 3 and 4.

Other Observations

No other evidence of potential waters of the State was observed on the Study Site.

CONCLUSIONS

Aquatic features subject to the Porter-Cologne Water Quality Control Act identified on the SupplyBank.Org/Oakport Street Study Site comprise seven seasonal wetlands with a total potential jurisdictional area of 0.221 acre. These potential jurisdictional areas and Study Site boundaries are mapped on Figures 3 and 4, which are attached.

The findings and conclusions presented in this report, including the location and extent of other waters subject to regulatory jurisdiction, represent the professional opinion of LSA.

Please contact Dan Sidle at (510) 376-5704 or at dan.sidle@lsa.net if you have any questions regarding this report.

Sincerely,

LSA Associates, Inc.

CHIP BOURIL

Chip Bouril
Senior Soil Scientist

Attachments: Figure 1: Regional Location Map
Figure 2: Site Location Map
Figure 3: Waters of the United States and Waters of the State
Figure 4: Waters of the United States and Waters of the State - Mitigation Area
Data Sheets 1 through 9, 1R, and 3R thorough 7R
U.S. Army Corps of Engineers Approved Jurisdictional Delineation (dated 3/8/2021)

cc: Jason Teramoto, SupplyBank.Org

REFERENCES

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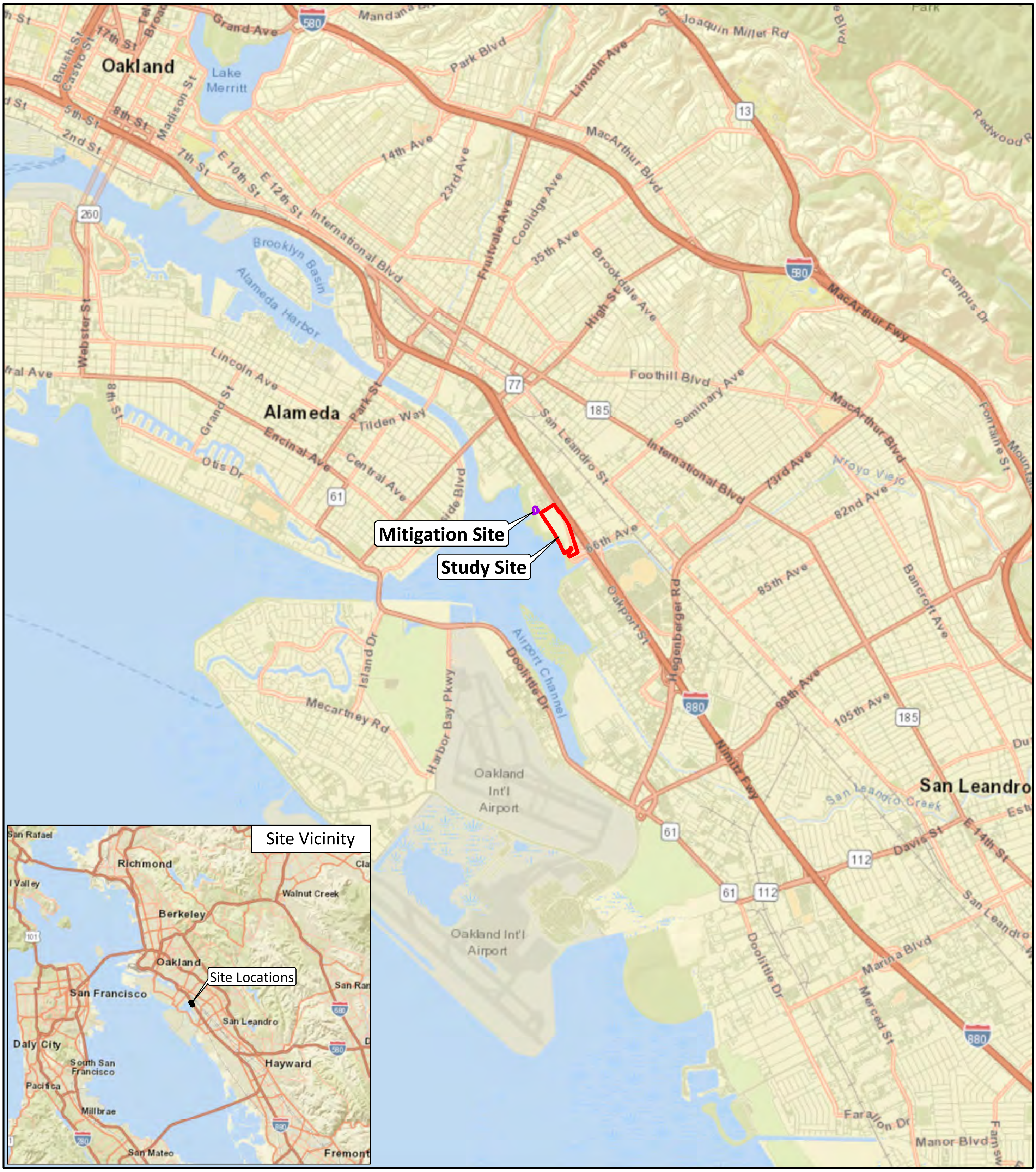

LEGEND

Study Site

Mitigation Site

FIGURE 1

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MILES

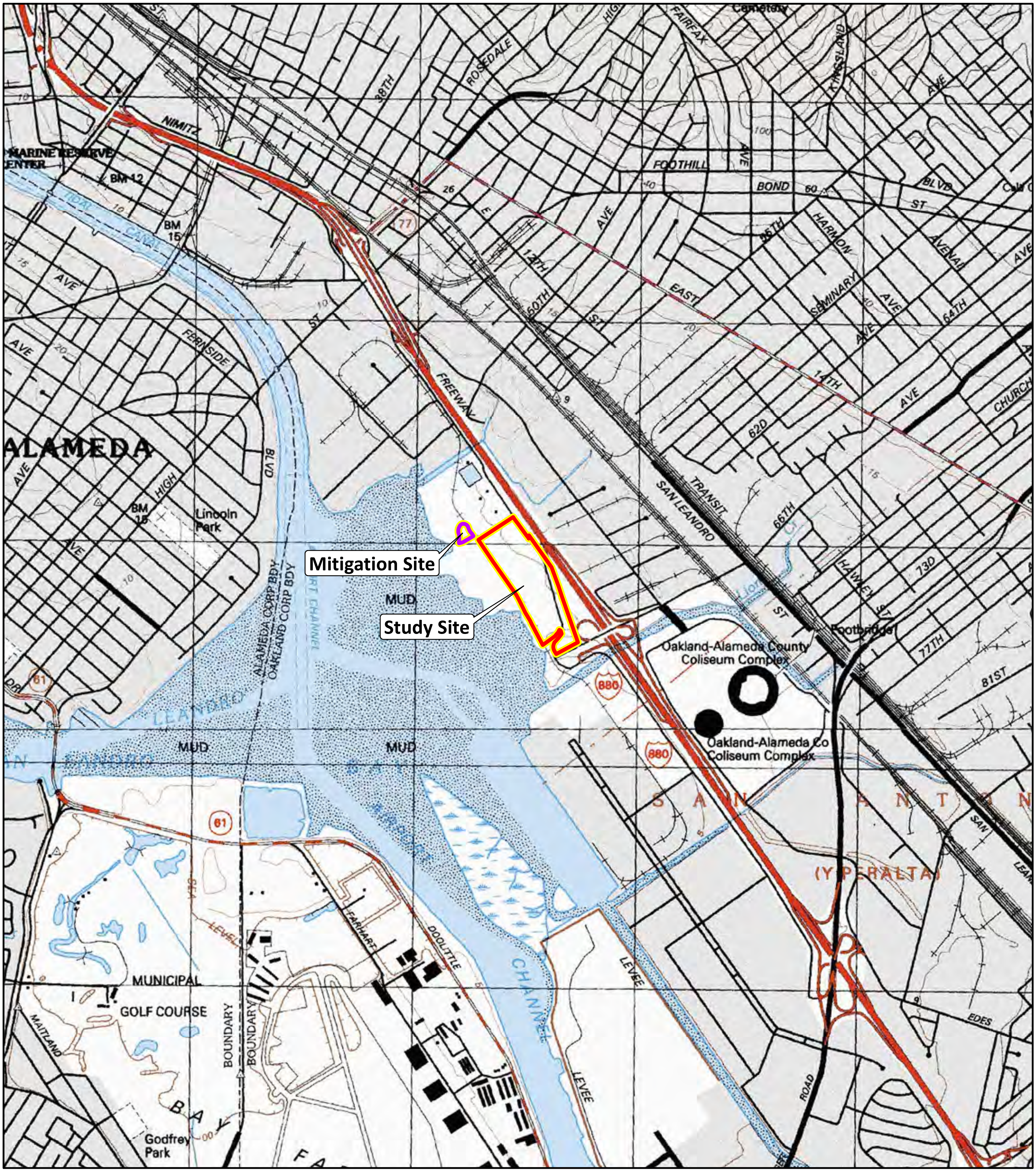
Oakport Street Project

Oakland, Alameda County, California

Regional Location Map

SOURCE: Esri World Street Map (2022).

I:\SLK2201\GIS\Maps\Delineation\Figure 1_Regional Location Map.mxd (6/14/2022)



LEGEND

Study Site

Mitigation Site

0 1000 2000
FEET

FIGURE 2

Oakport Street Project
Oakland, Alameda County, California

Site Location Map

SOURCE: USGS 7.5-minute Topo Quads - *Oakland East, Calif.* (1997) and *San Leandro, Calif.* (1993).

I:\SLK2201\GIS\Maps\Delineation\Figure 2_Site Location Map.mxd (6/14/2022)

WATERS OF THE UNITED STATES and WATERS OF THE STATE	Length (ft)	Width (ft)	Area (sq. ft.)	Area (acres)
WETLANDS				
SW-01	130	10	1,290	0.030
WETLANDS TOTAL			**1,290**	**0.030**
TOTAL WATERS OF THE UNITED STATES			**1,290**	**0.030**

WATERS OF THE STATE only	Length (ft)	Width (ft)	Area (sq. ft.)	Area (acres)
WETLANDS				
CD-01	205	14	2,840	0.065
Seasonal Wetland Puddle C	360	9	3,310	0.076
Seasonal Wetland E	70	12	865	0.020
Seasonal Wetland D	20	9	170	0.004
WDD-01	175	3	515	0.012
WDD-02	205	3	615	0.014
WETLANDS TOTAL			**8,315**	**0.191**
TOTAL WATERS OF THE STATE only			**8,315**	**0.191**

TOTAL WATERS OF THE STATE		
WATERS OF THE STATE only	**8,315**	**0.191**
WATERS OF THE UNITED STATES that are also WATERS OF THE STATE	**1,290**	**0.030**
TOTAL WATERS OF THE STATE	**9,605**	**0.221**

LSA

FIGURE 3

LEGEND
- Study Site
- Wetland Sample Point
- Non-wetland Sample Point

WATERS OF THE UNITED STATES and WATERS OF THE STATE
- Wetland

WATERS OF THE STATE Only
- Wetland

N

1 INCH = 150 FEET

0 75 150
FEET

Oakport Street Project
Oakland, Alameda County, California

Waters of the United States
and Waters of the State

SOURCE: Google Maps (2022).

I:\SLK2201\GIS\Maps\Delineation\Figure 3_Waters of the US and State.mxd (8/4/2022)

LSA

FIGURE 4

LEGEND

Study Site – Mitigation Area

Non-wetland Sample Point

WATERS OF THE UNITED STATES
and/or WATERS OF THE STATE
No jurisdictional features observed.

1 INCH = 80 FEET

0 40 80
FEET

Oakport Street Project
Oakland, Alameda County, California

Waters of the United States and
Waters of the State - Mitigation Area

SOURCE: Google Maps (2022).

I:\SLK2201\GIS\Maps\Delineation\Figure 4_Waters of the US and State - Mitigation Area.mxd (8/4/2022)

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALA MEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 1

Investigator(s): C. Bouril Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): <2

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______	Is the Sampled Area within a Wetland? Yes X No ______
Hydric Soil Present?	Yes X	No ______	
Wetland Hydrology Present?	Yes X	No ______	

Remarks:

PONDED IN OCTOBER STORM?

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: ______)			
1. MENTHA POLEGIUM	25	X	OBL
2. LYTHRUM HYSSOPIFOLIA	15	X	OBL
3. LOTUS CORNICULATUS	20	X	FAC
4. DISTICHLIS SPICATA ?	3		FAC
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: ____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1½	10YR 3/4		—				GRVL	FILL
	-3/6							
1½ +	HARD							

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (Al)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (All)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (Sl)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (Fl)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (AlO) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? **Yes** X **No** ____

Remarks: NO INDICATORS. CONSIDER HYDRIC BECAUSE OF PLANTS & HYDROLOGY INDICATORS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (Al)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) **(Nonriverine)**
- ____ Sediment Deposits (B2) **(Nonriverine)**
- ____ Drift Deposits (B3) **(Nonriverine)**
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12) ALGAE MAT
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (Cl)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (CS)
- ____ Thin Muck Surface (C7)
- X Other (Explain in Remarks) OSTRACODES

Secondary Indicators (2 or more required)

- ____ Water Marks (Bl) **(Riverine)**
- ____ Sediment Deposits (B2) **(Riverine)**
- ____ Drift Deposits (B3) **(Riverine)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____		
Water Table Present?	Yes ____	No X	Depth (inches): ____		
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	**Wetland Hydrology Present?**	Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 2

Investigator(s): ______ Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______	**Is the Sampled Area within a Wetland?** Yes X No ______
Hydric Soil Present?	Yes X	No ______	
Wetland Hydrology Present?	Yes X	No ______	

Remarks:

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 3' R)			
1. FESTUCA PERENNIS	55	X	FAC
2. HORDEUM MARINUM	35	X	FAC
3. HELMINTHOTHECA ECHIOIDES	10		FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 3/2		7.5YR 4/6	10	C	PL	L	
2 - 4	"		"	6	C	PL	L	
4+	GRV							

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- X Other (Explain in Remarks) ADVENTITIOUS ROOTS FAC

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 3

Investigator(s): C. BOURU Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

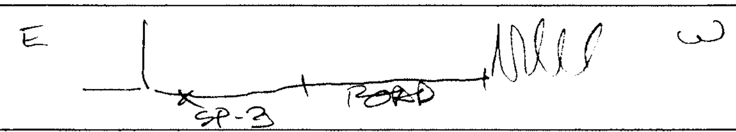
Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? **Yes** X **No** ______

Remarks:



VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: ______)			
1. FESTUCA PERENNIS	55	X	FAC
2. POLYPOGON MONSPELIENSIS	20	X	FACW
3. LOTUS CORNICULATUS	15		FAC
4. HORDEUM MARINUM	10		FAC
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 – 1	10YR3/2		→				L	
1 – 3	10YR4/2		→ *				L	
	10YR4/3							
3 – 6	10YR6/2		— *				Si	
	10YR5/3							

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (A10) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks: * SOME REDOX COLORS, BUT MIXED [illegible] FILL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
X Biotic Crust (B12) WATER ROOTS,
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Thin Muck Surface (C7)
X Other (Explain in Remarks) OSPREY COATS

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water Table Present?	Yes ___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 4

Investigator(s): C. BOURIL Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

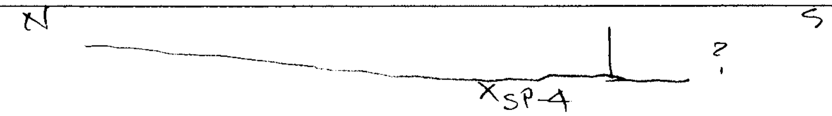
Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:



VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum (Plot size: 5' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. LYTHRUM HYSSOPIFOLIA	15	X	OBL
2. KICKXIA ELATINE	10		UPL
3. POLYGONUM AVICULARE	5		FAC
4. LOTUS CORNICULATUS	5		FAC
5. RUMEX CRISPUS	10		FAC
6. FESTUCA PERENNIS	15	X	FAC
7.			
8.			
Total Cover:	60		

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals	______	(A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤ 3.0[1]
— Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR3/2	50	—				CL	WOODY DEBRIS
	10YR4/2	50						

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (Al)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (All)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (Sl)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (Fl)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (AlO) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (Al)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (**Nonriverine**)
- ____ Sediment Deposits (B2) (**Nonriverine**)
- ____ Drift Deposits (B3) (**Nonriverine**)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (Cl)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (CS)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (Bl) (**Riverine**)
- ____ Sediment Deposits (B2) (**Riverine**)
- ____ Drift Deposits (B3) (**Riverine**)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: MUD CRACKS, TIRE TRACKS FROM MOWING

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLT BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: FCS ZR 5

Investigator(s): C. BOURIL Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

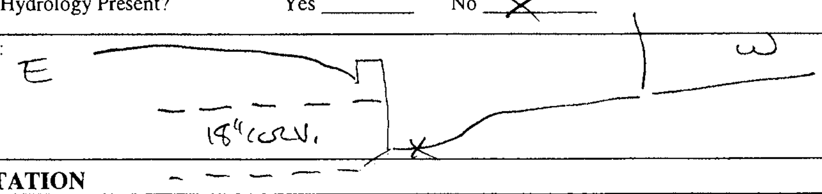
Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No X	**Is the Sampled Area within a Wetland?** Yes ______ No X
Hydric Soil Present?	Yes ______ No X	
Wetland Hydrology Present?	Yes ______ No X	

Remarks:



VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. EUC RED GUM			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. ARCTOTHECA CALENDULA	20	X	NL?
2. CARPOBROTUS EDULIS	50	X	UPL?
3. FESTUCA PERENNIS	15		FAC
4. AVENA SP.	5		UPL
5.			
6.			
7.			
8.			
Total Cover:			

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: Ø (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals	______	(A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- — Dominance Test is >50%
- — Prevalence Index is ≤3.0[1]
- — Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
- — Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X.

Remarks:

SOIL

Sampling Point: 7R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/2		7.5YR4/4	<1	C	PL	L	
	BLACK							X STRUCTURE

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (A10) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: NO SEC. INDICATORS

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 6

Investigator(s): C. BOURIL Section, Township, Range: ______

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): ______ Slope (%): <4

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

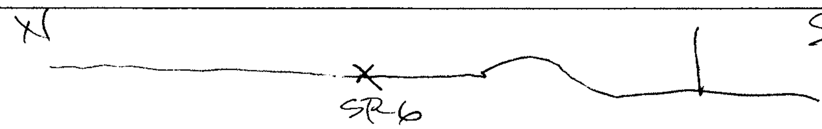
Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No X		
Hydric Soil Present?	Yes ______ No X	**Is the Sampled Area within a Wetland?**	**Yes** ______ **No** X
Wetland Hydrology Present?	Yes ______ No X		

Remarks:



VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 3' R)			
1. ERODIUM BOTRYS	30	X	FACU
2. HORDEUM MARINUM	15		FAC
3. FESTUCA MYUROS	15		FACU
4. PLANTAGO CORONOPUS	5		FAC
5. DISTICHLIS SPICATA	20	X	FAC
6.			
7.			
8.			
Total Cover:	85		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals	______ (A)	______ (B)

Prevalence Index = B/A = >3

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ______ **No** X.

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 – 1/2	10YR 2/2		—				DUFF	
1/2 – 5	10YR 5/2		—				SAND	
5+	GRAVEL							

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (Al)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (All)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (Sl)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (Fl)
- ___ Loamy Gleyed Matrix F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (AlO) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (Al)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (Cl)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (CS)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (Bl) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: NO INDICATORS

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 7

Investigator(s): C. BOURL Section, Township, Range: ______

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): ______ Slope (%): <3

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

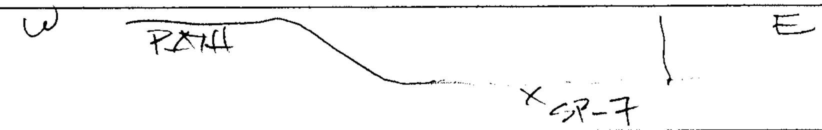
Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ______	**Is the Sampled Area within a Wetland?** Yes X No ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks:



VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 4' R)			
1. FESTUCA PERENNIS	30	Y	FAC
2. RUMEX CRISPUS	35	Y	FAC
3. LOTUS CORNICULATUS	5		FAC
4. HORDEUM MARINUM	5		FAC
5. RAPHANUS SATIVA	5		UPL
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals	______ (A)		______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is $\leq 3.0^1$
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR3/2		7.5YR4/4	2	C	PL	L	
4-6	10YR4/3		—				CL	
6+	10YR5/2		→				ROCK	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (A10) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes X No ___ 2

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
Y Biotic Crust (B12) ALGAE, WET
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Thin Muck Surface (C7)
Y Other (Explain in Remarks)
FEW OSTRACODES

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 8

Investigator(s): C. BOURN Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ______	**Is the Sampled Area within a Wetland?** **Yes** X **No** ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks:

W SP-9 E

SP-8

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: ______)			
1. FESTUCA PERENNIS	60	X	FAC
2. HORDEUM MARINUM	40	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals	______ (A)		______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: ___

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2		7.5YR 4/4	5	C	PL	L	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (Al)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (All)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (Sl)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (Fl)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (AlO) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (Al)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (Cl)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (CS)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

WATERED VEG?

Secondary Indicators (2 or more required)

___ Water Marks (Bl) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: 9

Investigator(s): C. BOURI Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? **Yes** ______ **No** X

Remarks:

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 4'R)			
1. AVENA SP.	60	X	UPL
2. BROMUS DIANDRUS	40	X	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: Ø (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ______ **No** X.

Remarks:

SOIL

Sampling Point: ____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2		—					
4+	GRAVEL							

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

____ Histosol (Al)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (All)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (Sl)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (Fl)
____ Loamy Gleyed Matrix F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (AlO) (LRR B)
____ Reduced Vertic (F18)
____ Red Parent Material (TF2)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ____
Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:
No [illegible]

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

____ Surface Water (Al)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (**Nonriverine**)
____ Sediment Deposits (B2) (**Nonriverine**)
____ Drift Deposits (B3) (**Nonriverine**)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (Cl)
____ Oxidized Rhizospheres along Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (CS)
____ Thin Muck Surface (C7)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

____ Water Marks (Bl) (**Riverine**)
____ Sediment Deposits (B2) (**Riverine**)
____ Drift Deposits (B3) (**Riverine**)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 W 8 T 22

Applicant/Owner: ______ State: CA Sampling Point: FCS 1R

Investigator(s): C. BOURIL Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology X Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

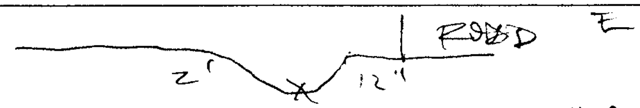
Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks: W



NO OHW, CUTBANK, SED. TRANSPORT

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. VICIA VILLOSA	20	X	UPL
2. RAPHANUS SATIVA	25	X	UPL
3. PLANTAGO LANCEOLATA	10		FAC
4. PLANTAGO CORONOPUS	10		FAC
5. LOTUS CORNICULATUS	20	X	FAC
6. HELMINTHOTHECA ECHIOIDES	5		FAC
7. MEDICAGO POLYMORPHA	5		FACU
8.			
Total Cover:	90		

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals	______	(A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X.

Remarks: VEG. MOWED

SOIL

Sampling Point: R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2		— *				CL	DAMP

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (Al)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (All)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (Sl)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (Fl)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (AlO) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes ___ No Y

Remarks: RUST COLORS PRESENT, BUT ADJACENT TO IRON DEBRIS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (Al)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (Cl)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (CS)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (Bl) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: NO SFC. INDICATORS

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: FCS 3R

Investigator(s): G BOURK Section, Township, Range: ______

Landform (hillslope, terrace, etc.): SWALE DITCH Local relief (concave, convex, none): ______ Slope (%): <5

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

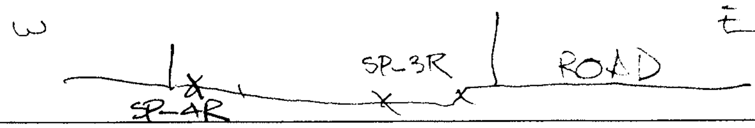
Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______	**Is the Sampled Area within a Wetland?** Yes X No ______
Hydric Soil Present?	Yes ______	No ______	
Wetland Hydrology Present?	Yes X	No ______	

Remarks:



VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: ______)			
1. COTULA CORONOPIFOLIA	2		OBL
2. HORDEUM MARINUM	5		FAC
3. POLYPOGON MONSPELIENSIS	10	X	FACW
4. PLANTAGO CORONOPUS	30	X	FAC
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 3 R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1		—				SILT	SEDS FROM SITE
2-4	2.5Y 4/2		—				C/CL	?
4+	10YR 4/4		—				GRVL CL	FILL

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ____ No ____

Remarks: ARTIFICIAL RESTRICTIVE LAYER

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (**Nonriverine**)
- ____ Sediment Deposits (B2) (**Nonriverine**)
- ____ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- X Other (Explain in Remarks)

3 OSTRACODES OBSERVED

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (**Riverine**)
- ____ Sediment Deposits (B2) (**Riverine**)
- ____ Drift Deposits (B3) (**Riverine**)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: FCS 4R

Investigator(s): C. BOURIL Section, Township, Range: ______

Landform (hillslope, terrace, etc.): SLOPE Local relief (concave, convex, none): ______ Slope (%): 8

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 3' R)			
1. PLANTAGO CORONOPUS	20	X	FAC
2. FESTUCA PERENNIS	45	X	FAC
3. HORDEUM MARINUM	5		FAC
4. RAPHANUS SATIVA	10		UPL
5. HELMINTHOTHECA ECHIOIDES	20	X	FAC
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals	______ (A)		______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 4R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0--6	10YR3/2	80	—				L	MIXED FILL
	10YR2/2	20						

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C5)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 W 04 22

Applicant/Owner: ______ State: CA Sampling Point: WRA 5R

Investigator(s): C. Bouril Section, Township, Range: ______

Landform (hillslope, terrace, etc.): GRADED FLAT Local relief (concave, convex, none): ______ Slope (%): <2

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation X Soil X or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______	**Is the Sampled Area within a Wetland?** Yes ______ No X
Hydric Soil Present?	Yes ______	No X	
Wetland Hydrology Present?	Yes ______	No X	

Remarks:

PHOTO ~ 10-1015

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 10' R)			
1. POLYGONUM AVICULARE	1	X	FACW
2. PLANTAGO LANCEOLATA	<1	X	FAC
3. RUMEX CRISPUS	<1		FAC
4. ANTHEMIS COTULA	<1		FACU
5. HELMINTHOTHECA ECHIOIDES	<1		FAC
6. UK GRASS	<1		?
7.			
8.			
Total Cover:	1+		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	1	x 2 = 2
FAC species	3	x 3 = 9
FACU species	1	x 4 = 4
UPL species	______	x 5 = ______
Column Totals:	5 (A)	15 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: [illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 – 3	10YR4/2		—				GRSL	
3 – 9	7.5YR3/2		—				"	
9 – 11	10YR3/3	60	—				"	
	10YR4/4	40						

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (A10) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) **(Nonriverine)**
___ Sediment Deposits (B2) **(Nonriverine)**
___ Drift Deposits (B3) **(Nonriverine)**
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) **(Riverine)**
___ Sediment Deposits (B2) **(Riverine)**
___ Drift Deposits (B3) **(Riverine)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: [illegible]

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 MAY 22

Applicant/Owner: ______ State: CA Sampling Point: FCS 6R

Investigator(s): C. BOURKE Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______ Soil ______ or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? **Yes** X **No** ______

Remarks:

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. EUCALYPTUS CAMALDULENSIS?			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum (Plot size: 5'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. FESTUCA PERENNIS	25	X	FAC
2. VICIA VILLOSA	15	X	UPL
3. GERANIUM DISSECTUM	5		UPL
4. GERANIUM ROBERTIANUM	5		FACU
5. PERSICARIA LAPATHIFOLIA?	15	X	FACW?
6. TYPHA ANGUSTIFOLIA	5		OBL
7.			
8.			
Total Cover:			

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤ 3.0[1]
— Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______.

Remarks:

SOIL

Sampling Point: 6F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR3/2		5YR4/4	10	C	PL	L	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (Al)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (All)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (Sl)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (Fl)
___ Loamy Gleyed Matrix F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (AlO) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (Al)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (Cl)
X Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (CS)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (Bl) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: SUPPLY BANK City/County: OAKLAND/ALAMEDA Sampling Date: 6 W84 22

Applicant/Owner: ______ State: CA Sampling Point: WRA 7R

Investigator(s): C. Bouril Section, Township, Range: ______

Landform (hillslope, terrace, etc.): GRADED FLAT Local relief (concave, convex, none): ______ Slope (%): <2

Subregion (LRR): LRR C Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation X Soil X or Hydrology ______ Significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

Are Vegetation ______ Soil ______ or Hydrology ______ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______	No X	
Wetland Hydrology Present?	Yes ______	No X	

Remarks:

PUDDLE 11.00

VEGETATION

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ______)			
1. CYNODON DACTYLON	<1		FACU
2. ERODIUM CICUTARIUM	"		UPL
3. POLYPOGON MONSPELIENSIS	"		FACW
4. PLANTAGO LANCEOLATA	"		FAC
5. MEDICAGO POLYMORPHA	"		FACU
Total Cover:			
Herb Stratum (Plot size: 10' R)			
1. HORDEUM MARINUM	"		FAC
2. TRIFOLIUM TOMENTOSUM	"		UPL?
3. PLANTAGO CORONOPUS	"		FAC
4. MALVA PARVIFLORA	"		UPL
5. RUMEX CRISPUS	"		FAC
6. POLYGONUM AVICULARE	"		FAC
7. HELMINTHOTHECA ECHIOIDES	"		FAC
8. ANTHEMIS COTULA	"		FACU
Total Cover:	<1		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 54 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	1	x 2 = 2
FAC species	6	x 3 = 18
FACU species	3	x 4 = 12
UPL species	3	x 5 = 15
Column Totals:	13 (A)	47 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ______.

Remarks:

SOIL

Sampling Point: 7-R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR3/2		—				SL	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (Al)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (All)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (Sl)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (Fl)
- ___ Loamy Gleyed Matrix F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (AlO) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (Al)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (Cl)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (CS)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (Bl) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

March 9, 2021

Regulatory Division

Subject: File Number 2007-00758S

Mr. Bernhard Warzecha
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, California 94597
bwarzecha@fcs-intl.com

Dear Mr. Warzecha:

This correspondence is in response to your submittal of July 21, 2020, on behalf of the Contra Costa County Public Works Department, requesting an approved jurisdictional determination of the extent of waters of the United States occurring on a 5.23-acre site located at 550 Sally Ride Drive in the City of Concord, Contra Costa County, California (Lat: 37.987487°, Long: -122.062311°).

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; or within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act of 1972, as amended (33 U.S.C. § 1344 *et seq*.). Waters of the United States generally include the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries; lakes and ponds, and impoundments of jurisdictional waters; and adjacent wetlands.

The enclosed delineation map titled "Approved Jurisdictional Determination, Buchanan Field Fire Station 9, Contra Costa County, California, File No: 2007-00758S," in one sheet and date certified March 9, 2021, accurately depicts the extent and location of waters of the United States within the boundary area of the site that are subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. These particular water bodies are jurisdictional waters pursuant to 33 C.F.R. § 328.3(a)(2). The enclosed delineation map further depicts the extent and location of a double box culvert and wetland ditches within the boundary area of the site that are **not** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. These particular water bodies are non-jurisdictional waters pursuant to 33 C.F.R. § 328.3(b)(1) and (b)(5). This approved jurisdictional determination is based on a review of available digital photographic imagery and maps and a review of other data included in your submittal. This approved jurisdictional determination will expire in five years from the date of this letter unless new information or a change in field conditions warrants a revision to the delineation map prior to the expiration date. The basis for this approved jurisdictional determination is explained in the enclosed *Approved Jurisdictional Determination Form (Interim) Navigable Waters Protection Rule*.

You are advised that the approved jurisdictional determination may be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; Mar. 28, 2000) and outlined in the enclosed flowchart and *Notification of Administrative Appeal Options, Process, and Request for Appeal* (NAO-RFA) Form. If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to this office for reconsideration of this decision. If you do not provide new information to this office, you may elect to submit a completed NAO-RFA Form to the Division Engineer to initiate the appeal process; the completed NAO-RFA Form must be submitted directly to the Appeal Review Officer at the address specified on the NAO-RFA Form. You will relinquish all rights to a review or an appeal unless this office or the Division Engineer receives new information or a completed NAO-RFA Form within 60 days of the date on the NAO-RFA Form. If you intend to accept the approved jurisdictional determination, you do not need to take any further action associated with the Administrative Appeal Process.

You may refer any questions on this matter to Katerina Galacatos by telephone at 415-503-6778 or by e-mail at Katerina.Galacatos@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website:
http://www.spn.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

Bryan Matsumoto
Senior Project Manager
Regulatory Division

Enclosures

Electronic Copies Furnished (w/ encls):

Contra Costa County PWD, Martinez, CA (William Wahbeh, Will.Wahbeh@pw.cccounty.us)
CA RWQCB, Oakland, CA (Katie Hart, Kathryn.Hart@waterboards.ca.gov)

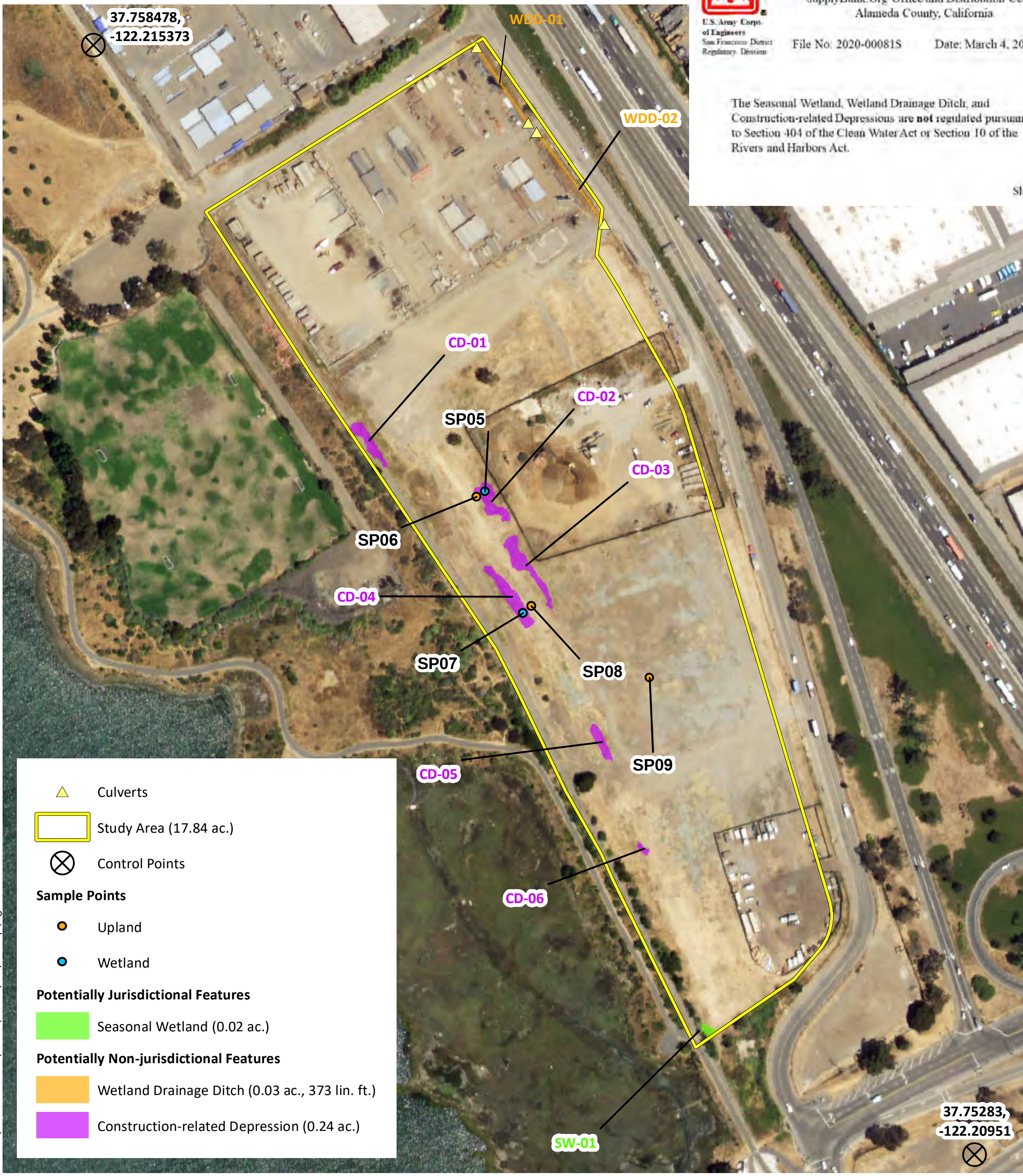
U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Approved Jurisdictional Determination
SupplyBank.Org Office and Distribution Center
Alameda County, California

File No: 2020-00081S Date: March 4, 2021

The Seasonal Wetland, Wetland Drainage Ditch, and Construction-related Depressions are **not** regulated pursuant to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

Sheet 1 of 1



Path: L:\Acad 2000 Files\29000\29251\GIS\ArcMap\Figure 4 Delin 20191024.mxd

Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/24/2019

Figure 4. Wetland Delineation and Preliminary Jurisdictional Determination

SupplyBank.Org Office & Distribution Center
Alameda County, California

0 100 200 Feet

N

wra ENVIRONMENTAL CONSULTANTS

U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Approved Jurisdictional Determination
Buchanan Field Fire Station 9
Contra Costa County, California

File No: 2007-00758S Date: March 9, 2021

The Marsh Drive Drainage is regulated pursuant to Section 404 of the Clean Water Act.

Drainages A and B and the Double Box Culvert are **not** regulated pursuant to Section 404 of the Clean Water Act.

Sheet 1 of 1

DRAFT

Study Area

Aquatic Features

Artificial Drainage with Wetland Characteristic

Double Box Culvert

Sample Points

Upland

Wetland

Map Feature	Length (linear feet)	Average Width (linear feet)	Area (square feet)	Area (acre)
Marsh Drive Drainage	1,000	12	12,000	0.275
Drainage A	280	4	1,120	0.026
Drainage B	160	6	960	0.022
Double Box Culvert	60	12	720	0.017
All Aquatic Features	1,500	--	14,800	0.34

N

125 62.5 0 125

Feet

Data Sources: FCS | ESRI

Delineation Date: 06/30/2020

Exhibit 3
Aquatic Features Delineation

PROPOSED FIRE STATION #9 PROJECT
BUCHANAN FIELD, PACHECO, CA
CONTRA COSTA COUNTY PUBLIC WORKS
DELINEATION OF AQUATIC FEATURES

FirstCarbon® SOLUTIONS

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Bernhard Warzecha, FirstCarbon Solutions		File Number: 2007-00758S	Date: 3/9/21
Attached is:			See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐	PERMIT DENIAL		C
☑	APPROVED JURISDICTIONAL DETERMINATION		D
☐	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

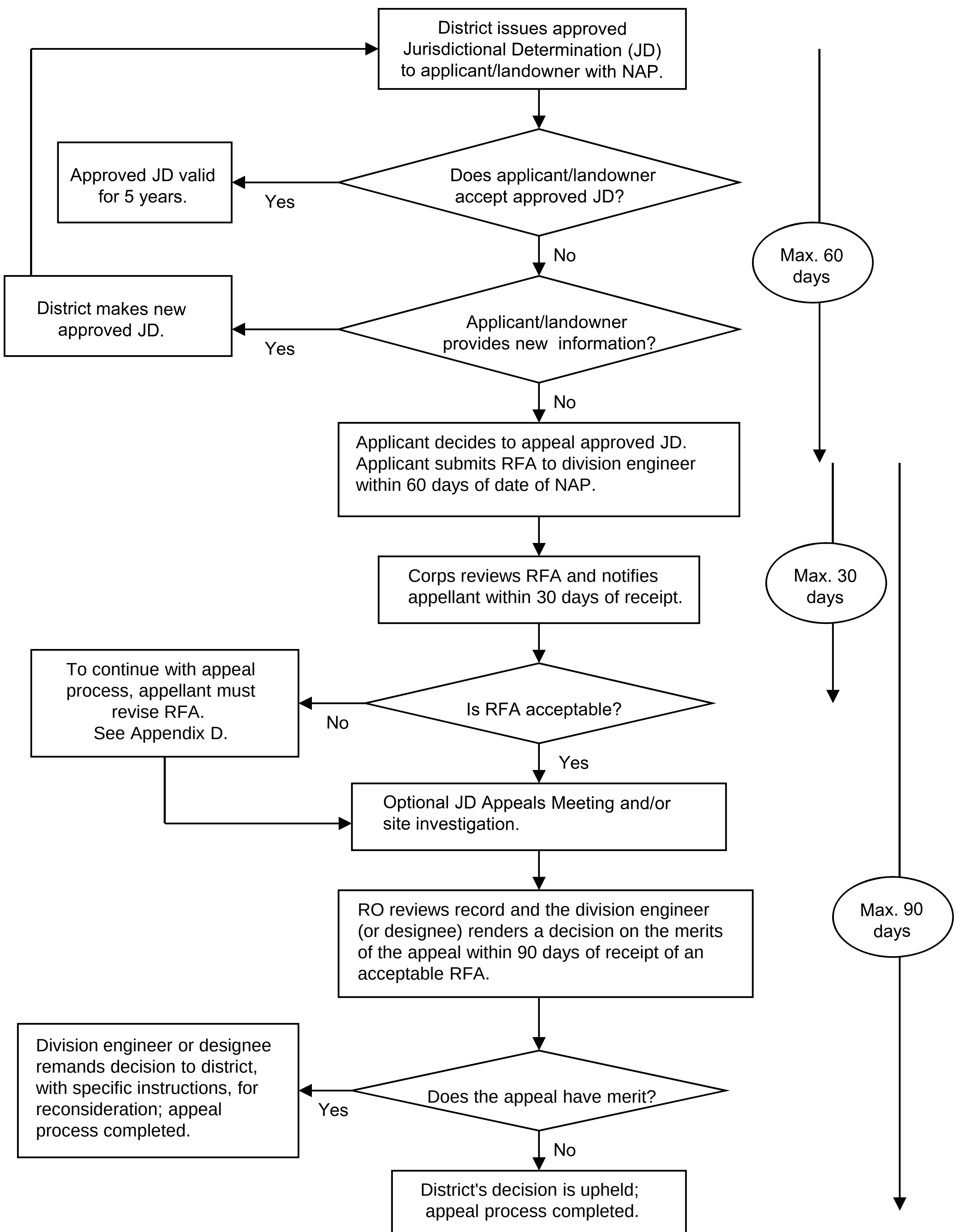
Katerina Galacatos
South Branch Chief, Regulatory Division
San Francisco District, U.S. Army Corps of Engineers
450 Golden Gate Avenue, 4th Floor
San Francisco, CA 94102-3404
Phone: (415) 503-6778 Email: Katerina.Galacatos@usace.army.mil

If you only have questions regarding the appeal process you may also contact: Thomas J. Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division
450 Golden Gate Avenue, 6th Floor
San Francisco, California 94102-3406
Phone: (415) 503-6574 Fax: (415) 503-6646
Email: thomas.j.cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.	Date:	Telephone number:

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 3/9/2021
ORM Number: SPN-2007-00758S
Associated JDs: AJD dated October 31, 2007 (SPN-2007-00758)
Review Area Location[1]: State/Territory: Ca City: Concord County/Parish/Borough: Contra Costa
Center Coordinates of Review Area: Latitude 37.98487 Longitude -122.062311

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.

☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).

☒ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).

☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size		§ 10 Criteria	Rationale for § 10 Determination
N/A.	N/A.	N/A	N/A.	N/A.

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters):[3]				
(a)(1) Name	(a)(1) Size		(a)(1) Criteria	Rationale for (a)(1) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Tributaries ((a)(2) waters):				
(a)(2) Name	(a)(2) Size		(a)(2) Criteria	Rationale for (a)(2) Determination
SPN-2007-00758 Marsh Drive Drainage	1,000	linear feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Historic maps support the determination that the Marsh Drive Drainage is a relocated branch of Walnut Creek that contributed surface water to an (a)(1) water (lower Walnut Creek and Suisun Bay) through an (a)(2) water (Walnut Creek) and an (a)(4) water (wetlands adjacent to Walnut Creek) in a typical year. Also, the 2007 AJD and Google Earth photos support the determination that the Marsh Drive Drainage is an intermittent tributary.

[1] Map(s)/figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):				
(a)(3) Name	(a)(3) Size		(a)(3) Criteria	Rationale for (a)(3) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Adjacent wetlands ((a)(4) waters):				
(a)(4) Name	(a)(4) Size		(a)(4) Criteria	Rationale for (a)(4) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
SPN-2007-00758 Drainage A	280	linear feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1).	There is no evidence to suggest that this ditch relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland. The ditch collects runoff from adjacent uplands and is not known to convey water from any off-site tributaries. No tributaries or adjacent wetland were identified in the immediate vicinity of the ditch.
SPN-2007-00758 Drainage B	160	linear feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1).	There is no evidence to suggest that this ditch relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland. The ditch collects runoff from adjacent uplands and is not known to convey water from any off-site tributaries. No tributaries or adjacent wetland were identified in the immediate vicinity of the ditch.
SPN-2007-00758 Box Culvert	60	linear feet	(b)(1) Water or water feature that is not identified in (a)(1)-(a)(4) and does not meet the other (b)(1) subcategories.	The double box culvert in the Marsh Drive Drainage does not meet the definition of a tributary because it is not a natural feature and does not provide surface flow.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

☒ Information submitted by, or on behalf of, the applicant/consultant: "Aquatic Resources Delineation Report, New Fire Station 9, Buchanan Field, Pacheco, Contra Costa County, California," prepared by FirstCarbon Solutions, and dated July 21, 2020.

This information is sufficient for purposes of this AJD.

Rationale: N/A

☐ Data sheets prepared by the Corps: Title(s) and/or date(s).

☐ Photographs: Select. Title(s) and/or date(s).

☐ Corps site visit(s) conducted on: Date(s).

☒ Previous Jurisdictional Determinations (AJDs or PJDs): AJD dated October 31, 2007 (SPN-2007-00758)

☐ Antecedent Precipitation Tool: ***provide detailed discussion in Section III.B***.

☐ USDA NRCS Soil Survey: Title(s) and/or date(s).

☐ USFWS NWI maps: Title(s) and/or date(s).

☐ USGS topographic maps: Title(s) and/or date(s).

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A
Other Sources	EcoAtlas and historicaerials.com, accessed 3-5-2021; Google Earth, accessed 3-9-2021

B. Typical year assessment(s): There are multiple Google Earth photos showing water in the Marsh Drive Drainage at the beginning of the dry season (e.g., 4-12-2019, 4-2-2018), supporting the conclusion that this ditch is intermittent in a typical year. In these aerial photos, water is visible in the Marsh Drive Drainage from the project area to Grayson Creek, a perennial (a)(2) water that's tributary to Walnut Creek and Suisun Marsh, a TNW. Additionally, the 2007 AJD states that the Marsh Drive Drainage is intermittent.

C. Additional comments to support AJD: N/A

Appendix J

SupplyBank.org Office & Distribution Center Project, Section 404 (B)(1) Alternatives Analysis

LSA, October 2022

SECTION 404 (B)(1) ALTERNATIVES ANALYSIS

SUPPLYBANK.ORG OFFICE & DISTRIBUTION CENTER PROJECT

CITY OF OAKLAND, CALIFORNIA

LSA

October 2022

SECTION 404 (B)(1) ALTERNATIVES ANALYSIS

SUPPLYBANK.ORG OFFICES & DISTRIBUTION CENTER PROJECT

CITY OF OAKLAND, CALIFORNIA

Submitted to:

Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

Prepared by:

LSA Associates, Inc.
157 Park Place
Point Richmond, California 94801

Project No. TER2202

TABLE OF CONTENTS

APPENDICES

FIGURES AND TABLES

FIGURES

TABLES

1.0 INTRODUCTION

1.1 PURPOSE OF THE ALTERNATIVES ANALYSIS

SupplyBank (applicant) is proposing to develop the SupplyBank.org Offices & Distribution Center Project (proposed project), which consists of the construction of an office building, warehouse and distribution center, and warehouse and corporation yard with internal circulation, landscaping, and parking within an approximately 16.4-acre project site in Oakland, Alameda County, California.

This Alternatives Analysis analyzes the project's compliance with the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures), which went into effect on May 28, 2020. Specifically, Appendix A of the Procedures, the State Supplemental Dredge or Fill Guidelines, are based on the U.S. Environmental Protection Agency (EPA) *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredge or Fill Material* (40 CFR Part 230) (Guidelines). Consistent with the 404(b)(1) Guidelines and Appendix A of the Procedures, the purpose of this analysis is to identify the "Least Environmentally Damaging Practicable Alternative" (LEDPA).

This Alternatives Analysis report has been prepared for submittal to the Regional Water Quality Control Board (RWQCB) as part of the application for Waste Discharge Requirements (WDRs) for the fill of 0.371 acre of waters of State for the project. Partial Avoidance Alternative 3, as analyzed in Section 4.0, On-Site Alternatives Screening, was selected as the LEDPA. Thus, the project details and impact values described in Section 1.0 of this Alternatives Analysis, which reflect the applicant's initial preferred project, will differ slightly from the proposed project (i.e., the LEDPA) described in the current application for WDRs.

1.2 PROJECT BACKGROUND

1.2.1 Project Location

The approximately 16.4-acre project site spans two existing parcels, APN 41-3903-2-8 and a portion of APN 41-3903-1-5, located along Oakport Street in eastern Oakland, Alameda County. The project site is located in the Coliseum Industrial neighborhood of East Oakland, immediately north of the Oakland Airport Business Park and within the planning area of the City of Oakland's Coliseum Area Specific Plan. The project site is bounded by the East Bay Municipal Utility District (EBMUD) Oakport Wet Weather Treatment Plant and associated storage area to the north; Oakport Street to the east and south; and undeveloped grassland and estuary and Oakport field to the south and west. The project site is situated within unsectioned lands with a projected location of Township 2 South, Range 3 West, in Section 17 on the Oakland East, California 7.5 minute USGS quadrangle. Figures 1 and 2 depict the regional location and project site location, respectively.

Lands surrounding the project site to the north, east, and south are developed, consisting of commercial/industrial uses and East Creek Slough to the north, the Oakland Airport Business Park and Damon Slough to the south, and Interstate 880 (I-880) and large-scale warehouse and distribution centers to the east. To the west/southwest is undeveloped grassland and estuary, Oakport Field, and the San Leandro Bay.

The project site is accessible via I-880 at the 66th Avenue exit and driving westward onto Zhone Way, then turning right/northward on Oakport Street.

1.2.2 Project Description

The proposed project consists of the construction of an office building, warehouse building, and a warehouse and corporation yard with internal circulation, landscaping, and parking (Figures 3a and 3b). The facilities are proposed on property owned by EBMUD and would be utilized by both SupplyBank.org and EBMUD, as described in more detail below.

The main objectives of the proposed project are to provide a warehouse and corporation yard for EBMUD; to provide space for nonprofit tenants and support for local teachers, schools, and food security; to provide support for emergency preparedness and response; and to provide support for the local workforce through an EBMUD training program and re-entry job training program at the SupplyBank.org warehouse.

The project site is located within the Coliseum Area Specific Plan (CASP). The general plan land use designation of the project site is Business Mix, which is intended to consist of a flexible economic development zone that strives to accommodate older industries and anticipate new technologies, including both commercial and industrial operations and contain a wide range of business and business serving activities.[1] The project site is zoned as Commercial Mix District – 6 Industrial Zone (Oakport North), or D-CO-6, which is intended to apply to commercial, industrial, and institutional areas with strong locational advantages that make possible the attraction of higher intensity commercial and light industrial land uses and development types.

In the central and southern portion of the property under a long-term lease with EBMUD, SupplyBank.org would construct an approximately 160,000 square-foot office building and a 123,000 square-foot warehouse building. The top floor of the building would be used as the SupplyBank.org headquarters, and the remaining capacity in this building would be rented to other non-profit organizations for similar office use. The warehouse would be divided into two spaces; one space would serve as SupplyBank.org materials storage and distribution, and the other space would be reserved for EBMUD storage and materials.

In the northern portion of the property, an EBMUD warehouse and corporation yard would be constructed consisting of a 10,000 square-foot workshop, a 57,000 square-foot pipe and materials storage rack structure, and an approximately 28,800 square-foot storage bin used to store and source a variety of building materials. The workshop would be used for welding and EBMUD training operations. The pipe and materials storage rack structure would be located on the northerly property line and would consist of a peaked roofed structure (36 feet high at the peak) with open sides for easy access for forklift operations to store and supply large pipes and other materials used by EBMUD. The approximately 28,800 square-foot storage bin would be used to store and source a variety of building materials, such as sorted sands and gravels.

[1] City of Oakland. 1998. *Land Use and Transportation Element of the General Plan*. March.

The proposed project would include: three new vehicle entry points; an internal circulation loop that would connect between the office and warehouse, weld shop, and pipe storage structure; and City required improvements on Oakport Street, including street widening, street frontage planter, curb and gutter, and concrete sidewalk. Parking would be provided at a number of surface parking lots throughout the site.

The proposed project would include various utility improvements including an underground stormwater storage system as well as low-impact development (LID) measures, such as bio-retention facilities with underdrains distributed throughout the site and along the site perimeter to prevent flooding. The proposed project would include two underground stormwater storage systems to collect and retain stormwater flow from the site until surface stormwater flows subside before discharging into the surrounding storm drainage system once the peak flows have dissipated. Various bio-retention facilities would also be installed throughout the site that would be sized appropriately to meet or exceed the minimum treatment area required for each drainage management area within the site.

1.2.3 Existing Conditions

The majority of the project site consists of a graded surface that is regularly used as an EBMUD Wet Weather Treatment Plant, associated construction material storage site, and secondary storage yard. The undeveloped portion of the project site is also used for community events, third-party storage, and as vehicular parking for off-site events. Both parcels are currently owned by EBMUD. The topography and hydrology; vegetation communities; and jurisdictional aquatic features are described below.

Topography and Hydrology. Topography in the project area is mostly flat, with an average southward slope of 0.5 percent. Site elevations range between 10 and 15 feet above mean sea level. The natural hydrology of the project site has been permanently altered by the historical commercial usages and the associated paving, grading, leveling, and placing of fill throughout the site. The project site has been disconnected from tidal influence and natural wetlands hydrology by this development.[2]

Water from the project site drains either south via a vegetated ditch on the southeastern border of the site into the large depression separated from tidal influence by a berm that supports a hiking trail or north via a vegetated ditch through a series of culverts. [3] These culverts are blocked and the ditches are not readily draining, allowing the ditches to pool water.[4] Additionally, water from the project site runs off the uplands with impermeable paved surfaces or well-draining gravel into low depressional areas on the western side of the site before dissipating into existing vegetation. Specific hydrological features are described in greater detail below.

2 WRA Environmental Consultants. 2019. *Aquatic Resources Delineation Report, SupplyBank.Org Office & Distribution Center, Oakland, Alameda, California*. October 29.

3 Ibid.

4 First Carbon Solutions, FCS International, Inc. 2021. *Delineation of Aquatic Resources of Additional Areas at the Oakport Street Project and Regulatory Considerations*. February 1.

Vegetation. The majority of the project site had been recently mowed for fire suppression purposes at the time of the aquatic resources delineation site visit conducted by LSA on May 6, 2022.[5] The site consequently had less than 1 percent vegetation cover of regrowth of ruderal species, such as prostrate knotweed (*Polygonum aviculare*), English plantain (*Plantago lanceolata*), buckhorn plantain (*P. coronopus*), curly dock (*Rumex crispus*), mayweed (*Anthemis cotula*), bristly ox-tongue (*Helminthotheca echioides*), filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), cheeseweed (*Malva parviflora*), and unidentified grasses. The western edge of the site is vegetated with grasses, including Italian rye (*Festuca perennis*), Mediterranean barley (*Hordium marinum*), wild oats (*Avena* spp.), and rip-gut (*Bromus diandrus*). Trees along I-880 and in the northern study area are mostly non-native and predominantly Eucalyptus (*Eucalyptus* sp.) species.

Jurisdictional Aquatic Features and Impacts. As reflected in Figure 4 and Table A, below, the project site currently supports 0.244 acre of seasonal wetlands and 0.027 acre of other waters of the State with a total potential jurisdictional area of 0.271 acre[6]. In addition, approximately 0.240 acre of potential seasonal wetlands located in the central portion of the site, as previously delineated by WRA Environmental Consultants (WRA), were graded in spring 2022 during maintenance activities outside of the applicant's control. As specified by the RWQCB, these features are to be included in the assessment of the project's impact on waters of the State. Therefore, the overall total potential jurisdictional area of waters of the State is 0.511 acre, as reflected in Table A.

Table A: Aquatic Features on the Project Site

Type	Area (ac)
Wetland Features	
Seasonal Wetland SW-01	0.030
Construction Depression CD-01	0.065
Seasonal Wetland E	0.020
Seasonal Wetland D	0.004
Seasonal Wetland Ditch WDD-01	0.012
Seasonal Wetland Ditch WDD-02	0.014
Seasonal Wetland Ditch WDD-03	0.010
Seasonal Wetland Ditch WDD-04	0.004
Seasonal Wetland Puddle C	0.076
Seasonal Wetland Ditch WDD-05	0.007
Seasonal Wetland Ditch WDD-06	0.002
Wetland Features Subtotal	***0.244***
Other Waters of the State	
Culvert-01	0.001
Culvert-02	0.001

5 LSA. 2022. *Request for Verification of Jurisdictional Delineation, SupplyBank.Org/Oakport Street Study Site, Oakland, Alameda County, California*. August 9.

6 Based on site visits conducted by LSA on May 6 and October 12, 2022.

Table A: Aquatic Features on the Project Site

Type	Area (ac)
Culvert-03	0.001
RWQCB-Determined Channel	0.024
Other Waters Subtotal	***0.027***
Additional Potential Seasonal Wetlands Removed	
Graded Seasonal Wetlands	0.240
Additional Potential Seasonal Wetlands Removed Subtotal	***0.240***
TOTAL WETLANDS AND OTHER WATERS OF THE STATE	**0.511**

The applicant's preferred project, as reflected in Figures 3a and 3b, would result in approximately 0.455 acre of permanent impacts to wetlands and other waters of the State. Permanent impacts would include filling of 0.455 acre of wetlands as a result of the development of retaining walls, a bio-retention area, and covered scrap bins along the northwestern property boundary of the project site (construction depression CD-01); a bio-retention area and retaining wall along the southern project boundary (seasonal wetland SW-01); and the completion of City required improvements to Oakport Street, including street widening, street frontage planter, curb and gutter, and concrete sidewalk. The street frontage improvements would impact seasonal wetland ditches WDD-02 through WDD-06, seasonal wetland puddle C, and other waters of the State including culverts -02 and -03 and the RWQCB-determined channel. Impacts to 0.240 acre of potential seasonal wetlands in the central portion of the site, as previously delineated by WRA and graded during maintenance activities outside of the applicant's control, are also included in the permanent impact total.

1.3 REGULATORY REQUIREMENTS AND LEVEL OF ANALYSIS FOR THIS ALTERNATIVES ANALYSIS

1.3.1 RWQCB Regulatory Requirements

On April 2, 2019, the State Water Resources Control Board (SWRCB) adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures, which went into effect on May 28, 2020, require an alternatives analysis consistent with Section 230.10(a) of the State Supplemental Dredge or Fill Guidelines for discharges to waters of the State unless an exemption specified in Section IV.A.1.g of the Procedures applies. Procedures Section IV.B.3.a states that the permitting authority must "establish that the proposed project alternative is the LEDPA in light of all potential direct, secondary (indirect), and cumulative impacts on the physical, chemical, and biological elements of the aquatic ecosystem." Section 230.10(a) states that "No discharge of dredge or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."

1.3.2 Scope and Level of Analysis

Under the Procedures, the project would be treated as a "Tier 3 project" because the project impacts wetlands. Per Section IV.A.1.h of the Procedures, an analysis of both off-site and on-site alternatives is required. Sections 3.0 and 4.0 of this Alternatives Analysis includes an assessment of off-site and on-site alternatives, respectively, that is consistent with the Procedures.

However, the Section 404(b)(1) Guidelines and the State Procedures do not specify that the same intensity of analysis will be required for all types of projects, but instead correlate the scope of the evaluation with the potential extent of adverse impacts on the aquatic environment. Consequently, the Guidelines and Procedures clearly afford flexibility to adjust the stringency of the alternatives analysis review for projects that would have only minor impacts. These flexibility provisions in the Federal Guidelines were recognized with the issuance of a joint Corps-U.S. Environmental Protection Agency (EPA) Memorandum to the Field dated August 23, 1993[7] and implemented through Corps Regulatory Guidance Letter 93-2 published in the Federal Register on September 10, 1993. Under the Guidelines, minor impacts are associated with activities that generally would have little potential to degrade the aquatic environment and include one, and frequently more, of the following characteristics:

- the impacts will occur in aquatic resources of limited natural function;
- the impacts are small in size and cause little direct impact; and
- the impacts have little potential for secondary or cumulative impacts; or cause only temporary impacts.

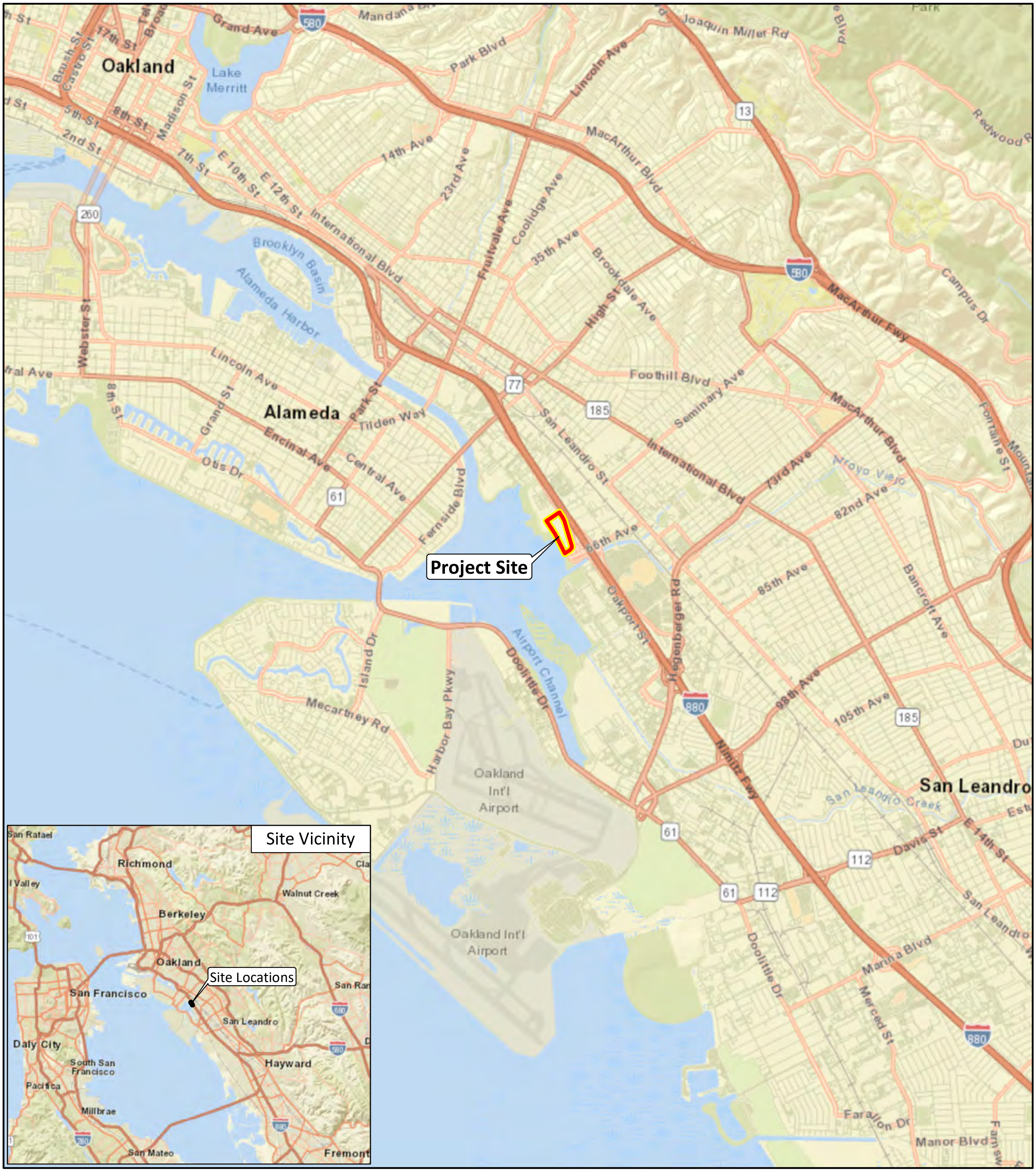
The aquatic features on the project site are of low quality and have been significantly disturbed by historic land use (e.g., community events, third-party storage, vehicular parking for off-site events) and by regular grading and discing. They also do not provide habitat for rare, threatened, or endangered species. Furthermore, the project was designed to avoid jurisdictional water features to the maximum extent practicable and, as discussed in Section 4.0, the impacts are small in size and cause little direct impact. Based on the low value of the aquatic features and the minimal area that will be impacted, an extensive analysis of possible alternatives is not warranted. Therefore, on-site and off-site alternatives were analyzed to the extent appropriate for this project.

1.4 PREPARERS OF THIS ALTERNATIVES ANALYSIS

This document was jointly authored by the following persons:

Kristin Nurmela, Associate/Natural Resources Planner, primary author
Dan Sidle, Associate Biologist, project manager
Ashley Manheim, Environmental Planner, co-author
Chip Bouril, Senior Soil Scientist, contributor

[7] U.S. Environmental Protection Agency. 1993. Memorandum to the Field, Subject: "Appropriate Level of Analysis Required for Compliance with the Section 404(b)(1) Guidelines," U.S. Environmental Protection Agency and U.S. Department of the Army, Washington, D.C., 23 August 1993.



LSA

LEGEND

Project Site

0 0.5 1
MILES

SOURCE: Esri World Street Map (2022).

FIGURE 1

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Regional Location

I:\TER2202\GIS\Maps\Alternatives Analysis\Figure 1_Regional Location.mxd (10/4/2022)

LSA

LEGEND

Project Site

FIGURE 2

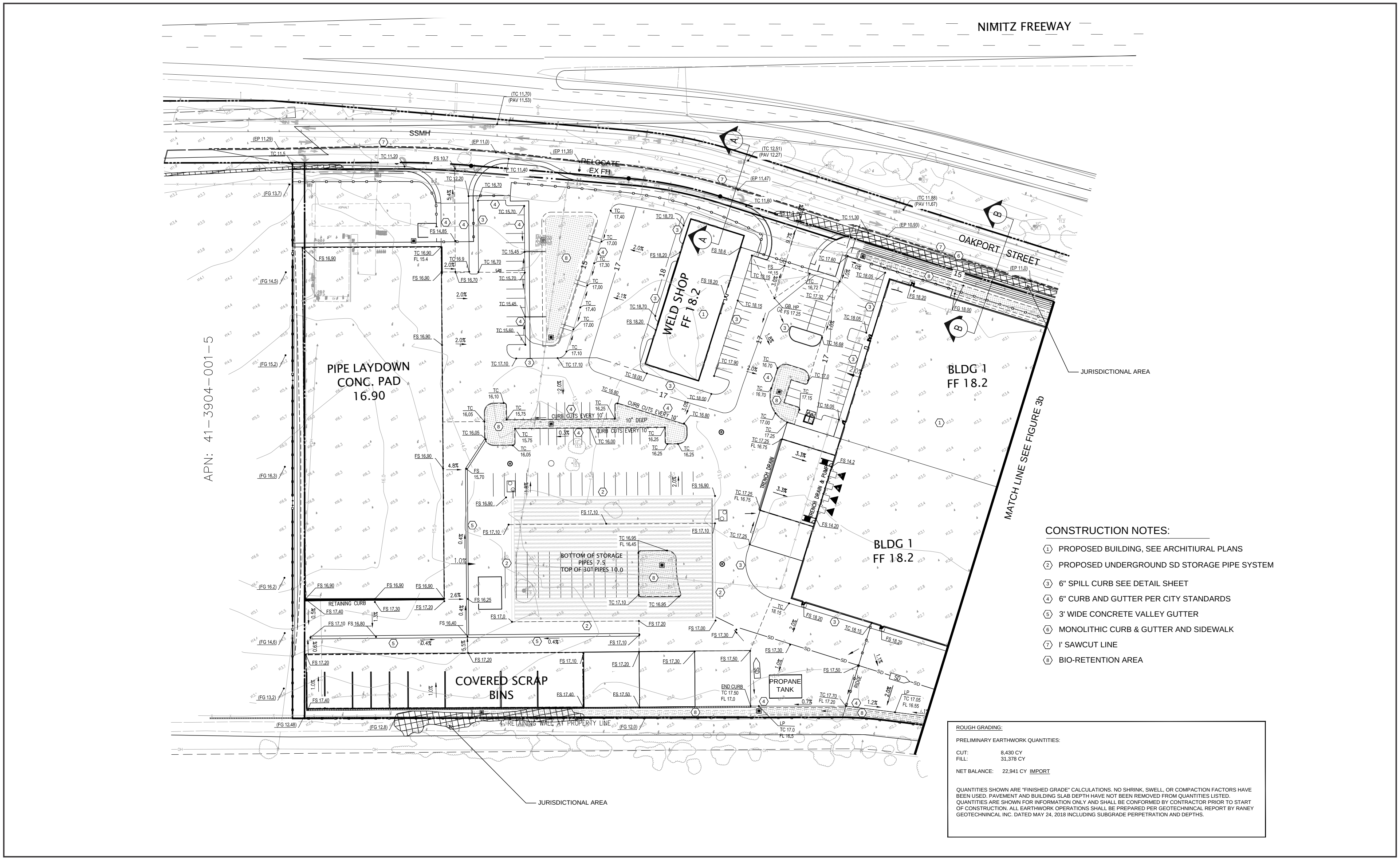
0 150 300
FEET

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Project Site Location

SOURCE: Google Maps (2022).

I:\TER2202\GIS\Maps\Alternatives Analysis\Figure 2_Project Site Location (Aerial).mxd (10/4/2022)



LSA

FIGURE 3a

N

0 80 160

FEET

SOURCE: Ware Malcomb

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Applicant's Preferred Project

I:\TER2202\G\Preferred_Project.ai (10/12/2022)

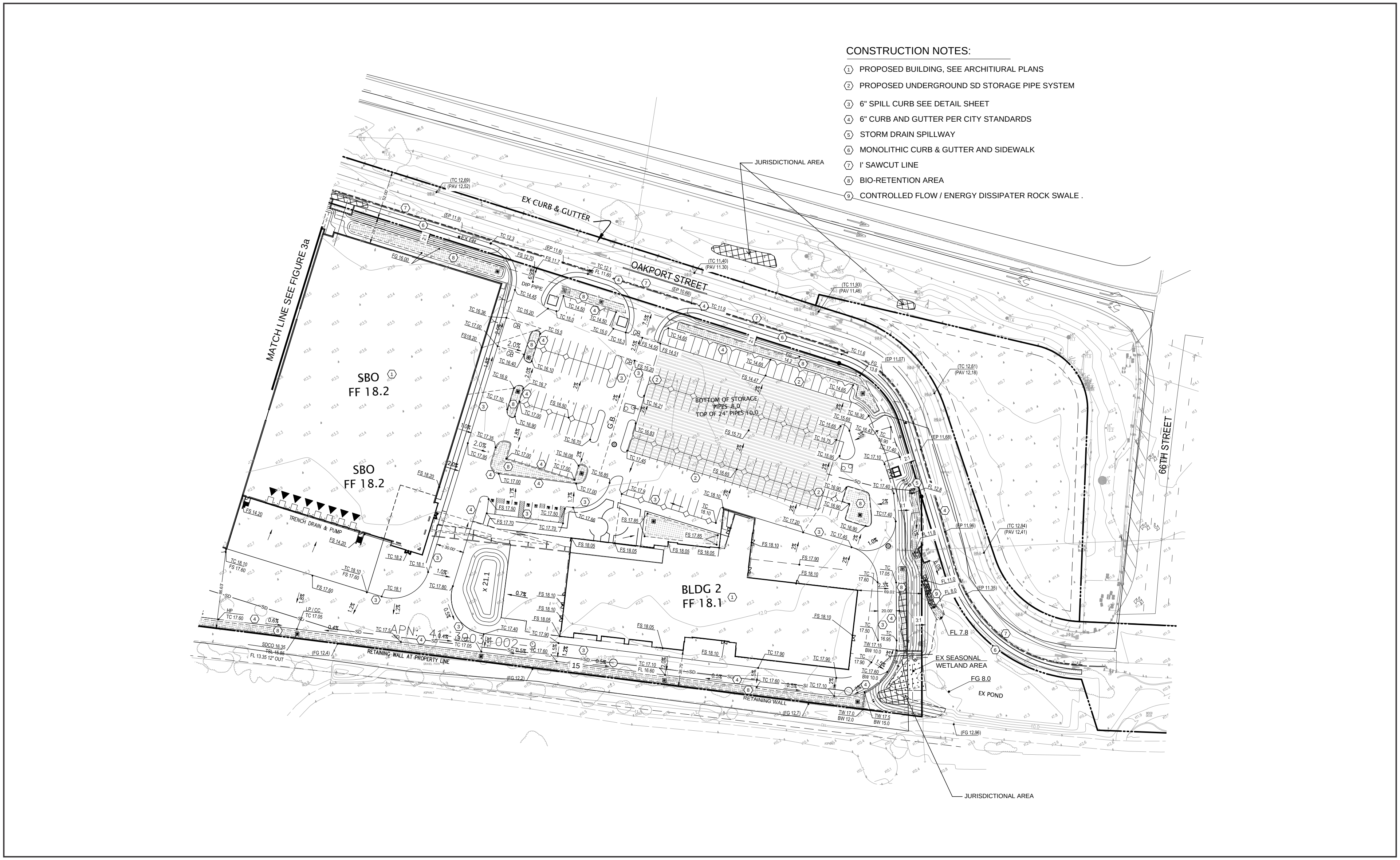


FIGURE 3b

LSA

0 80 160
FEET

SOURCE: Ware Malcomb

SupplyBank.org Office and
Distribution Center Project
Oakland, Alameda County, California

Applicant's Preferred Project

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WATERS OF THE UNITED STATES and WATERS OF THE STATE

	Length (ft)	Width (ft)	Area (sq. ft.)	Area (acres)
WETLANDS				
SW-01	130	10	1,290	0.030
WETLANDS TOTAL			**1,290**	**0.030**
TOTAL WATERS OF THE UNITED STATES			**1,290**	**0.030**

WATERS OF THE STATE only

	Length (ft)	Width (ft)	Area (sq. ft.)	Area (acres)
WETLANDS				
CD-01	205	14	2,840	0.065
Seasonal Wetland E	70	12	865	0.020
Seasonal Wetland D	20	9	170	0.004
Oakport Roadside Ditches				
WDD-01	175	3	515	0.012
WDD-02	205	3	615	0.014
WDD-03	295	1.5	443	0.010
WDD-04	115	1.5	173	0.004
Seasonal Wetland Puddle C	360	9	3,310	0.076
WDD-05	155	2	310	0.007
WDD-06	40	2	80	0.002
Oakport Roadside Ditches Total	1345		5,446	0.125
WETLANDS TOTAL			**9,321**	**0.214**
OTHER WATERS				
Oakport Roadside Ditches				
Culvert-01	30	2	60	0.001
Culvert-02	25	1.5	38	0.001
Culvert-03	30	1.5	45	0.001
Oakport Roadside Ditches Total	85		143	0.003
OTHER WATERS TOTAL			**143**	**0.003**
RWQCB-determined Channel	530	2	1,060	0.024
TOTAL WATERS OF THE STATE only			**10,524**	**0.241**

TOTAL WATERS OF THE STATE

WATERS OF THE STATE only	**10,524**	**0.241**
WATERS OF THE UNITED STATES that are also WATERS OF THE STATE	**1,290**	**0.030**
TOTAL WATERS OF THE STATE	**11,814**	**0.271**

LSA

LEGEND
- Study Site
- Wetland Sample Point
- Non-wetland Sample Point

WATERS OF THE UNITED STATES and WATERS OF THE STATE
- Wetland

WATERS OF THE STATE Only
- Wetland
- Other Waters (Culvert)
- RWQCB-determined Channel

N

1 INCH = 150 FEET

0 75 150

FEET

FIGURE 4

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Potential Waters of the State

SOURCE: Google Maps (2022).

I:\SLK2201\GIS\Maps\Delineation\Figure 3_Waters of the US and State.mxd (10/14/2022)

2.0 PROJECT PURPOSE

2.1 BASIC PROJECT PURPOSE

Under the Section 404(b)(1) Guidelines and the State Procedures, the term "basic project purpose" refers to the fundamental purpose of the project and is used to determine "water dependency." For projects with a non-water dependent basic purpose, the Guidelines and State Procedures presume availability of practicable alternatives that do not involve fill in special aquatic sites and presume that those alternatives have fewer impacts on aquatic ecosystems. The basic purpose of the project is to construct an office and warehouse complex, which is not water dependent.

2.2 OVERALL PROJECT PURPOSE

The "Overall Project Purpose" serves as a major basis for evaluating the practicability of alternatives. In order for an alternative to be practicable, it must be available and capable of satisfying the Overall Project Purpose considering cost, logistics, and technology. The Overall Project Purpose differs from the basic purpose and relates more closely to the applicant's actual intended purpose.

Under the Section 404(b)(1) Guidelines and the State Procedures, the Overall Project Purpose is intended to provide a more detailed description of the applicant's intent for the proposed project. An alternative to the proposed project is considered practicable only if it can satisfy the Overall Project Purpose based on cost, logistics, and technology criteria. The Overall Project Purpose is the following:

> *To construct a nonprofit office center, warehouse, distribution center, and pipe and materials storage area to support SupplyBank.org and EBMUD operations consistent with the Coliseum Area Specific Plan.*

2.3 PROJECT MARKET AREA

The Section 404(b)(1) Guidelines and the State Procedures require that the practicability of any alternative site be evaluated on the basis of whether the site is available to the applicant and whether the project can be constructed on the site after taking into consideration costs, logistics, and technology in light of Overall Project Purpose. The geographic area to be reviewed for alternative sites should not be so broad as to make the analysis unreasonable, or so narrow as to effectively preclude potentially practicable alternatives (*Old Cutler Bay Association Permit Elevation Decision*, October 9, 1990).

A proponent's desire to participate in a particular market area reflects basic business decisions unique to each applicant's circumstances. A particular project type that may be suitable in one market may be unsuitable within another; and a particular project type suitable for one applicant may be unsuitable for another in light of the applicant's size and management capabilities, specialization, need for diversification, etc. Thus, per *Friends of the Earth v. Hintz*, 800 F.2d 822 (9th Cir. 1986) and other guidance, a proponent's business decisions must be considered as long as a reasonable range of alternatives exists, both within and outside of the selected project site.

Consistent with the Section 404(b)(1) Guidelines and the State Procedures, the applicant has defined its Overall Project Purpose in the geographically specific market area that includes sites within the Coliseum Area Specific Plan area and sites owned by EBMUD within an 8-mile radius of the project site. These areas are desirable for the proposed project due to their central location within the San Francisco Bay Area, proximity to public transportation, and proximity to the I-880 corridor, all attributes that would help in achieving the project objectives discussed in Section 1.2.2, Project Description. In this case, the market area contains 23 sites that could be evaluated as potential off-site alternatives (see Section 3.0).

3.0 OFF-SITE ALTERNATIVES SCREENING

This off-site analysis screened potential alternative project sites in order to answer the following fundamental questions as per the State Procedures and 40 CFR Section 230.10(a)(3):

- Whether there are practicable alternative sites that would not involve a discharge of fill to wetlands and other aquatic sites;
- Whether there are practicable alternative sites that would result in fewer impacts to wetlands and other aquatic sites than the applicant's project; and
- Whether there are practicable alternatives that do not have other significant adverse environmental consequences.

3.1 ANALYSIS APPROACH

The analysis approach entailed identification of parcels of land within the market area that have adequate size to accommodate the Overall Project Purpose and that were presumed as an initial matter to be available as alternative sites (i.e., not under public ownership). These parcels were then subjected to the two-tiered screening process described below to determine if the Overall Project Purpose could be achieved on these sites with fewer impacts to wetlands and other aquatic sites than the applicant's project.

The Section 404(b)(1) Guidelines and the State Procedures provide that an off-site alternative is "practicable" if it is available and capable of being built after taking into account (1) cost, (2) existing technology, and (3) logistics, in light of the Overall Project Purpose (40 CFR 230.10(a)(2)). LSA identified Level 1 and Level 2 screening criteria for off-site alternatives to assess each alternative using these three aspects of practicability. Any alternatives that passed the Level 1 and Level 2 screening would be considered potentially practicable alternatives.

None of the off-site alternatives evaluated by LSA passed Level 2 screening; therefore, no practicable off-site alternatives were found. The evaluation process and results of the evaluation are described below.

3.2 LEVEL 1 SCREENING RESULTS FOR OFF-SITE ALTERNATIVES

In order to locate potential off-site alternative locations, LSA reviewed the Coliseum Area Specific Plan area, land use maps, properties owned by EBMUD within an 8-mile radius of the project site, and aerial photography. For the Coliseum Specific Plan area, sites between 5 and 20 acres, not in public ownership at the present time, were subject to Level 1 screening. Public ownership included city, county, regional and state parks and recreation areas, open space or watershed lands, and cemeteries. All properties owned by EBMUD within an 8-mile radius of the project site with potentially developable area were also subject to Level 1 screening, regardless of size.

3.2.1 Level 1 Screening Criteria

Level 1 screening consisted of the following criteria:

- Location. The off-site alternatives must be located within the Coliseum Area Specific Plan area or, if owned by EBMUD, within an 8-mile radius of the project site to be consistent with the Overall Project Purpose. The Coliseum Area Specific Plan area, as shown in Figure 5, covers an approximately 800-acre area within the City of Oakland. The 8-mile radius for sites owned by EBMUD is reflected in the exhibit included in Appendix A. As described above, all alternatives needed to be within the Coliseum Area Specific Plan area on private, non-protected land and sized between 5 and 20 acres or on land owned by EBMUD within 8 miles of the project site.

- Parcel Size. The minimum parcel acreage reasonably capable of accommodating an office center, warehouse, distribution center, and pipe and materials storage area of the approximate size of the proposed project is approximately 5 acres. The maximum parcel size for practicably accommodating an office center, warehouse, distribution center, and pipe and materials storage area similar to the project is 20 acres. Sites larger than 20 acres could theoretically be purchased and later subdivided to create additional sites for sale. However, the upfront investment needed to purchase a parcel larger than what is required for a similar development project and the uncertainty associated with whether the parcel could be subdivided, as well as the cost associated with the subdivision process and the applicant's ability to sell the additional parcel(s) in order to recoup the upfront investment, would render any sites larger than 20 acres impracticable due to cost.

3.2.2 Level 1 Screening Results – Off-Site Alternatives

Within the Coliseum Area Specific Plan area, 14 parcels matched the location and parcel size screening criteria summarized above and were not under public ownership, as shown in Figure 5. These sites were then assessed according to the Level 2 Screening Criteria, as described below.

Nine undeveloped sites under the ownership of EBMUD that were identified as potential alternative project sites passed the Level 1 Screening Criteria, as shown in Appendix A. These sites were then assessed according to the Level 2 Screening Criteria, as described below.

3.3 LEVEL 2 SCREENING FOR OFF-SITE ALTERNATIVES

3.3.1 Level 2 Screening Criteria

The criteria discussed below were used for screening off-site locations that passed Level 1 screening. These criteria are considered negative screening criteria, because they reject potential project sites from further consideration. Sites that failed one or more of the Level 2 screening criteria were rejected as impracticable for the project's overall purpose and were excluded from further analysis.

3.3.1.1 Availability

As per the State Procedures and 40 CFR Section 230.10(a)(2) of the Guidelines, alternative sites must be available for acquisition and development consistent with the Overall Project Purpose. Property that is not under EBMUD ownership and/or not available for sale was excluded from further consideration based on the results of a September 2022 review of standard commercial real estate industry sources, including LoopNet[8] and Commercial Real Estate Exchange, Inc.[9] Within the Coliseum Area Specific Plan area, property for which development applications had been prepared at the time of market entry, or for which development applications were subsequently submitted, or are already approved, were excluded from further consideration. Information about development and planning applications was gathered from the City's Projects and Major Projects List webpages, which provide data on projects in the planning stages and under construction within the City.[10,11]

3.3.1.2 Incompatible Land Use Designation

The project is a commercial and industrial land use, and therefore it would only be permitted on land designated for commercial and industrial uses. In the Coliseum Area Specific Plan area, these City of Oakland Planning Code designations are "Business Mix," "Regional Commercial," and "Community Commercial." Within the portions of the Coliseum Area Specific Plan area that are within the boundaries of the Estuary Policy Plan, these land use designations include "Light Industry" and "General Commercial." All five of these designations would be suitable to accommodate the Overall Project Purpose of constructing an office center, warehouse, distribution center, and pipe and materials storage area. For the EBMUD-owned sites located outside of the City of Oakland and the Coliseum Area Specific Plan area, similar land use designations allowing for commercial and/or industrial uses would also be required to accommodate the proposed project.

Parcels within areas not designated for commercial and industrial land use (e.g., agricultural, open space, and residential land use designations) were excluded as non-practicable because changing the allowable land use would constitute a significant logistical constraint. Such parcels would require an amendment to the City's General Plan to allow the type and intensity of use required under the Overall Project Purpose. The General Plan amendment process requires extensive consultation with city planning staff, submittal of an application, CEQA documentation, environmental assessment, a public hearing before the planning commission, and an additional hearing before the city council, which considers the planning commission's recommendation. Further, proposed major changes in land use typically generate substantial public controversy from neighboring communities, often resulting in the proposed changes being rejected or significantly delayed. The combined effect of the length of time required to change General Plan land use designations, the costs associated with the amendment process, and the uncertainty of the outcome, all contribute to the logistical non-practicality of parcels with incompatible land use designations.

3.3.1.3 Access to Existing Infrastructure

Alternative sites were rejected as impracticable if they are not served by existing water and sewer lines and/or public road access, and would require inordinate expense to provide connection to such infrastructure. Development of a commercial/industrial project on such sites, consistent with the

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8 LoopNet. 2022. LoopNet Online Real Estate Marketplace. Website: https://www.loopnet.com/. Accessed September 27, 2022.

9 Commercial Real Estate Exchange, Inc. (CREXi). 2022. CREXi Online CRE Marketplace. Website: https://www.crexi.com/. Accessed September 27, 2022.

10 City of Oakland, 2022. City of Oakland Projects Website: https://www.oaklandca.gov/projects. Accessed on September 27, 2022.

11 City of Oakland, 2022. Oakland Planning Bureau/Major Projects List. Website: https://oakgis.maps.arcgis.com/apps/mapviewer/index.html?webmap=4ec2a2b79c7f4f689e04550d7d6fa5a9. Accessed On September 27, 2022.

Overall Project Purpose, would: 1) require substantial time to process rights of access that would allow off-site infrastructure improvements; 2) require substantial additional construction costs greatly in excess of what is required for the project for extending these services to the site; and 3) potentially have additional risk of impacts to sensitive resources, including waters of the State and/or State and federally-listed species.

3.3.2 Level 2 Screening Results

The 23 potential off-site alternatives that met the Level 1 screening criteria, as reflected in Figure 5 and Appendix A, were analyzed using the Level 2 criteria. These results are summarized below in Table B.

Table B: Results of Level 2 Off-Site Alternatives Screening

Site	Assessor's Parcel Number	Acreage	Screening Criteria			FAILS SCREENING CRITERIA
			Availability	Incompatible Land Use Designation	Infrastructure Requirements	
Sites Owned by EBMUD						
1	257-090-001	8.7		X	X	**X**
2	30-1835-1-1	7.6		X		**X**
3	257-180-064	6.7		X	X	**X**
4	257-210-014	5.7		X	X	**X**
5	48C-7184-16	6.9		X		**X**
6	438-10-8-1	5.9		X		**X**
7	79-20-22-1	6.3		X		**X**
8	257-020-003	5.1		X	X	**X**
9	257-031-015	6.8		X	X	**X**
Sites within the Coliseum Area Specific Plan						
10	41-3902-3-17	18.8	X			**X**
11	41-3902-3-13	9.3	X			**X**
12	41-3902-16-3	7.8	X			**X**
13	41-3902-16-1	9.3	X			**X**
14	41-4209-6	5.7	X			**X**

Table B: Results of Level 2 Off-Site Alternatives Screening

Site	Assessor's Parcel Number	Acreage	Screening Criteria			FAILS SCREENING CRITERIA
			Availability	Incompatible Land Use Designation	Infrastructure Requirements	
15	42-4435-1-11	10.6	X			**X**
16	42-4328-8-1	6.6	X			**X**
17	42-4435-4-14	5.4	X			**X**
18	42-4425-24	12.3	X			**X**
19	42-4415-3-14	18	X			**X**
20	42-4415-3-11	7.9	X			**X**
21	42-4415-3-13	8	X			**X**
22	42-4425-13-3	5.9	X			**X**
23	42-4420-3-7	6	X			**X**

3.4 SUMMARY OF OFF-SITE ALTERNATIVES SCREENING

Results of the off-site alternatives screening demonstrate that there are no practicable off-site alternatives to the project site within the market area. Within the Coliseum Area Specific Plan area, 14 parcels matched the location and parcel size screening criteria summarized above, as shown in Figure 5. However, all parcels are currently developed and none are currently available for sale based on the results of a September 2022 review of standard commercial real estate industry sources, including LoopNet[12] and Commercial Real Estate Exchange, Inc.[13] All parcels within the Coliseum Area Specific Plan area that were over 20 acres are under public ownership. Therefore, there are no feasible alternative sites for the proposed project within the Coliseum Area Specific Plan area.

All of the properties under EBMUD ownership are available for lease to SupplyBank.org; however, none of them permit office/warehouse buildings or laydown facilities as shown in Appendix A. Furthermore, Sites 1, 3, 4, 8, and 9 are located in remote areas that do not have adequate infrastructure to support the proposed office center, warehouse, distribution center, and pipe and materials storage area.

12 LoopNet. 2022. Op. cit.
13 CREXi. 2022. Op. cit.

LSA

FIGURE 5

LEGEND

Project Site

Privately-owned Parcel between 5 and 20 acres

Coliseum Area Specific Plan

0 500 1000

FEET

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Off-Site Alternatives Within the Coliseum Area Specific Plan Area

SOURCE: Microsoft Bing Aerial Imagery (2022).

I:\TER2202\GIS\Maps\Alternatives Analysis\Figure 7_Off-Site Alternatives within the Coliseum Area SP Area.mxd (10/12/2022)

4.0 ON-SITE ALTERNATIVES SCREENING

The project team examined two design alternatives to the project consistent with the Overall Project Purpose. The purpose of these investigations was to determine if a practicable alternative project design could attain the Overall Project Purpose while resulting in fewer impacts to jurisdictional waters of the State than the project and while also avoiding other significant adverse environmental consequences, as per the State Procedures and 40 CFR Section 230.10(a)(3).

The Section 404(b)(1) guidelines and the State Procedures provide that an alternative is "practicable" if it is capable of being implemented, taking into account (1) cost, (2) technology, and (3) logistics, in light of the overall project purpose (40 CFR Section 230.10(a)(2)).

4.1 DESCRIPTIONS OF ALTERNATIVES

The project team evaluated three on-site alternatives consistent with the Overall Project Purpose. The alternative designs entailed various approaches for avoiding impacts to jurisdictional waters by modifying or reducing the development footprint of the project.

While the total developed area for each of these alternatives varies, all alternatives retain the concept of an office center, warehouse, distribution center, and pipe and materials storage area. Salient features of each alternative are discussed below.

4.1.1 Alternative 1 – Applicant's Preferred Project

Alternative 1 is the applicant's preferred proposed project as described in Section 1.2.2 and as shown on Figures 3a and 3b. This alternative would entail the construction of an office building, warehouse building, and a warehouse and corporation yard with internal circulation, landscaping, and parking. In the central and southern portion of the property, an approximately 160,000 square-foot office building and a 123,000 square-foot warehouse building would be constructed. In the northern portion of the property, an EBMUD warehouse and corporation yard would be constructed consisting of a 10,000 square-foot workshop, a 57,000 square-foot pipe and materials storage rack structure, and an approximately 28,000 square-foot storage bin used to store and source a variety of building materials. The proposed project would include three new vehicle entry points, an internal circulation loop, parking, and City required improvements on Oakport Street, including street widening, street frontage planter, curb and gutter, and concrete sidewalk. Various bio-retention facilities would also be installed throughout the site that would be sized appropriately to meet or exceed the minimum treatment area required.

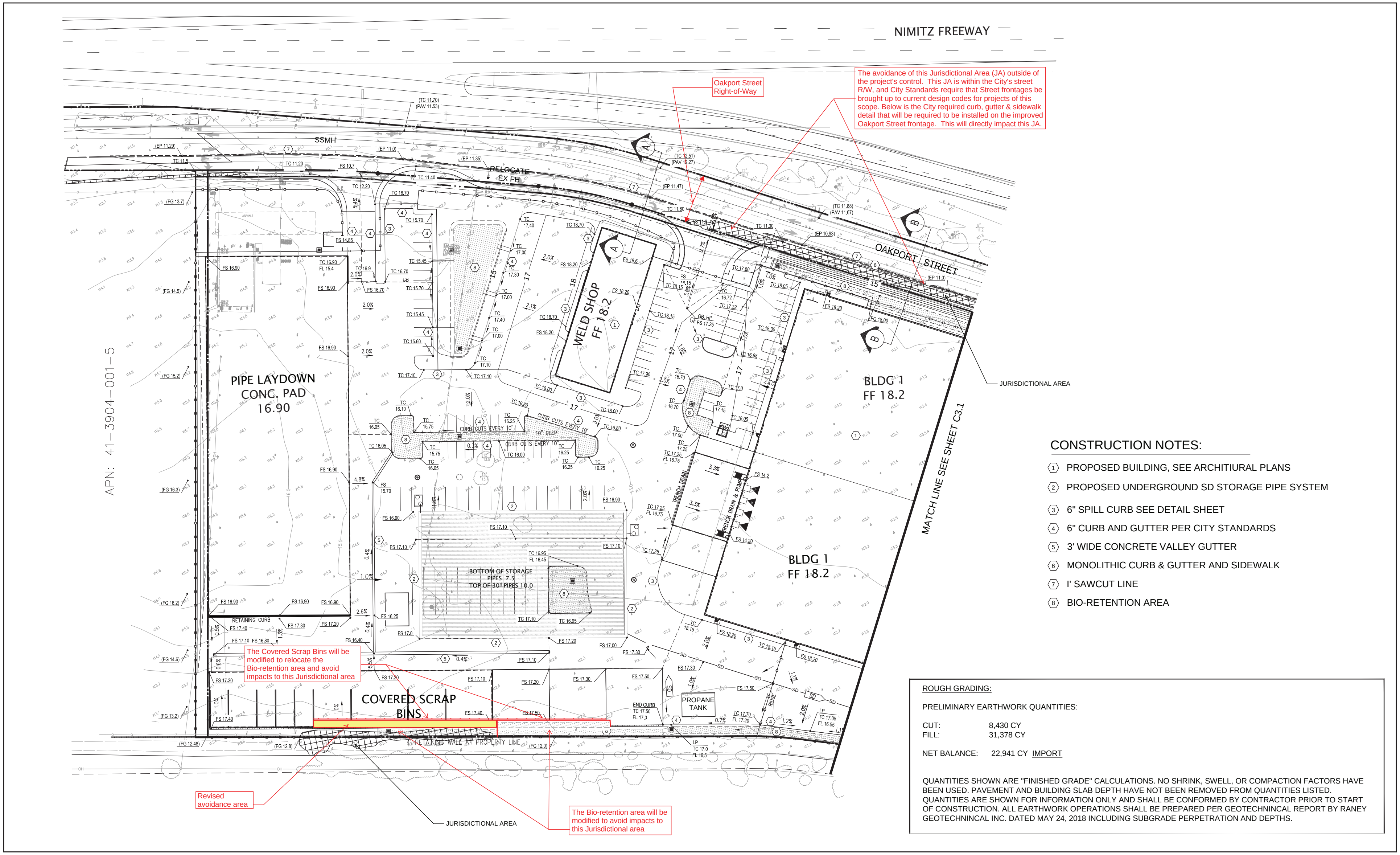
Alternative 1 would result in approximately 0.455 acre of permanent impacts to wetlands and other waters subject to RWQCB jurisdiction as a result of the development of retaining walls, a bio-retention area, and covered scrap bins along the northwestern property boundary of the project site; a bio-retention area and retaining wall along the southern project boundary; and the completion of City required improvements to Oakport Street, including street widening, street frontage planter, curb and gutter, and a concrete sidewalk. Impacts to 0.240 acre of potential seasonal wetlands in the central portion of the site, as previously delineated by WRA and graded during maintenance activities outside of the applicant's control, are also included in the permanent impact total.

4.1.2 Alternative 2 – Partial Avoidance Along Oakport Street

Alternative 2 tests the practicability of avoiding impacts to seasonal wetland ditches WDD-02 through WDD-06, seasonal wetland puddle C, and other waters of the State including culverts -02 and -03 and the RWQCB-determined channel along Oakport Street by excluding the completion of the proposed improvements to Oakport Street, including street widening, street frontage planter, curb and gutter, and a concrete sidewalk. Under this alternative, all other project components would be similar to the proposed project, including the construction of an office building, warehouse building, and a warehouse and corporation yard with internal circulation, landscaping, and parking. Alternative 2 would result in permanent impacts to 0.324 acre of wetlands as a result of the development of retaining walls, a bio-retention area, and covered scrap bins along the northwestern property boundary of the project site; and a bio-retention area and retaining wall along the southern property boundary. Impacts to 0.240 acre of potential seasonal wetlands in the central portion of the site, as previously delineated by WRA and graded during maintenance activities outside of the applicant's control, are also included in the permanent impact total. Compared to Alternative 1, the Applicant's Preferred Project, Alternative 2 would result in a 29 percent reduction of impacts to wetlands and other waters of the State.

4.1.3 Alternative 3 – Partial Avoidance Along Western and Southern Property Boundaries

Alternative 3 (Figures 6a and 6b) tests the practicability of avoiding impacts to seasonal wetlands CD-01 and SW-1 in the western and southern areas of the project site by modifying and relocating the bio-retention areas, retaining walls, and covered scrap bins. Under this alternative, all other project components would be similar to the proposed project, including the construction of an office building, warehouse building, and a warehouse and corporation yard with internal circulation, landscaping, parking, and completion of required improvements to Oakport Street, including street widening, street frontage planter, curb and gutter, and a concrete sidewalk. Alternative 3 would result in permanent impacts to 0.371 acre of wetlands and other waters of the State as a result of the completion of required improvements to Oakport Street (0.131 acre) and accounting for the previously delineated seasonal wetlands that were graded during maintenance activities (0.240 acre). Compared to Alternative 1, the Applicant's Preferred Project, Alternative 3 would result in an 18 percent reduction of impacts.



LSA

FIGURE 6a

N

0 80 160
FEET

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Alternative 3 - Partial Avoidance Along Western and Southern Property Boundaries

SOURCE: Ware Malcomb

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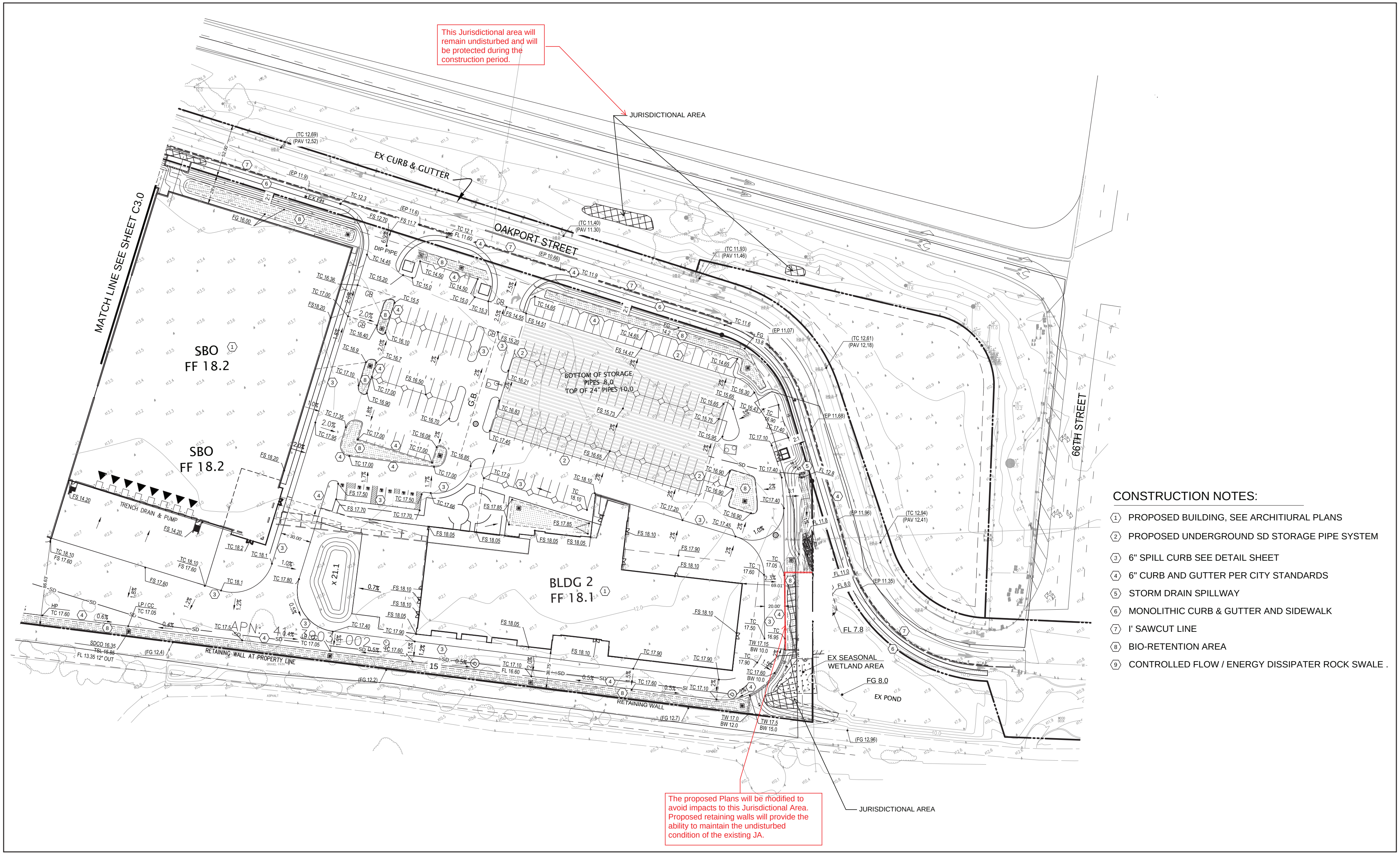

LSA

FIGURE 6b

N

0 80 160
FEET

SOURCE: Ware Malcomb

SupplyBank.org Office and Distribution Center Project
Oakland, Alameda County, California

Alternative 3 - Partial Avoidance Along Western and Southern Property Boundaries

I:\TER2202\G\Alternative 3_Partial Avoidance A&B.ai (10/20/2022)

4.2 ANALYSIS OF ON-SITE ALTERNATIVES

The on-site alternatives analysis focused on identifying the practicable alternative with the least damage to the aquatic environment. On-site alternatives were tested for their consistency with the Overall Project Purpose and for practicability from the standpoints of cost, logistics, technology, and the potential for other significant adverse environmental consequences. Practicable alternatives were then compared to determine the LEDPA.

4.2.1 Consistency with Overall Project Purpose

Under the Section 404(b)(1) Guidelines and Procedures, an applicant is only required to consider alternatives that would attain the Overall Project Purpose (see Section 2.2). Alternatives that would not attain the Overall Project Purpose are assumed *a priori* to be impracticable alternatives. As described in Section 2.2, the Overall Project Purpose is to construct a nonprofit office center, warehouse, distribution center, and pipe and materials storage area to support SupplyBank.org and EBMUD operations consistent with the Coliseum Area Specific Plan.

4.2.2 Practicability Screening Criteria

The comparison criteria are those required under 40 CFR §230 for determining the LEDPA.

- **Cost Screening Criteria.** The 404(b)(1) Guidelines consider an alternative to be impracticable if the projected costs are substantially greater than the costs normally associated with the particular type of project (see preamble to the Guidelines "Economic Factors" in 45 FR 85343, 12/24/80 and Corps Regulatory Guidance Letter 93-02). If an alternative would cause the development costs to increase substantially and/or result in an unreasonable expense to the applicant, then the alternative may be considered impracticable under the Guidelines.

  For the purposes of this analysis, project costs are considered to be the fundamental expenditures to construct the project. The financial costs borne by the developer include on- and off-site improvements costs (e.g., grading, roads, water, sewer, storm drainage, etc.), engineering and design costs, and development and permit fees. The costs associated with the applicant's preferred project (Alternative 1) are considered the baseline against which the other alternatives could be compared. Any alternative that would significantly increase project costs beyond the applicant's preferred alternative would result in a project too costly to be practicable under the Guidelines and State Procedures.

- **Logistical Screening Criteria.** Logistical considerations may affect the practicability of an alternative in light of the project's overall purpose. Logistical barriers associated with construction, operation, or maintenance of the project could include permitting constraints, City requirements, health and safety constraints, or legal and land use constraints. For the proposed project, alternatives may face logistical constraints related to City of Oakland regulations or requirements, Coliseum Area Specific Plan design standards, policies, and/or binding contractual agreements regarding land use and zoning. If such logistical barriers are likely to result in City disapproval of an alternative, then they can be considered a legitimate reason to consider the alternative impracticable.

- **Technological Screening Criteria.** In a practicability analysis, an assessment of existing technology typically involves an evaluation of available engineering and construction methods and techniques. The technology employed to construct, operate, or maintain an alternative must be adequate to ensure that the Overall Project Purpose can be reasonably met.

- **Other Significant Adverse Environmental Consequences.** An alternative is not the LEDPA where it may cause other significant adverse environmental consequences (e.g., impacts to biological resources, including rare and threatened or endangered species, cultural resources, floodplain effects, etc.).

4.2.3 Screening Results - On-Site Alternatives

The results of the on-site alternatives screening are described below.

4.2.3.1 Alternative 1 – Proposed Project

Alternative 1, the proposed project, is practicable in terms of cost, logistics, and technology. Alternative 1 provides a baseline against which the other alternatives were compared (see Section 4.1).

4.2.3.2 Alternative 2 – Partial Avoidance Along Oakport Street

Alternative 2 is practicable in terms of cost and technology, but not in terms of logistics. Under this alternative, the completion of improvements to Oakport Street including street widening, street frontage planter, curb and gutter, and a concrete sidewalk would be excluded from the proposed project, reducing impacts to seasonal wetland ditches WDD-02 through WDD-06, seasonal wetland puddle C, and other waters of the State including culverts -02 and -03 and the RWQCB-determined channel. However, the City of Oakland has full jurisdiction over the proposed improvements along Oakport Street and is requiring that the applicant implement these improvements as part of the project consistent with City design and development standards. Thus, Alternative 2 would fail the logistics criterion, as this alternative would be rejected by the City.

In summary, Alternative 2 is rejected because it would be impracticable from a logistics standpoint due to City requirements.

4.2.3.3 Alternative 3 – Partial Avoidance Along Western and Southern Property Boundaries

Alternative 3 is practicable in terms of cost, technology, and logistics. Under this alternative, impacts to seasonal wetlands CD-01 and SW-1 in the western and southern areas of the project site would be avoided by modifying and relocating bio-retention areas, retaining walls, and covered scrap bins. All other project components would be similar to the proposed project, including the construction of an office building, warehouse building, and a warehouse and corporation yard with internal circulation, landscaping, parking, and completion of required improvements to Oakport Street, including street widening, street frontage planter, curb and gutter, and a concrete sidewalk. Alternative 3 would result in an 18 percent reduction of impacts compared to Alternative 1 (i.e., 0.371 acre versus 0.455 acre).

In summary, Alternative 3 is consistent with the Overall Project Purpose and practicable in terms of cost, technology, and logistics.

4.3 DETERMINATION OF PRACTICABILITY AND THE LEAST ENVIRONMENTALLY DAMAGING ALTERNATIVE

Based on the analysis of the on-site alternatives, Alternative 2 was determined to be impracticable because it failed the logistical screening criteria, per 40 CFR Section 230.10(a)(2), due to this Alternative's inconsistency with City requirements. Alternatives 1 and 3 were both determined to be consistent with the Overall Project Purpose and practicable from a cost, logistics, and technological standpoint. However, Alternative 3 would result in less impact to potential waters of the State when compared with Alternative 1. Therefore, Alternative 3, Partial Avoidance Along Western and Southern Property Boundaries, is determined to be the LEDPA and is the proposed project reflected in the current application for WDRs.

5.0 REFERENCES

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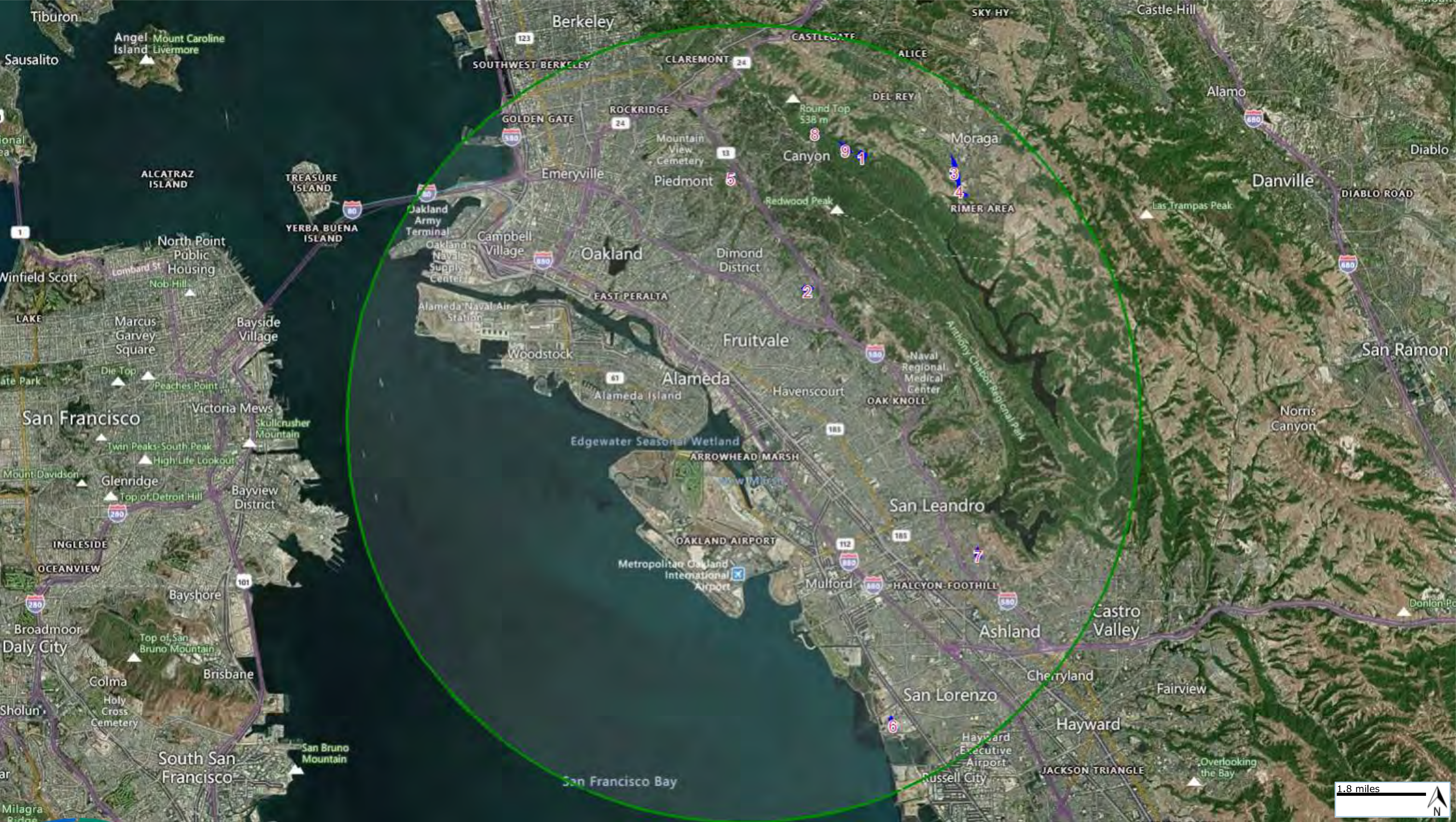
APPENDIX A

EBMUD-OWNED SITES WITHIN AN 8-MILE RADIUS


Berkeley
Tiburon
Angel Island
Mount Caroline Livermore
Sausalito
SOUTHWEST BERKELEY
CLAREMONT
CASTLEGATE
ALICE
SKY HY
Castle Hill
Alamo
DEL REY
Round Top 538 m
ROCKRIDGE
GOLDEN GATE
Mountain View Cemetery
Moraga
Canyon
Diablo
ALCATRAZ ISLAND
TREASURE ISLAND
YERBA BUENA ISLAND
Emeryville
Piedmont
Danville
DIABLO ROAD
Redwood Peak
RIMER AREA
Las Trampas Peak
Oakland Army Terminal
Campbell Village
Oakland
Dimond District
North Point Public Housing
Lombard St
Nob Hill
Winfield Scott
Oakland Naval Supply Center
EAST PERALTA
LAKE
Marcus Garvey Square
Bayside Village
Alameda Naval Air Station
Fruitvale
Woodstock
Naval Regional Medical Center
San Ramon
Die Top
Peaches Point
Alameda
Alameda Island
Havenscourt
OAK KNOLL
Anthony Chabot Regional Park
Victoria Mews
San Francisco
Skullcrusher Mountain
Norris Canyon
Twin Peaks-South Peak
High Life Lookout
Edgewater Seasonal Wetland
ARROWHEAD MARSH
Mount Davidson
Glenridge
Top of Detroit Hill
Bayview District
San Leandro
INGLESIDE
OCEANVIEW
OAKLAND AIRPORT
Metropolitan Oakland International Airport
Mulford
HALCYON-FOOTHILL
Bayshore
Castro Valley
Ashland
Broadmoor
Daly City
Top of San Bruno Mountain
Brisbane
Cherryland
Colma
Holy Cross Cemetery
Fairview
San Lorenzo
Sholun
Hayward
Hayward Executive Airport
South San Francisco
San Bruno Mountain
Russell City
JACKSON TRIANGLE
Overlooking the Bay
San Francisco Bay
Milagra Ridge
Donlon Point
1
2
3
4
5
6
7
8
9
1.8 miles
N
EBMUD

1

SITE ADDR		**SITE CITY**	CANYON	**SITE ZIP**	94516
APN	257-090-001	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY	**ASSESSED VALUE**	17904
LOT ACREAGE	8.7467	**LOT SQUARE FEET**	381006	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	GOVERNMENTAL, PUBLIC				

While vacant land is associated with this property, the site is designated for watershed use only. No office/warehouse building or laydown facilities are permitted.

2

SITE ADDR	39TH AV	**SITE CITY**	OAKLAND	**SITE ZIP**	94619
APN	30-1835-1-1	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY DISTRICT	**ASSESSED VALUE**	
LOT ACREAGE	7.56	**LOT SQUARE FEET**	329167	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	MISCELLANEOUS, MISCELLANEOUS				

Property is developed with the 39th Avenue Reservoir. While there is some developable area remaining, no office/warehouse building or laydown facilities are permitted.

3

SITE ADDR	CANYON RD	**SITE CITY**	MORAGA	**SITE ZIP**	94556
APN	257-180-064	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY	**ASSESSED VALUE**	82123
LOT ACREAGE	6.74	**LOT SQUARE FEET**	293594	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	GOVERNMENTAL, PUBLIC				

While vacant land is associated with this property, the site is designated for watershed use only. No office/warehouse building or laydown facilities are permitted.

4

SITE ADDR	CANYON RD	**SITE CITY**	MORAGA	**SITE ZIP**	94556
APN	257-210-014	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY	**ASSESSED VALUE**	91720
LOT ACREAGE	5.69	**LOT SQUARE FEET**	247856	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	GOVERNMENTAL, PUBLIC				

While vacant land is associated with this property, the site is designated for watershed use only. No office/warehouse building or laydown facilities are permitted.

5

SITE ADDR	ESTATES DR	**SITE CITY**	OAKLAND	**SITE ZIP**	94603
APN	48C-7184-16	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY DISTRICT	**ASSESSED VALUE**	
LOT ACREAGE	6.88	**LOT SQUARE FEET**	299503	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	MISCELLANEOUS, MISCELLANEOUS				

Property is developed with the Estates Number 1 Reservoir. While there is some developable area remaining, no office/ warehouse building or laydown facilities are permitted.

6

SITE ADDR	GRANT AVE	**SITE CITY**	SAN LORENZO	**SITE ZIP**	94580
APN	438-10-8-1	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY DISTRICT	**ASSESSED VALUE**	
LOT ACREAGE	5.89	**LOT SQUARE FEET**	256424	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	MISCELLANEOUS, MISCELLANEOUS				

Property developed with the Bayside Groundwater Well. While there is some developable area remaining, no office/ warehouse building or laydown facilities are permitted.

7

SITE ADDR	MARINEVIEW DR	**SITE CITY**	SAN LEANDRO	**SITE ZIP**	94577
APN	79-20-22-1	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY DISTRICT	**ASSESSED VALUE**	
LOT ACREAGE	6.34	**LOT SQUARE FEET**	276013	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	MISCELLANEOUS, MISCELLANEOUS				

Property developed with the Van Reservoir.
While there is some developable area remaining, no office/ warehouse building or laydown facilities are permitted.

8

SITE ADDR	PINEHURST RD	**SITE CITY**	CANYON	**SITE ZIP**	94516
APN	257-020-003	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY	**ASSESSED VALUE**	7076
LOT ACREAGE	5.14	**LOT SQUARE FEET**	223898	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	GOVERNMENTAL, PUBLIC				

While vacant land is associated with this property, the site is designated for watershed use only. No office/warehouse building or laydown facilities are permitted.

9

SITE ADDR	PINEHURST RD	**SITE CITY**	CANYON	**SITE ZIP**	94516
APN	257-031-015	**OWNER NAME 1**	EAST BAY MUNICIPAL UTILITY	**ASSESSED VALUE**	9205
LOT ACREAGE	6.8	**LOT SQUARE FEET**	296208	**STANDARD USE CODE CATEGORY DESC**	MISCELLANEOUS
STANDARD USE CODE DESC	GOVERNMENTAL, PUBLIC				

While vacant land is associated with this property, the site is designated for watershed use only. No office/warehouse building or laydown facilities are permitted.

EBMUD

Appendix K

Cultural Resources Inventory Report for the SupplyBank Project

SWCA Environmental Consultants, September 2022

Cultural Resources Inventory Report for the SupplyBank Project, Oakland, Alameda County, California

JANUARY 2023

PREPARED FOR

Lamphier-Gregory

PREPARED BY

SWCA Environmental Consultants

CULTURAL RESOURCES INVENTORY REPORT FOR THE SUPPLYBANK PROJECT, OAKLAND, ALAMEDA COUNTY, CALIFORNIA

Prepared for

Lamphier-Gregory
4100 Redwood Road, STE 20A - #601
Oakland, CA 94916
Attn: Scott Gregory, President

Prepared by

Christina Alonso, M.A., RPA, Kerry Boutte, M.A., RPA, and Brandon Foster, M.A.

Principal Investigator

Joshua Peabody, M.S., RPA

SWCA Environmental Consultants
60 Stone Pine Road, Suite 100
Half Moon Bay, California 94019
(650) 440-4160
www.swca.com

SWCA Project No. 74496

SWCA Cultural Resources Report No. 22-609

January 2023

Archaeological and other heritage resources can be damaged or destroyed through uncontrolled public disclosure of information regarding their location. This document contains sensitive information regarding the nature and location of archaeological sites, which should not be disclosed to the general public or unauthorized persons.

Information regarding the location, character, or ownership of a cultural resource is exempt from the Freedom of Information Act pursuant to 54 USC 307103 (National Historic Preservation Act) and 16 USC Section 470(h) (Archaeological Resources Protections Act)

MANAGEMENT SUMMARY

Purpose and Scope: SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project) on East Bay Municipal Utility District (EBMUD) properties located at 5601 Oakport Street in the city of Oakland. SWCA understands that the East Bay Municipal Utility District (EBMUD) owns two adjacent properties— Parcel 1 (to the south) is approximately 15.7 acres, and Parcel 2 (to the north) is approximately 28.9 acres in size. SupplyBank.Org (SupplyBank) seeks to acquire the rights to develop Parcel 1 and approximately 2 acres of Parcel 2 through a parcel map waiver. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space including an office building, a warehouse, and a weld shop. The intent of this cultural resources inventory report is to identify potential cultural resources within and adjacent to the project area and, in turn, assist in the project's requirements to achieve California Environmental Quality Act (CEQA) compliance.

Dates of the Investigation: SWCA sent a records search request with a 0.25-mile buffer around the project area to the California Historical Resources Information System (CHRIS) Northwest Information Center (NWIC) on July 15, 2022. The records search results (NWIC File No. 22-0099) were received on August 17, 2022, indicating that there are no previously recorded cultural resources in the project area. SWCA performed an intensive archaeological survey of the project area on August 25, 2022. SWCA contacted the California Native American Heritage Commission (NAHC) on July 15, 2022, requesting a search of its Sacred Lands File for traditional cultural resources. SWCA sent letters to NAHC-identified Native American contacts via email on August 30, 2022, with hard copies following by regular mail on September 1, 2022. Follow-up telephone calls were made on September 2, 2022. Native American outreach performed as part of this review does not constitute formal consultation. Chairperson Irene Zwierlein of the Amah Mutsun Band of Mission San Juan Bautista requested on-site worker sensitivity training for both tribal and archaeological resources detailing who to contact in the event of an inadvertent discovery. Chairperson Corrina Gould of the Confederated Villages of Lisjan requested the CHRIS results and final report. The remainder of the telephone calls went unanswered.

Investigation Constraints: None.

Number and Types of Identified Cultural Resources: There are no previously recorded cultural resources within the project area, and no resources were reported during intensive archaeological survey.

Report Format: The format of this report follows *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format* (California Office of Historic Preservation [OHP] 1990).

Conclusions: There are no previously recorded cultural resources and no newly identified cultural resources within the project area. With implementation of conditions to comply with regulatory compliance measures related to the inadvertent discovery of archaeological resources and human remains, SWCA finds that the proposed project will have a less-than-significant impact on cultural resources under CEQA.

Recommendations: No cultural resources were noted on the ground surface during the intensive archaeological pedestrian survey. However, the possibility of encountering cultural resources during excavation remains. If cultural materials are uncovered during project work, the Inadvertent Discovery procedures provided at the end of this report should be followed.

Disposition of Data: This report will be filed with the NWIC and Half Moon Bay, California, office of SWCA. Field notes, photographs, and records related to the current study are on file at SWCA's Half Moon Bay office.

CONTENTS

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INTRODUCTION

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project) located at 5601 Oakport Street in the city of Oakland, Alameda County, California (Figure 1 and Figure 2). SWCA understands that the East Bay Municipal Utility District (EBMUD) owns two adjacent properties— Parcel 1 (to the south) is approximately 15.7 acres, and Parcel 2 (to the north) is approximately 28.9 acres in size. SupplyBank.Org seeks to acquire the rights to develop Parcel 1 and approximately 2 acres of Parcel 2 through a parcel map waiver. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet (sf) of building space, including an office building, a warehouse, and a weld shop.

The purpose of the current study was to identify, evaluate, and record any cultural resources that may be present within the project area. SWCA archaeologist Brandon Foster, M.A., conducted the fieldwork for this project, and SWCA archaeologists Kerry Boutte, M.A., RPA coauthored the report. These efforts were carried out under the direction of and reviewed for quality assurance/quality control by SWCA Senior Project Manager Christina Alonso, M.A., Registered Professional Archaeologist (RPA) and Cultural Resources Principal Investigator Joshua Peabody, M.A., RPA, who meets and exceeds the requirements of the Secretary of the Interior (SOI) Professional Qualification Standards in Archaeology (National Park Service 1983). All work was completed to achieve California Environmental Quality Act (CEQA) compliance as it relates to cultural resources.

Project Description and Location

The project site falls within the Coliseum industrial neighborhood of East Oakland, north of the Oakland Airport Business Park and within the planning area of the City of Oakland's Coliseum Area Specific Plan (see Figure 2). The project site is adjacent to Interstate 880 (I-880), and a portion of the project area forms the shoreline of the Oakland Estuary/San Leandro Bay. The site is approximately 0.25 mile northwest of the Oracle Arena/Oakland Coliseum, approximately 0.7 mile west of the Coliseum Bay Area Rapid Transit District (BART) Station, and approximately 3 miles northeast of the Oakland International Airport terminal.

Access to the site is provided primarily from I-880 via the westbound Zhone Way/66th Avenue interchange. The project site is within the northwest quadrant of this interchange, adjacent to the southbound off-ramp at Zhone Way. Westbound Zhone Way terminates just before the Oakland Estuary/San Leandro Bay at Oakport Street, and the project site fronts onto Oakport Street at this location.

The Project site involves two parcels, both of which are owned by EBMUD. Parcel 1 is the primary Project site and Parcel 2 is the adjacent property (see Figure 2), a portion of which is proposed to be combined into Parcel 1 to make it a larger site.

Project Description: Parcel 1

The approximately 15.7-acre parcel (Assessor's Parcel Number [APN] 41-3903-2-8) fronts Oakport Street along the eastern perimeter and Oakport Street/Zhone Way to the southeastern perimeter. The property, is a vacant site with perimeter fencing, and no internal improvements. EBMUD permits this property to be used as a temporary circus grounds during the summer and for other seasonal outdoor use, such as Christmas tree sales or pumpkin sales, but generally the property remains vacant.

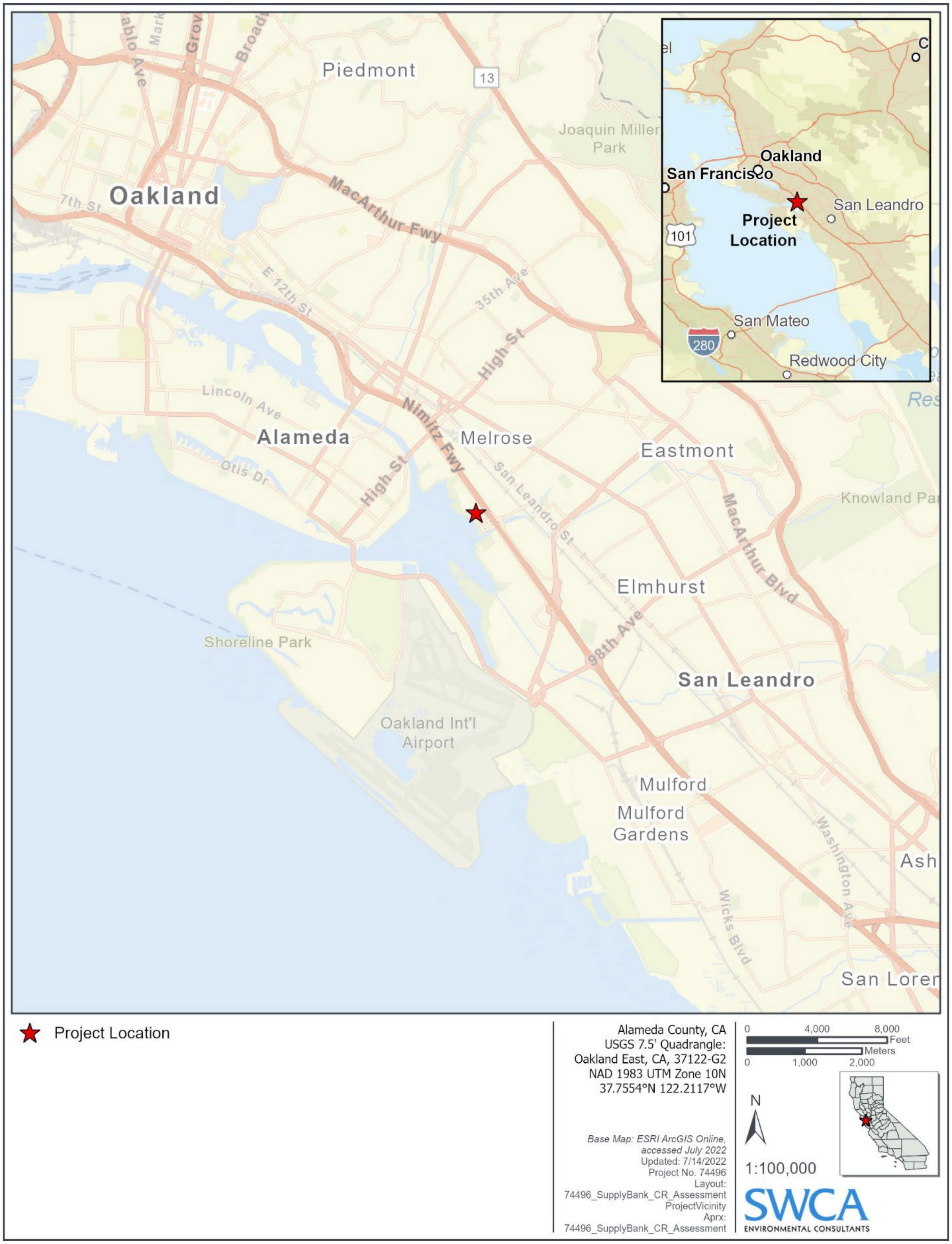

Figure 1. Project location map.

Figure 2. Project area map.

The development plan for Parcel 1 includes construction of four new buildings as well as on-site improvements to landscaping, parking, and the frontage. A new 85-foot high, five-story, 160,000-square-foot office building would be constructed at the southernmost portion of Parcel 1. A new 123,000-square-foot warehouse would be constructed in the middle portion of Parcel 1. A small (approximately 10,000-square-foot) weld shop would be constructed on the north-central portion of Parcel 1. An additional structure to be added to Parcel 1 would be an approximately 26,000-square-foot pipe and materials storage rack structure. A 12,000-square-foot storage bin will be added to the project area and used to store and source a variety of building materials, such as sorted sands and gravels. This storage bin facility would be placed along the northwestern property boundary and would replace the similar storage bins currently located on Parcel 2.

The project will also provide various landscaping including 58 trees around all of the buildings and within the surface parking lots. The project's office building would include a rooftop terrace.

Three additional new curb cuts would be added along Oakport Street to improve vehicle access, and a fourth curb cut would provide a separate entrance to the office building's surface parking lot. Parking will be provided at a number of surface parking lots throughout the site. The primary parking lot for the office building would be at the front of the building and would include 208 parking spaces, including five Americans with Disabilities Act (ADA)-accessible spaces adjacent to the office building entry. A secondary surface parking lot between the warehouse and the weld shop will provide an additional 48 parking spaces, and an additional secondary surface parking lot at the rear of the site would provide an additional 48 parking spaces. Approximately 12 larger truck parking spaces would be provided in front of the materials storage bins. The project also includes the installation of new curb, gutter, and sidewalks along the Parcel 1 frontage in Oakport Street.

REGULATORY FRAMEWORK

This regulatory framework section identifies the state and local laws, statutes, guidelines, and regulations that govern the identification and treatment of cultural resources, as well as the analysis of potential impacts to cultural resources. The lead agency must consider the provisions and requirements of this regulatory framework when rendering decisions on projects that have the potential to affect cultural resources.

State Regulations

The California Office of Historic Preservation (OHP), a division of the California Department of Parks and Recreation (DPR), is responsible for carrying out the duties described in the California Public Resources Code (PRC) and maintaining the California Register of Historical Resources (CRHR). The state-level regulatory framework also includes CEQA, which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical and archaeological resources.

California Environmental Quality Act

CEQA requires a lead agency to analyze whether historical and/or archaeological resources may be adversely affected by a proposed project. Under CEQA, a "project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment" (PRC Section 21084.1). Answering this question is a two-part process: first, the determination must be made as to whether the proposed project involves cultural resources. Second, if cultural resources are present, the proposed project must be analyzed for a potential "substantial adverse change in the significance" of the resource.

HISTORICAL RESOURCES

According to State CEQA Guidelines Section 15064.5, for the purposes of CEQA, historical resources are as follows:

- A resource listed in, or formally determined eligible…for listing in the CRHR (PRC Section 5024.1; Title 14 California Code of Regulations [CCR] Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k), or identified as significant in a historic resources survey meeting the requirements of Section PRC 5024.1(g).
- Any object, building, structure, site, area, place, record, or manuscript that the lead agency determines to be eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing in the CRHR (as defined in PRC Section 5024.1; 14 CCR Section 4852).

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined above) does not meet the National Register of Historic Places (NRHP) criteria may still be eligible for listing in the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be a historical resource (PRC Section 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (State CEQA Guidelines Section 15064.5(b)).

Substantial Adverse Change and Indirect Impacts to Historical Resources

The State CEQA Guidelines specify that a "substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" or eligibility for inclusion in the NRHP, the CRHR, or a local register. In addition, pursuant to State CEQA Guidelines Section 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

Pursuant to State CEQA Guidelines Section 15378, study of a project under CEQA requires consideration of "the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." State CEQA Guidelines Section 15064(d) further defines direct and indirect impacts as follows:

(1) A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project.

(2) An indirect physical change in the environment is a physical change in the environment, which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes

another change in the environment, then the other change is an indirect physical change in the environment.

(3) An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project. A change which is speculative or unlikely to occur is not reasonably foreseeable.

ARCHAEOLOGICAL RESOURCES

In terms of archaeological resources, PRC Section 21083.2(g) defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a proposed project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2(a)–(c)). CEQA notes that, if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered to be a significant effect on the environment (State CEQA Guidelines Section 15064.5(c)(4)).

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the NRHP, and California Historical Landmarks numbered 770 and higher are automatically listed in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs may be nominated for listing in the CRHR. According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

As previously stated, resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance, and resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

PROJECT SETTING

Environmental Setting

The project area is located just inland from San Leandro Bay, which is located within the larger San Francisco Bay, and is formed by the shorelines of Oakland, Alameda, and Bay Farm Island. The project is also part of the 1.3-square-mile San Leandro Bay watershed, which drains the inland shoreline areas of urban Oakland from the mouths of Elmhurst to Sausal Creeks. The entirety of the project area was reclaimed sometime in the late 1940s. At that time, the project area was likely filled with urban rubble and dredge sand like other portions of the bay that were reclaimed (Resilient by Design 2018). Prior to this event, San Leandro Bay was dominated by tidal marsh that gave way to seasonal wetlands inland. Beach and sand dunes that formed the original shoreline date to the late Quaternary period.

In recent years, portions of the marsh and seasonal wetlands have been restored. Certain parking lots have since been converted to seasonal wetlands of saltgrass (*Distichlis spicata*) and pickleweed (*Sarcocornia pacifica*), while tidal areas now contain gum plant (*Grindelia* sp.), saltgrass, pickleweed, and cordgrass (*Spartina foliosa*). Cordgrass is also prevalent along tidal sloughs and channels, and saltgrass is returning along the inland rim of the marsh (Alameda County Flood Control & Water Conservation District 2022).

Cultural Setting

The following sections provide background for the cultural and historical contexts of the project area, including a synopsis of the archaeological record in the greater region, summary of available ethnographic literature and current status for tribal groups and native inhabitants of the region, and a summary of regional and local histories.

Prehistoric Overview

The project is situated in what is generally described as the San Francisco Bay Region, which is one of eight arbitrary organizational divisions of the state (Moratto 1984). This region includes all of today's San Francisco, San Mateo and Marin Counties and portions of Alameda, Contra Costa, Napa, Santa Clara, Santa Cruz, Solano, and Sonoma Counties. Beginning in 1948, the Central California Taxonomic System (CCTS) was the primary temporal classification system being used and focused on burial practices and grave goods in the Early, Middle, and Late periods. This system, while outdated, became the building blocks for the current temporal schemes associated with California archaeology. The prehistory of this region is currently divided into six periods: Early Holocene (Lower Archaic; 8,000–3,500 B.C.), Early period (Middle Archaic; 3,500–500 B.C.), Lower Middle period (Initial Upper Archaic; 500 B.C.–A.D. 430), Upper Middle period (Late Upper Archaic, A.D. 430–1050), Initial Late period (Lower Emergent; A.D. 1050–1550), and Terminal Late period (A.D. 1550–1776) (Milliken et al. 2007:101, 114–118). The San Francisco Bay area is where three different systems for organizing the archaeological record meet—the Early-Middle-Later Period, the Archaic-Emergent, and a hybrid system (Milliken et al. 2007). Therefore, a variety of period names within each section are mentioned below. Table 1 provides a short synopsis of the varying time schemes for the East Bay Area, Contra Costa County Region.

Table 1. East Bay Interior/Central Bay Shore Region Periods, Patterns, and Aspects

Geologic Period	Early Holocene	Mid-Holocene	Late Holocene									
Economic Period	Paleo	Lower Archaic	Middle Archaic	Upper Archaic	Emergent							
Shell Bead Period (Scheme D)	Early Holocene	Early Period	Middle Period	Late Period								
			EMT	M1	M2	M3	M4	MLT	L1	L2		
Central Bay Patterns	Undesignated	Lower Berkeley Pattern	Upper Berkeley Pattern	Augustine								
Aspect Variant (Central Bayshore)	Unknown	Undesignated	Stege Aspect	Ellis Landing (Meganos: 1375–1225 B.P.)	Emeryville A							
Aspect Variant (East Bay Interior)		Undesignated		Undesignated	Undesignated	Ellis Landing (Meganos: 1500–1000 B.P.)	Emeryville/Hollister					
Timeline B.P.	11k	10k	9k	8k	7k	6k	5k	4k	3k	2k	1k	500

Source: Summarized from Milliken et al. (2007)

EARLY PERIOD/MIDDLE ARCHAIC (3,500–500 B.C.)

Archaeological sites characteristic of the Early period/Middle Archaic in the project area date to as early as 5,500 years ago and as late as 2,500 years ago (3,500–500 B.C.). Such sites often contain manos and metates (grinding stones), as well as many mortar fragments, indicating that acorns and/or various seeds formed an important part of the diet (Moratto 1984:201). The period is marked by the first cut bead, the grooved *Olivella biplicata* rectangle bead (Vellanoweth 2001). Mortars and pestles begin to appear in the Bay Area archaeological record during this period. Also on the peninsula coast, *Olivella* rectangular beads (type L1) and Rossi square-stemmed and large side-notched projectile points are diagnostic of the Early period (Hylkema 2002:250).

LOWER MIDDLE PERIOD/INITIAL UPPER ARCHAIC (500 B.C.–A.D. 430)

People inhabiting the San Francisco Bay region during the Lower Middle period (also known as the Berkeley period) practiced a maritime hunting and gathering economy. Large accumulations of shellfish remains, or "shell mounds," formed over hundreds, or even thousands, of years through accretion at village sites fronting the Bay that were reused seasonally or year-round (Lightfoot 1997:135). These numerous shell mounds contain hundreds of burials as well as ceremonial items, house floors, hearths, and storage pits, indicating they were used as burial, ceremonial, and residential places (Lightfoot 1997:131–136; Lightfoot and Luby 2002:276–277).

Artifacts typical of the Lower Middle period include spire-lopped *Olivella*, *Olivella* saucer beads, and circular abalone (*Haliotis* spp.) ornaments (Milliken et al. 2007:115). Assemblages generally have a relatively small frequency of flaked stone points; projectile points are commonly contracting stemmed and lanceolate types, some of which are made from obsidian (Hylkema 2002). Burials are variable-flexed and semi-flexed with inconsistent orientation.

Milling implements include large and small boulder or cobble mortars and various types of pestles, indicating that acorns formed an important part of the diet. In the South Bay, processing of hard seeds continued to be important throughout this period, as evidenced by the number of milling slabs and handstones in the artifact assemblages from that area (Hylkema 2002:244–245, 252). Other plant resources included hazel nuts, cattail seeds, grass, and soaproot bulbs; the latter were roasted in earth ovens.

UPPER MIDDLE PERIOD/LATE UPPER ARCHAIC (A.D. 430–1050)

The Upper Middle period/Late Upper Archaic is marked by the collapse of the Olivella saucer bead trade network at circa A.D. 430 in the Bay Region (Milliken et al. 2007:116). The period is also marked by shifts and changes in subsistence practices, foraging, and land use patterns that begin to reflect patterns known from historic-period Native American groups in the area. A substantial increase in the intensity of subsistence exploitation, including fishing, hunting, and gathering (particularly the acorn), evidenced in the archaeological record, correlates directly with population growth (Moratto 1984:211–214). Bow and arrow technology, the use of harpoons, and tubular tobacco pipes appear during this period. However, a greater emphasis is placed on the procurement and processing of vegetal foods, especially acorns, as evidenced in the increase of milling tools, especially the mortar and pestle. Both coiled and twined basketry were used as domestic and ceremonial items. Population size and the number of settlements increased during this period, although the large shell mound villages of the Lower Middle period were apparently no longer favored residential places (Lightfoot and Luby 2002:264, 277). There appears to be an increase in grave goods, particularly during the Upper Middle period, compared with fewer grave goods identified during the Lower Middle period components in Bay Area sites.

During the Upper Middle period, the climate fluctuated between cooler, wetter periods and warmer, drier periods. During cooler, wetter periods, alluvial deposition increased, with comparatively little deposition occurring in the drier intervals. Extended periods of relatively little rainfall, referred to as the Medieval Climatic Anomaly (MCA), produced droughts across the West between about A.D. 650 and 850 and again in the Late period between about A.D. 1150 and 1250. The dry conditions during the MCA may be related to the abandonment of shell mound villages as primary residential locations, which began around A.D. 700 (Lightfoot and Luby 2002:277, 279). Settlement strategies were apparently reorganized and focused on a more dispersed pattern, with the establishment of both coastal and interior habitation areas, coinciding with the exploitation of seasonally available resources.

INITIAL LATE PERIOD/LOWER EMERGENT (A.D. 1050–1550)

The Late period ushers in a time of status differentiation and the rise of secret societies and cults and associated traits. Exchange networks, with the use of clamshell disk beads as a form of currency, expanded during this period. Exchange items included magnesite, steatite, *Olivella* beads, and obsidian. Compared with the Middle period, the use and occurrence of shell beads with burials blossomed (Milliken and Bennyhoff 1993). Abalone (*Haliotis* spp.) banjo pendants may represent the introduction and spread of the Kuksu cult, which began during the transition from the Middle to Late period in the Bay Area (Hylkema 2002:260). The magnitude of non-dietary *Olivella* shells in coastal sites during the Late period, coupled with a concomitant increase of the shells in mortuary contexts throughout central California during this period, attests to the rise of both exchange networks and status differentiation, with coastal peoples supplying the shells to interior groups. Partial cremation appears or reappears during this time and also marks an increase in social stratification along with an increased diversity of grave goods in the wealthiest of graves (Milliken et al. 2007:217).

During the Late period along the peninsula coast, site assemblages indicate there is an increase in hunting of birds and marine mammals, especially sea otters. At the same time, there is a decrease in terrestrial fauna in the archaeological record (Hylkema 2002:254–255).

TERMINAL LATE PERIOD/PROTOHISTORIC AMBIGUITIES (A.D. 1550–1776)

The Terminal Late period is marked by the abrupt disappearance of the *Olivella* sequin and cup beads ca. A.D. 1500 to 1550 (Milliken et al. 2007:117). During this period and before the Spanish arrived in full force, a cultural shift was occurring. The North Bay began to take a more dominant role in the production of new technology and trade items, including clamshell disk beads, the toggle harpoon, hopper mortar, corner-notched projectile points, and magnesite tube beads. The precise reason for this cultural shift is unknown but could have been driven by conflict between groups or the spread of European diseases northward from Mexico prior to A.D. 1776 (Milliken et al. 2007:117–118).

Ethnography

CHOCHENYO OHLONE REGION

The area immediately surrounding the project area was traditionally known as the Chochenyo linguistic group of the Ohlone, which compose a branch of the Penutian language family (Kroeber 1925; Levy 1978). Within this regional group were several tribelets inhabiting the East Bay from the from the Carquinez straight to the southeastern border with the Tamayen speaking groups of the south bay region and along the western side of the East Bay hills in the northern Diablo range bordering the Bay Miwok territory. The Chochenyo Ohlone people were not affiliated as a single political entity at the time of European contact, but rather consisted of 14 or more separate and politically independent tribelets, making the Chochenyo speaking Ohlone the largest group of the Bay Area region (Milliken et al. 2009).

In the northern region of the East Bay along the San Pablo Bay in the Vallejo/Benicia area were the Huchiun-Aguasto, whose borders met with the Coast Miwok to the west and the Patwin to the north. Across the Carquinez Straight to the south resided the Carquin, who bordered territories of the Bay Miwok to the east and the Patwin to the north. To the west of the Carquin resided the Hutchian groups, who managed the territory from the Berkeley Hills to the bay shore encompassing the modern cities of El Cerrito, Emeryville, Berkeley, Alameda, and most of Oakland. To the south of the Hutchian resided the Jalquin-Irgin, who inhabited the modern Hayward region and San Leandro Creek watershed. With borders of the territory abutting the Bay Miwok, the Jalquin-Irgin were said to have been a bilingual speaking group. The Tuibun inhabited the Coyote Creek area and the mouth of Alameda Creek; the Causen territory encompassed the Sunol Valley, the Tuanan resided in the mountain areas of Alameda Creek and the Arroyo del Valle, and the Luecha groups of the southern East Bay ranged the area southeast of Livermore and bordered the Tamyen-speaking Ohlone and the western edge of the Delta Yokuts to the east. North of the Tamyen border tribelets and within the interior of the East Bay were the Causen of the Sunol area, Pelnen of the Pleasanton region, Yulien who inhabited the Livermore area, Seunen of the San Ramon/Dublin region, Ssouyen who managed the Blackhawk/Tassajara area, and Ssaoam who ranged from the southern region of Mt. Diablo to the Byron area, bordering with the Delta Yokuts (Hodge 1910; Santa Cruz Museum of Natural History 2022).

Spanish mission records, diaries, and journals have provided most of the information for use in studying the Chochenyo Ohlone people, as little ethnographical research has been conducted in the twentieth century (Kroeber 1925; Levy 1978:495). The most thorough study, by Milliken (1995), used mission records, and Margolin's book (1978) reconstructs Native American life in the Bay Area.

Each tribelet's territory contained a main village and smaller satellite villages. Usually these were situated along a river or stream for easy access to water. Coastal people did not build right on the shoreline, but usually on an overlooking bluff. Dwellings were domed structures consisting of a tule- or grass-covered framework of poles, with a rectangular doorway and central hearth (Levy 1978:492). The Chochenyo Ohlone people both buried and cremated the deceased, sometimes depending on the availability of sufficient firewood; though based on ethnographic inquiries, cremation appears to have been most prevalent (Kroeber 1925). This was conducted on the day of the death, along with burning the property of the deceased. There is no mention of cemeteries associated with the villages (Levy 1978:490–491).

The rich resources of the ocean, bays, valleys, and mountains provided the Ohlone people with food and all their material needs (Levy 1978:491–492). The primary food staple was the acorn, supplemented by a great variety of animal and plant resources. Four species of oak were utilized, depending on availability and the desirability of the species: coast live, valley, tanbark, and black. Buckeye, laurel, pine nuts, and hazelnuts were eaten. The seeds of dock, chia and other salvias, tarweed, and holly-leaf cherry were collected and ground into meal. The plant diet also consisted of several berry-producing plants, wild onions, carrots, tule roots, and greens of clover and other annuals. There were also large and small game, consisting of deer, elk, antelope, bear, and mountain lion. Seals and stranded whales onshore were taken, and smaller game included raccoon, ground squirrels, woodrat, mouse, mole, dog, rabbit, and jackrabbit. Migrating waterfowl were the most important bird resource, which included geese, ducks, and coots; local birds taken were pigeon, quail, and hawks, but not eagle, owls, ravens, or vultures. Freshwater fish included steelhead, salmon, and sturgeon, while the ocean provided shark, sardine, and lampreys. All varieties of reptiles were eaten (but not amphibians), as well as a selection of insects. Marine resources were also relied on heavily, as much of Chochenyo Ohlone territory borders the East Bay region. The reliance on shellfish, particularly mussels, and other marine resources (i.e., fish, sea lions, and beached whales) is evidenced by the extensive shell mounds that line the San Francisco Bay and adjacent areas, which are said to be the richest in any part of the state (Kroeber 1925:466–467).

A wide array of tools, implements, and enclosures were used by the Chochenyo Ohlone people for hunting and gathering natural resources. Among those used for hunting land mammals and birds were the bow and arrow, traps and snares, deer’s-head disguises, bolas, nets and net sinkers, and enclosures/blinds. Communal hunting drives were employed for rabbits. Nets and poisons were used to harvest fish. Tule watercrafts were used for transportation and hunting fish and waterfowl on the enclosed bays and marshes. Many plants were collected using wooden tools: long poles for dislodging acorns and pinecones, fire-hardened digging sticks for roots, and beaters for dislodging seeds. Once collected, seeds, roots, and nuts were placed in burden baskets and transported for processing or storage (Levy 1978:491).

The Chochenyo Ohlone people used a variety of tools to process food resources. These included portable stone mortars and pestles, bedrock mortars, hopper mortars, anvils, woven strainers, winnowers, leaching and boiling baskets, woven drying trays, and knives. Various foods were baked in earthen ovens. Wooden paddles were carved for stirring food in the boiling baskets. There were shell spoons, basket dippers, and mush bowls for serving the food, and woven water jugs and storage containers for keeping it afterwards. The presence of exotic items such as obsidian, steatite, and shell indicates that the Chochenyo Ohlone people traded with adjacent coastal groups and mountain tribes (Levy 1978:493).

Not all resources were gathered at home. There was trading with the Plains Miwok, Sierra Miwok, and Yokuts. The Chochenyo Ohlone people provided mussels, abalone shells, dried abalone, and salt to the Yokuts and *Olivella* shells to the Miwok. They received pine nuts from the Yokuts, but any other goods the Chochenyo Ohlone people received are unrecorded.

Historic Overview

Post-contact history for the state of California is generally divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769, the beginning of Spanish settlement in California occurred in 1769 with a settlement at San Diego and the first (Mission San Diego de Alcalá) of 21 missions established from 1769 to 1823.

European exploration along the coastal region of California began as early as 1542 when Juan Rodríguez Cabrillo sailed the coastline of California. The region was not extensively explored until the Portolá and Anza expedition in 1762, with permanent settlement by individuals of European descent occurring in the early part of the nineteenth century (California State Lands Commission 2014; Gudde 1998). Word of Mexican victory, after a decade of revolt against the Spanish crown, reached California in 1822, marking the beginning of the Mexican period. This period was characterized by an extensive era of land grant awards. As a result of the California Land Act of 1851, there were 813 claims of Spanish and Mexican land grants, many of which were patented by this time. These land grants were presented to the Surveyor General's Office and to the Land Commission, thus making them legally owned properties and suggesting the area was truly settled (California State Lands Commission 2014).

With the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican American War, California became a territory of the United States (National Archives 2022). The discovery of gold in 1848 at Sutter's Mill near Sacramento and the resulting Gold Rush influenced the history of the state and the nation (California Department of Conservation [CDOC] 2022). The rush of tens of thousands of people to the gold fields had a devastating impact on the lives of indigenous Californians, with the introduction and concentration of diseases, the loss of land and territory (including traditional hunting and gathering locales), violence, malnutrition, and starvation. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869 (CDOC 2022).

The land encompassing the project area was originally part of Rancho San Antonio, a vast estate extending approximately 15 miles along the eastern shore of San Francisco Bay, from San Leandro Creek on the south to El Cerrito Creek to the north, which is now part of the boundary between Alameda and Contra Costa Counties. Totaling some 44,000 acres, this land grant extended east from the bay to the crest of the Contra Costa Hills to the east. Rancho San Antonio was originally granted to Luís María Peralta, a soldier who had served nearly 40 years in the Spanish Army and had helped establish Mission Santa Cruz and Mission San José. Peralta never lived on the rancho, but his four sons—Hermenegildo Ignacio, José Domingo, Antonio María, and José Vicente—and their families did, along with their herds of cattle (Kyle 2002).

Americans began visiting the region as early as 1846, and in 1850, when most of the lands of Domingo and Vicente Peralta was sold, the first encroachment upon Rancho San Antonio was made by Americans. When California became a state in 1848, Mexican landowners faced an uphill battle against the American legal system. Although Article IX of the Treaty of Guadalupe Hidalgo declared that Mexican land grants would be honored under the new American government, American settlers drawn to California's fertile lands moved into old land grants, laying claim to them, or simply squatting on the lands, defying the legal owners. A federal statute passed in 1851 attempted to regularize the process of patenting these lands with a commission appointed for this purpose. While Mexican land grant holders had 2 years to prove the validity of their grants to the courts, the burden of proof was upon the Mexican owners, not the squatters. Because many of the grants were made at a time when land plot surveying, boundary marking, and of land fencing was uncommon, these lawsuits often favored squatters. On average, it took 17 years for a claim to be patented, and often the original litigants had died, or the costs of litigation compelled the rancho owners to sell off their land piecemeal, which was the case for the remainder of Rancho San Antonio (Kyle 2002:xv).

Oakland was the nucleus for population expansion in the East Bay following the opening of the Central Pacific Railroad in 1869. However, the city largely remained residential until the turn of the century when the East Bay communities of Alameda, Oakland, and Berkeley gained prominence as commuter centers. Ferry rides across the bay were much cheaper than train rides north up the San Francisco Peninsula. A network of streetcar and interurban routes were established to provide access to ferryboat docks on piers and quays. Following the 1906 earthquake, many previous residents of San Francisco moved to Oakland, which did not suffer from the earthquake and ensuing fire (Peters et al. 2004:162).

In 1893 the City of Oakland gained ownership of the Port of Oakland from the Southern Pacific Railroad, ending their monopoly (Port of Oakland 2022). Oakland's location, where rails and water transportation met, helped establish Oakland as an industrial and shipping center in the early twentieth century. In 1916 General Motors built a Chevrolet automobile plant at 73rd Avenue and MacArthur Boulevard. Several other car companies followed, and the large influx of factory workers led to rapid home construction in the late 1920s. An estimated 13,000 new homes were built between 1920 and 1924 alone (Alameda County Health Services Agency 2001:7). Canning became a large portside industry around the same time. Produce was brought in from all over California for canning at several large plants, which included the Josiah Lusk Canning Company, which took over the H.G. Prince Company; the Oakland Preserving Company, which started the Del Monte Brand; and the California Packing Company. By 1943 the Oakland canning industry was valued at an estimated 100 million dollars, only second to shipbuilding (Oakland Museum of California 2003).

Shipbuilding at the Oakland shipyards flourished during World War II to produce the large numbers of ships required for the war effort. Because so many white men had enlisted, the U.S. Maritime Commission required shipbuilding companies to extend job opportunities to women and racial minorities, who had previously been excluded from this type of employment. The cities of Richmond and Oakland experienced a rapid increase of blacks from the South who sought to escape Jim Crow laws and make better lives for themselves and their families (Arroyo 2022). Oakland's population swelled by a third from 1940 to 1945 from three percent of the population in 1940 to over 12 percent in 1950, an increase of approximately 300 percent (MacDonald 1999). While the shipbuilding industry provided better economic opportunities, blacks were still forced to adhere to a subservient role in society, occupying the most unskilled and menial jobs while being overlooked and excluded from leadership and supervisory roles. Black women were often concentrated in the most physically demanding and labor-intensive jobs (Arroyo 2022).

The end of World War II also saw the halt of Oakland's boom as large companies like General Motors and General Electric moved their plants out to larger suburban tracts. Oakland experienced a loss of nearly 10,000 manufacturing jobs, and some 23,000 residents left between 1950 and 1970 (MacDonald 1999). Economic downturn and simmering racial tensions increased during the 1950s. Black, Indigenous, and People of Color (BIPOC) were impacted by federal housing redlining policies adopted in the 1930s, which excluded communities of color from homeownership. Residents of redlined neighborhoods, including West Oakland and East Oakland, were denied access to credit, resulting in a cycle of disinvestment and poverty. Racially restrictive policies were adopted by private developers and realtors to prevent neighborhoods from being redlined, thereby inhibiting BIPOC residents from moving into these areas.

Construction of Highway 17, now Interstate 880 or Nimitz Freeway, and, later, Bay Area Rapid Transit (BART) lines through historic communities, such as West Oakland and Chinatown, disrupted community cohesion and economic viability. Greater areas of East and North Oakland became open to BIPOC families beginning in the 1950s, yet these areas still felt the effects of disinvestment and deterioration of housing and public spaces and a massive loss of employment in nearby industrial sectors. Taken together, these factors led to a large-scale abandonment of the city's main corridors, resulting in a loss of purchasing power by consumers, particularly wealthier white residents, who went elsewhere to live and shop. Disinvestment of BIPOC communities occurred between the 1950s and 1990s, effectively eroding communities' physical and social infrastructure (City of Oakland 2022a).

Oakland played a large part in the 1960s civil rights movement as demonstrations and civil unrest resulted in passage of the Civil Rights Act of 1964. Around the same time, grassroots community organizations sprang up in Oakland, including the Black Panther Party, Oakland Community Organizations (PICO/OCO), Unity Council, Intertribal Friendship house, and many others to organize and demand protections and equal rights (City of Oakland 2022b). However, decades of disinvestment limited the ability of these communities to effectively respond to serious health problems generated by the War on Drugs and the crack cocaine epidemic that targeted increased arrests of Black Oaklanders, and HIV-AIDS.

During the late 1990s, Oakland became an attractive location for real estate investment, spurred in part by then-Mayor-of-Oakland Jerry Brown's 10K initiative that proposed scattered market-rate housing across downtown. "Reverse redlining," which targeted predatory lending practices and subprime loans in historically redlined neighborhoods, resulted in enormous waves of foreclosures in East and West Oakland. Some 93 percent of the foreclosed properties were then acquired by investors, which helped to reinvigorate downtown and uptown Oakland. However, residential and commercial gentrification followed, directly and indirectly resulting in the displacement of residents in these areas, due in part by an inequitable housing market (City of Oakland 2022a).

METHODS

Records Search

On July 15, 2022, SWCA requested a records search from the California Historical Resources Information System (CHRIS) Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California, to identify known cultural resources and previous cultural resource studies within 0.25 mile of the project area. A letter dated August 17, 2022, from the NWIC summarizing the results of the records search (NWIC File No. 22-0099) is provided in Appendix A of this report.

Prior Studies within 0.25 Mile of the Project Area

The CHRIS search identified 31 previously conducted cultural resource studies within 0.25 mile of the project area, including multiple studies that produced several different reports. Portions of 22 of these studies intersect the project area. However, most of these are literature reviews, regional studies, research reports, and dissertations. Of those, two reports included archaeological field studies (S-000779 and S-021021). The project area has not been subject to recent, location-specific archaeological survey. The results of the CHRIS records search for previous studies conducted within the 0.25-mile radius of the project area are listed in Tables 2 and 3 but have not been carried over in further discussion.

Table 2. Previous Studies within the Project Area

NWIC Report Number	Title of Study	Type of Study	Author	Year
S-000779	*Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Weather Facilities/Overflow Project Facilities Sites, Alameda and Contra Costa Counties, California*	Archaeological, Field study	David Chavez	1977
S-000779	*Supplement to Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Weather Facilities/Overflow Project Facilities Sites, Alameda and Contra Costa Counties, California*	Archaeological, Field study	David Chavez	1979
S-000848	*A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical & Archaeological Resources*	Archaeological, Architectural/historical, Management/planning, Other research	David A. Fredrickson; The Anthropology Laboratory, Sonoma State College; Winzler & Kelly Consulting Engineers	1976
S-001784	*Preliminary Cultural Resources Identification: San Francisco Bay Study for Corps of Engineers Projects*	Literature search	David Chavez	1979

NWIC Report Number	Title of Study	Type of Study	Author	Year
S-002458	*Overview of Prehistoric Archaeology for the Northwest Region, California, Archaeological Sites Survey: Del Norte, Humboldt, Mendocino, Lake, Sonoma, Napa, Marin, Contra Costa, Alameda*	Archaeological, Other research	Neil Ramiller, Suzanne Ramiller, Roger Werner, and Suzanne Stewart; Northwest Regional Office, California Archaeological Sites Survey, Anthropological Studies Center, Sonoma State University	1981
S-002458	*Prehistoric Archaeology Overview Northwest Region; California Archaeological Inventory, Volume I: Humboldt and Del Norte Counties*	Archaeological, Other research	Suzanne Ramiller; Anthropological Studies Center, Sonoma State University	1982
S-002458	*Archaeological Overview of Mendocino and Lake Counties*	Archaeological, Other research	Roger H. Wemer; Anthropological Studies Center, Sonoma State University	1982
S-002458	*Prehistoric Archaeology Overview Northwest Region; California Archaeological Inventory, Volume 3: Napa and Sonoma Counties*	Archaeological, Other research	Suzanne Stewart; Anthropological Studies Center, Sonoma State University	1982
S-002458	*Archaeological Overview of Alameda, Contra Costa, and Marin Counties*	Archaeological, Other research	Suzanne B. Stewart; Anthropological Studies Center, Sonoma State University	1982
S-002458	*Environmental Overview of the Northwest Region*	Archaeological, Other research	Neil Ramiller; Anthropological Studies Center, Sonoma State University	1985
S-007903	*Cultural Resources Evaluation for the East Bay Municipal Utility District Infiltration/Inflow Project (P.O. 951 1143 EA)*	Archaeological, Management/planning, Other research	David Chavez; David Chavez & Associates	1985
S-009462	*Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties*	Thesis/dissertation	Teresa Ann Miller; San Francisco University	1977
S-009583	*Ecology of the Pre-Spanish San Francisco Bay Area*	Other research, Thesis/dissertation	David W. Mayfield; San Francisco State University	1978
S-009795	*Late Prehistoric Obsidian Exchange in Central California*	Other research, Thesis/dissertation	Thomas Lynn Jackson; Stanford University	1986
S-014621	*Archaeological Resources Review for the Oakland Enterprise Zone EIR, Alameda County, California*	Archaeological, Management/planning, Other research	David Chavez; David Chavez & Associates	1992
S-015529	*California, Oregon, and Washington: Archaeological Resource Study*	Archaeological, Other research	Robert L. Gearhart II, Clell L. Bond, Steven D. Hoyt, James H. Cleland, James Anderson, Pandora Snethcamp, Gary Wesson, Jack Neville, Kim Marcus, Andrew York, and Jerry Wilson; Espey, Huston & Associates, Inc.; Dames & Moore	1993
S-016660	*Prehistoric Rock Art of Alameda and Contra Costa Counties, California*	Archaeological, Other research, Thesis/dissertation	Jeffrey B. Fentress; California State University, Hayward	1992

NWIC Report Number	Title of Study	Type of Study	Author	Year
S-017773	*Contract 04E634-EP, Task Order #9, Historic Map Review for CALTRANS Maintenance Facilities (letter report)*	Literature search	Angela M. Banet; Basin Research Associates, Inc.	1992
S-017835	*Biological Distance of Prehistoric Central California Populations Derived from Non-Metric Traits of the Cranium*	Thesis/dissertation	Judy Myers Suchey; University of California, Riverside	1975
S-018217	*Cultural Resources Evaluations for the Caltrans District 04 Phase 2 Seismic Retrofit Program, Status Report*	Archaeological, Architectural/historical, Other research	Glenn Gmoser; California Department of Transportation	1996
S-020395	*PCNs of the Coast Ranges of California: Religious Expression of the Result of Quarrying?*	Other research, Thesis/dissertation	Donna L. Gillette; California State University, Hayward	1998
S-021021	*Draft Cultural Resources Survey Report for the Oakport Groundwater Injection/Extraction Pilot Project, Oakland, Alameda County, California*	Archaeological, Field study	Trish Fernandez; Jones & Stokes Associates, Inc.	1998
S-030204	*The Distribution and Antiquity of the California Pecked Curvilinear Nucleated (PCN) Rock Art Tradition*	Archaeological, Other research	Donna L. Gillette; University of California, Berkeley	2003
S-032596	*The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural conventional Highways*	Archaeological, Other research	Randall Milliken, Jerome King, and Patricia Mikkelsen; Consulting in the Past; Far Western Anthropological Research Group, Inc.	2006
S-033239	*Alameda Watershed, Natural and Cultural Resources: San Francisco Watershed Management Plan*	Archaeological, Architectural/historical, Management/planning, Other research	David Chavez; Environmental Science Associates	1994
S-033600	*Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4*	Archaeological, Other research	Jack Meyer and Jeff Rosenthal; Far Western Anthropological Research Group, Inc.	2007
S-048927	*The Economy and Archaeology of European-made Glass Beads and Manufactured Goods Used in First Contact Situations in Oregon, California, and Washington*	Archaeological, Architectural/historical, Thesis/dissertation	Donald Scott Crull; University of Sheffield, England	1997
S-049780	*San Francisco Bay-Delta Regional Context and Research Design for Native American Archaeological Resources, Caltrans District 4*	Archaeological, Management/planning, Other research	Brian F. Byrd, Adrian A. Whitaker, Patricia J. Mikkelsen, and Jeffrey S. Rosenthal; California Department of Transportation, District 4	2017
S-049780	*FHWA_2016_0615_001, Caltrans District 4 Archaeological Context*	OHP Correspondence	Julianne Polanco; California Office of Historic Preservation	2016

Table 3. Previous Studies within 0.25 Mile of Project Area

NWIC Report Number	Title of Study	Type of Study	Author	Year
S-007919	*Archaeological Resource Assessment of Flood Control Channels F, H, and I, Oakland, California (letter report)*	Archaeological, Field study	Benjamin Ananian	1986

NWIC Report Number	Title of Study	Type of Study	Author	Year
S-030894	*New Tower ("NT") Submission Packet FCC Form 620, 880 & 66th Avenue, CA-2507C*	Archaeological, Field study	Scott Billat; Earth Touch, Inc.	2005
S-033020	*Archaeological Records Search, Limited Literature Review, and Field Review, Coliseum BART to Bay Trail Connector, Oakland, Alameda County, BART to Bay Trail #F12C02; #PBWKS 2382 (letter report)*	Archaeological, Field study	Colin I. Busby; Basin Research Associates	2006
S-033545	*Draft Comprehensive Management and Use Plan and Environmental Impact Statement, Juna Bautista de Anza National Historic Trail, Arizona and California*	Archaeological, Architectural/historical, Management/planning, Other research	National Park Service	1994
S-042891	*PG&E External Corrosion Direct Assessment (EDCA) Line 153 Segment 144.5EW (letter report)*	Archaeological, Field study	Amy E. Foutch; Far Western Anthropological Research Group, Inc.	2012
S-046399	*Historic Property Survey Report for the MTC Interstate 880 Express Lane Phase I Project, Alameda and Santa Clara Counties, California: State Route 84 04-ALA-84 PM R3.0-R6.1, State Route 92 04-ALA-92 PM R2.5-R6.5, Interstate 880, 04-SCL-880 PM 7.5-10.5, 04-ALA-880 PM R0.0-26.4, EA 04-3G920*	Archaeological, Architectural/historical, Management/planning	Laura Leach-Palm and Chandra Miller; Far Western Anthropological Research Group, Inc.	2015
S-046399	*Archaeological Survey Report for the MTC Interstate 880 Express Lane Phase I Project, Alameda and Santa Clara Counties, California: State Route 84, 04-ALA-84 PM R3.0-R6.1, State Route 92, 04-ALA-92 PM R2.5-R6.5, Interstate 880, 04-SCL-880 PM 7.5-10.5, 04-ALA-880 PM R0.0-26.4, EA 04-3G920*	Archaeological, Excavation, Field Study	Laura Leach-Palm and Philip Kaijankoski; Far Western Anthropological Research Group, Inc.	2015
S-046399	*Extended Phase I Report for the MTC Interstate 880 Express Lane Phase I Project, Alameda and Santa Clara Counties, California: State Route 84, 04-ALA-84 PM R3.0-R6.1, State Route 92, 04-ALA-92 PM R2.5-R6.5, Interstate 880, 04-SCL-880 PM 7.5-10.5, 04-ALA-880 PM R0.0-26.4, EA 04-3G920*	Archaeological, Excavation, Field study	Philip Kaijankoski, Jack Meyer, and Laura Leach-Palm; Far Western Anthropological Research Group, Inc.	2015
S-046399	*Environmentally Sensitive Area Action Plan for the Metropolitan Transportation Commission's Interstate Express, Lane Phase I Project, Alameda and Santa Clara Counties, California: State Route 84, 04-ALA-84 PM R3.0-R6.1, State Route 92, 04-ALA-92 PM R2.5-R6.5, Interstate 880, 04-SCL-880 PM 7.5-10.5, 04-ALA-880 PM R0.0-26.4, EA 04-3G920*	Archaeological, Architectural/historical, Management/planning, Other research	Laura Leach-Palm; Far Western Anthropological Research Group, Inc.	2015
S-046399	*Historic Resource Evaluation Report for the MTC Express Lanes I-880 Project, Alameda and Santa Clara Counties, California: 04-SCL-880 PM 7.38-10.5, 04-ALA-880 PM, R0.0-26.66, 04-ALA-92 PM R.2.29-6.73, 04-ALA-84 PM R2.7-6.22, Project EA: 04-3G920, EIF 041000110*	Architectural/historical, Evaluation, Field study	Chandra Miller; JRP Historical Consulting, LLC	2015
S-046399	*Supplemental Archaeological Survey Report for the MTC Interstate 880 Express Lane Phase I Project, Alameda and Santa Clara Counties, California, Interstate 880, 04-SCL-880 PM 7.5-10.5, 04-ALA-880 PM R0.0-26.4, EA 04-3G920*	Archaeological, Field study, Management/planning	Adrian R. Whitaker; Far Western Anthropological Research Group, Inc.	2016

NWIC Report Number	Title of Study	Type of Study	Author	Year
S-046599	*Extended Phase I Investigation for the Alameda Interstate 880 Median Barrier Replacement Project, Alameda County, California; Interstate 880, 04-ALA-880, PM R2.9-27.6, EA 04-2J070, Project ID 040000425*	Archaeological, Excavation	Philip Kaijankoski, Jack Meyer, and Laura Leach-Palm; Far Western Anthropological Research Group, Inc.	2015
S-047303	*Cultural Resources Investigation for AT&T Mobility CCL00894 "Oakland Coliseum" 8000 South Coliseum Way, Oakland, Alameda County, California (letter report)*	Literature search	Carolyn Losee; Archaeological Resources Technology	2016
S-051961	*Cultural Resource Records Search and Site Visit Results for Cellco Partnership and Their Controlled Affiliates Doing Business as Verizon Wireless Candidate "'Coliseum Marketplace SC1', 5401 Coliseum Way, Oakland, Alameda County, California (letter report)*	Archaeological, Field study	Jason A. Coleman; HELIX Environmental Planning, Inc.	2016

Previously Recorded Cultural Resources within 0.5 Mile of the Project

The CHRIS records search did not result in the identification of previously recorded resources within the project area or within the 0.25-mile radius of the project area.

Historic Research

Research methodology focused on review of a variety of primary and secondary source materials relating to the history and development of the project area. Sources included, but were not limited to, historic maps, aerial photographs, and written histories of the area.

According to the U.S. Bureau of Land Management (BLM) General Land Office 1870 survey map (BLM 2022), the project is located within Lot Number 37 and is depicted as part of the Rancho San Antonio land claim, an extensive claim comprising 43,000 acres of land that encompasses the cities of San Leandro, Oakland, Alameda, Emeryville, Piedmont, Berkeley, and Albany (OHP 2022). It extends from the Pacific coastline inland to the Oakland Hills summit. The grant extends north to Cerrito Creek and southeast to San Leandro Bay.

Based on topographic maps of the area, the entirety of the project area was marshland until the late 1940s. Sometime between 1947 and 1949 (Nationwide Environmental Title Research, LLC [NETR] 2022a, 2022b), most of the marshland comprising the project area was reclaimed, except for the western extent. In 1958 a portion of Highway 17 was rerouted to just east of the project area and renamed the Nimitz Freeway (Kleps 1959). The nearest paved road to the project area, Oakport Street, appears to have been constructed sometime between 1956 (NETR 2022c) and 1960 (NETR 2022d) based on topographic maps of those dates. Much of the remaining infrastructure comprising the project area appear to have been constructed sometime between 1966 (NETR 2022e) and 1969 (NETR 2022f).

The earliest aerial photograph of the project area, dating to 1946 (NETR 2022g) corroborates the fact that the project area had not yet fully been reclaimed from marshland. However, by 1958 (NETR 2022h), at least one large warehouse and several other smaller facilities had been constructed along Oakport Street near East Creek Slough at the northeast extent of Parcel 2 in the project area. Development of Parcel 1 does not appear to have begun until at least 1980 (NETR 2022i). In sum, historical imagery suggests that the project area and its immediate vicinity have experienced extensive previous disturbance due to reclamation and construction activities, both of which occurred after World War II.

Sacred Lands File Search and Initial Native American Coordination

A search of the California Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was requested on July 15, 2022, with the intent of identifying culturally sensitive areas and obtaining a list of Native American contacts who may have specific knowledge of the vicinity. The NAHC response was received on August 25, 2022, providing a negative result and a list of seven Native American tribes and individuals who may have knowledge of cultural resources in the project area. SWCA sent outreach letters via email to all Native American contacts on August 30, 2022, with hard copies following by regular mail on September 1, 2022. Examples of tribal outreach letters and details regarding tribal correspondence are presented in Appendix A. Follow-up telephone calls were made on September 2, 2022. Chairperson Irene Zwierlein of the Amah Mutsun Band of Mission San Juan Bautista requested on-site worker sensitivity training for both tribal and archaeological resources detailing who to contact in the event of an inadvertent discovery. Chairperson Corrina Gould of the Confederated Villages of Lisjan requested the CHRIS results and final report. The remainder of the telephone calls went unanswered, and two telephone numbers were disconnected. Native American outreach performed as part of this review does not constitute formal consultation.

Archaeological Resource Fieldwork

Archaeological Survey

SWCA archaeologist Brandon Foster conducted an intensive pedestrian survey of the project area on August 25, 2022. The survey was conducted using pedestrian transects spaced 5 to 15 meters apart where vegetation conditions and safety considerations allowed. Periodic boot scrapes were employed to expose soils when vegetation obscured the ground surface. The entirety of the project area was subject to intensive pedestrian survey.

RESULTS

Archaeological Survey Results

The project is located approximately 100 feet from the shoreline of San Leandro Bay in Oakland. Based on archival research (see previous Historic Research section), the entirety of the project area was reclaimed sometime in the late 1940s. At that time, the project area was likely filled with urban rubble and dredge sand like other portions of the bay that were reclaimed (Resilient by Design 2018). More than three-quarters of the project area consists of a considerably disturbed and fenced dirt lot southeast of an EBMUD facility (Figure 3). Ground visibility in this portion of the project area was 100 percent.

The remainder of the project area, just southwest of the fence line, is bisected along its length by a graveled path that trends northwest-southeast through the entire project area (Figure 4). Approximately halfway along the length of the project area, the graveled path is bounded on the outside by a paved pedestrian trail approximately 15 feet to the southwest (Figure 5). The area between these two paths is heavily vegetated with grasses and coastal scrub. Ground visibility in this portion of the project area was between five and 10 percent. Boot scrapes were employed in open areas where vegetation was not as dense to expose soils.

No archaeological resources, artifacts, or features were observed within the project area.

Figure 3. Overview of fenced dirt lot, facing southeast.

Figure 4. Overview of project area outside (southwest of) fenced lot, facing southeast.

Figure 5. Southern end of project area outside fenced lot, facing northwest.

SUMMARY AND CONCLUSIONS

This cultural resources inventory included a CHRIS NWIC records search, a SLF search through the NAHC, a buried site sensitivity analysis, a review of historic aerials and relevant literature, and an intensive pedestrian survey. The pedestrian survey of the project area conducted on August 25, 2022, produced negative results.

Results of the CHRIS records search indicated that no known cultural resources are located within the project area. A review of historic maps and aerial photographs failed to indicate the presence of historic structures or features within the project area, and there is a low potential to encounter intact buried archaeological deposits within the project area.

SWCA sent an email with a map depicting the project to the NAHC on July 15, 2022, requesting a review of its SLF. The NAHC response was received on August 25, 2022, indicating the results of the SLF search were negative and providing a list of Native American tribes and individuals who may also have knowledge of cultural resources in the project area. SWCA sent outreach letters to all provided Native American contacts on August 30, 2022, and September 1, 2022. Follow-up telephone calls were made on September 2, 2022. Chairperson Irene Zwierlein of the Amah Mutsun Band of Mission San Juan Bautista requested on-site worker sensitivity training for both tribal and archaeological resources detailing who to contact in the event of an inadvertent discovery. Chairperson Corrina Gould of the Confederated Villages of Lisjan requested the CHRIS results and final report. The remainder of the telephone calls went unanswered, and two telephone numbers were disconnected.

With implementation of conditions to comply with regulatory compliance measures related to the inadvertent discovery of archaeological resources and human remains, SWCA finds that the proposed project will have a less-than-significant impact on archaeological resources. Although no cultural resources were noted on the ground surface during this pedestrian survey, the possibility of encountering cultural resources during excavation remains. If cultural materials are uncovered during project work, the Inadvertent Discovery procedures noted below should be followed.

Inadvertent Discoveries

In the event that unanticipated cultural resources are exposed during disturbance activities, work within 15 meters (50 feet) of the find must stop and an SOI-qualified archaeologist (SWCA Senior Project Manager Christina Alonso [925-399-9220]) must be notified immediately. Work may not resume until a qualified archaeologist can evaluate the significance of the find. Disturbance activities may continue in other areas. If the discovery proves significant, additional work such as archaeological testing, data recovery, or consultation with stakeholders may be warranted.

Discovery of Human Remains

The discovery of human remains during the course of the project is a possibility. If human remains are encountered, then the procedures outlined by the NAHC, in accordance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98, would be followed. If the monitor determines that a discovery includes human remains:

1. All ground-disturbing work within the immediate vicinity (25 feet) of the find would halt.
2. The archaeologist would contact the Alameda County Coroner:

   Alameda County Medical Examiner & Coroner
   2901 Peralta Oaks Court
   Oakland, California 94605
   Phone: (530) 382-3000
   Web: alamedacountysheriff.org

3. As a courtesy, the County Coroner would also notify the NAHC:

   Native American Heritage Commission
   915 Capitol Mall, Room 364
   Sacramento, California 95814
   Phone: (916) 373-3710
   Email: nahc@nahc.ca.gov

The County Coroner would have 2 working days to examine the remains after being notified in accordance with California Health and Safety Code Section 7050.5. If the Alameda County Coroner determines that the remains are Native American and are not subject to the County Coroner's authority, the County Coroner has 24 hours to notify the NAHC of the discovery.

The NAHC would immediately designate and notify the Native American Most Likely Descendant (MLD), who will have 48 hours after being granted access to the location of the remains to inspect them and provide recommendations for the treatment of them.

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California Historical Resources Information System

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: 81.00 **IC FILE NO.:** ____________

To: Northwest Information Center

Print Name: Christina Alonso Date: 07/15/2022

Affiliation: SWCA Environmental Consultants

Address: 60 Stone Pine Road

City: Half Moon Bay State: CA Zip: 94019

Phone: (925) 399-9220 Fax: ____________ Email: Christina.Alonso@swca.com

Billing Address (if different than above): ____________

Billing Email: swca.com-vision@invoice.ca1.chromeriver.com Billing Phone: ____________

Project Name / Reference: SupplyBank

Project Street Address: 5601 Oakport Street, Oakland

County or Counties: Alameda

Township/Range/UTMs: T02S, R03W, S17

USGS 7.5' Quad(s): Oakland East

PRIORITY RESPONSE (Additional Fee): yes ☐ / no ☒

TOTAL FEE NOT TO EXCEED: $ 800.00
(If blank, the Information Center will contact you if the fee is expected to exceed $1,000.00)

Special Instructions:

Information Center Use Only

Date of CHRIS Data Provided for this Request: ____________

Confidential Data Included in Response: yes ☐ / no ☐

Notes: ____________

1 of 3

2-29-2020 Version

California Historical Resources Information System

CHRIS Data Request Form

Mark the request form as needed. Attach a PDF of your project area (with the radius if applicable) mapped on a 7.5' USGS topographic quadrangle to scale 1:24000 ratio 1:1 neither enlarged nor reduced and include a shapefile of your project area, if available. Shapefiles are the current CHRIS standard for submitting digital spatial data for your project area or radius. **Check with the appropriate IC for current availability of digital data products.**

- Documents will be provided in PDF format. Paper copies will only be provided if PDFs are not available at the time of the request or under specially arranged circumstances.
- Location information will be provided as a digital map product (Custom Maps or GIS data) unless the area has not yet been digitized. In such circumstances, the IC may provide hand drawn maps.
- In addition to the $150/hr. staff time fee, client will be charged the Custom Map fee when GIS is required to complete the request [e.g., a map printout or map image/PDF is requested and no GIS Data is requested, or an electronic product is requested (derived from GIS data) but no mapping is requested].

For product fees, see the CHRIS IC Fee Structure on the OHP website.

1. Map Format Choice:

Select One: Custom GIS Maps ☐ GIS Data ☒ Custom GIS Maps **and** GIS Data ☐ No Maps ☐

Any selection below left unmarked will be considered a "no."

Location Information:

	Within project area	Within 1/4 mi. radius
ARCHAEOLOGICAL Resource Locations[1]	yes ☒ / no ☐	yes ☐ / no ☒
NON-ARCHAEOLOGICAL Resource Locations	yes ☒ / no ☐	yes ☐ / no ☒
Report Locations[1]	yes ☒ / no ☐	yes ☐ / no ☒
"Other" Report Locations[2]	yes ☐ / no ☒	yes ☐ / no ☒

3. Database Information:

(contact the IC for product examples, or visit the SSJVIC website for examples)

	Within project area	Within 1/4 mi. radius
ARCHAEOLOGICAL Resource Database[1]		
List (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Detail (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Excel Spreadsheet	yes ☒ / no ☐	yes ☒ / no ☐
NON-ARCHAEOLOGICAL Resource Database		
List (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Detail (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Excel Spreadsheet	yes ☒ / no ☐	yes ☒ / no ☐
Report Database[1]		
List (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Detail (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Excel Spreadsheet	yes ☒ / no ☐	yes ☒ / no ☐
Include "Other" Reports[2]	yes ☒ / no ☐	yes ☒ / no ☐

4. Document PDFs (paper copy only upon request)**:**

	Within project area	Within 1/4 mi. radius
ARCHAEOLOGICAL Resource Records[1]	yes ☒ / no ☐	yes ☒ / no ☐
NON-ARCHAEOLOGICAL Resource Records	yes ☒ / no ☐	yes ☐ / no ☒
Reports[1]	yes ☐ / no ☒	yes ☐ / no ☒
"Other" Reports[2]	yes ☐ / no ☒	yes ☐ / no ☒

2 of 3

2-29-2020 Version

California Historical Resources Information System

CHRIS Data Request Form

5. Eligibility Listings and Documentation:

	Within project area	Within 1/4 mi. radius
OHP Built Environment Resources Directory[3]**:**		
Directory listing only (Excel format)	yes ☒ / no ☐	yes ☐ / no ☒
Associated documentation[4]	yes ☒ / no ☐	yes ☐ / no ☒
OHP Archaeological Resources Directory[1,5]**:**		
Directory listing only (Excel format)	yes ☒ / no ☐	yes ☐ / no ☒
Associated documentation[4]	yes ☒ / no ☐	yes ☐ / no ☒
California Inventory of Historic Resources **(1976):**		
Directory listing only (PDF format)	yes ☒ / no ☐	yes ☐ / no ☒
Associated documentation[4]	yes ☒ / no ☐	yes ☐ / no ☒

6. Additional Information:

The following sources of information may be available through the Information Center. However, several of these sources are now available on the OHP website and can be accessed directly. The Office of Historic Preservation makes no guarantees about the availability, completeness, or accuracy of the information provided through these sources. Indicate below if the Information Center should review and provide documentation (if available) of any of the following sources as part of this request.

Caltrans Bridge Survey	yes ☐ / no ☒
Ethnographic Information	yes ☐ / no ☒
Historical Literature	yes ☐ / no ☒
Historical Maps	yes ☐ / no ☒
Local Inventories	yes ☐ / no ☒
GLO and/or Rancho Plat Maps	yes ☐ / no ☒
Shipwreck Inventory	yes ☐ / no ☒
Soil Survey Maps	yes ☐ / no ☒

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1 In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual and be identified as an Authorized User or Conditional User under an active CHRIS Access and Use Agreement.

2 "Other" Reports GIS layer consists of report study areas for which the report content is almost entirely non-fieldwork related (e.g., local/regional history, or overview) and/or for which the presentation of the study area boundary may or may not add value to a record search.

3 Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Includes, but not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys. Previously known as the HRI and then as the HPD, it is now known as the Built Environment Resources Directory (BERD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

4 Associated documentation will vary by resource. Contact the IC for further details.

5 Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Previously known as the Archaeological Determinations of Eligibility, now it is known as the Archaeological Resources Directory (ARD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

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CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
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MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
1400 Valley House Drive, Suite 210
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://nwic.sonoma.edu

8/17/2022 NWIC File No.: 22-0099

Christina Alonso
SWCA Environmental Consultants
60 Stone Pine Road
Half Moon Bay, CA 94019

Re: SupplyBank

The Northwest Information Center received your record search request for the project area referenced above, located on the Oakland East USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a ¼ mi. radius:

Resources within project area:	None listed
Resources within ¼ mi. radius:	None listed
Reports within project area:	[22] Please see attached list, page 3
Reports within ¼ mi. radius:	S-7919, 30894, 33020, 33545, 42891, 46399, 46599, 47303, 51961

Resource Database Printout (list):		☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):		☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:		☐ enclosed	☐ not requested	☒ nothing listed
Report Database Printout (list):		☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (details):		☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:		☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:		☐ enclosed	☐ not requested	☒ nothing listed
Report Copies:	[within]	☒ enclosed	☐ not requested	☐ nothing listed
OHP Built Environment Resources Directory:		☒ enclosed	☐ not requested	☐ nothing listed
Archaeological Determinations of Eligibility:		☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):		☐ enclosed	☐ not requested	☒ nothing listed
GLO and/or Rancho Plat Maps:		☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:		☐ enclosed	☒ not requested	☐ nothing listed

Local Inventories:	☐ enclosed	☒ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,
Annette Neal
Researcher

DocCo	DocNo
S-	000779
S-	000848
S-	001784
S-	002458
S-	007903
S-	009462
S-	009583
S-	009795
S-	014621
S-	015529
S-	016660
S-	017773
S-	017835
S-	018217
S-	020395
S-	021021
S-	030204
S-	032596
S-	033239
S-	033600
S-	048927
S-	049780

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 25, 2022

Christina Alonso
SWCA Environmental Consultants

Via Email to: Christina.Alonso@swca.com

Re: Supply Bank Project, Alameda County

Dear Ms. Alonso:

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

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Alameda County
8/25/2022

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
3030 Soda Bay Road
Lakeport, CA, 95453
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com
Costanoan

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

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods, MLD Contact
1615 Pearson Court
San Jose, CA, 95122
Phone: (408) 673 - 0626
kanyon@kanyonkonsulting.com
Costanoan

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

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
marellano@muwekma.org
Costanoan

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

North Valley Yokuts Tribe
Timothy Perez,
P.O. Box 717
Linden, CA, 95236
Phone: (209) 662 - 2788
huskanam@gmail.com
Costanoan
Northern Valley Yokut

The Ohlone Indian Tribe
Andrew Galvan,
P.O. Box 3388
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com
Bay Miwok
Ohlone
Patwin
Plains Miwok

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA, 93906
Phone: (831) 443 - 9702
kwood8934@aol.com
Foothill Yokut
Mono

The Confederated Villages of Lisjan
Corrina Gould, Chairperson
10926 Edes Avenue
Oakland, CA, 94603
Phone: (510) 575 - 8408
cvltribe@gmail.com
Bay Miwok
Ohlone
Delta Yokut

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

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Supply Bank Project, Alameda County.

SWCA®
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

60 Stone Pine Road, Suite 100
Half Moon Bay, California 94019
Tel 650.440.4160 Fax 650.440.4165
www.swca.com

August 30, 2022

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

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Andrew Galvan:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

The Project area is located within the City of Oakland, Alameda County, California within the Oakland East, CA 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle. The work is located west of Oakport Street and approximately 100 feet east of San Leandro Bay.

SWCA submitted a cultural resources records search through the NWIC on July 15, 2022 and received results on August 17, 2022. A search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was submitted on July 15, 2022, with **negative** results.

SWCA is requesting any additional information you may have regarding properties, features, or cultural materials within the Project APE (see attached) that may be of concern to local Native Americans.

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Any comments you may have regarding cultural resources in this area would be greatly appreciated. Please feel free to contact me with any concerns, or if you have additional questions about the project. You may reach me by phone at (925)399-9220 or email me at Christina.Alonso@swca.com.

Thank you for your time and assistance in this matter, I look forward to hearing from you.

Sincerely,

Christina Alonso
Senior Project Manager
Attachment 1 – Project Maps

SWCA® ENVIRONMENTAL CONSULTANTS
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USGS 7.5-Minute Aerial Map of Oakland, California, depicting the project area (APE).

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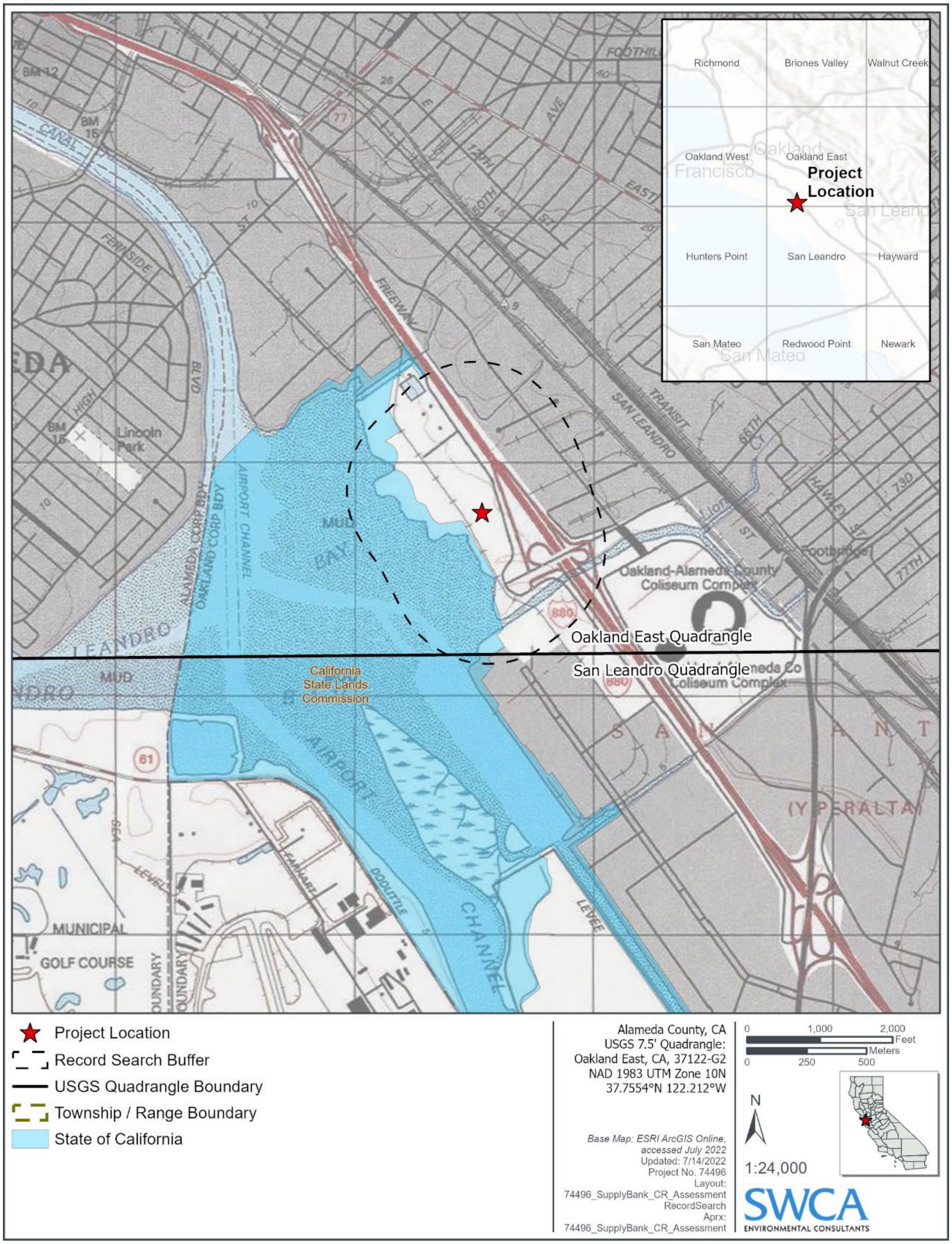

USGS 7.5-Minute Topographic Map of Oakland, California, depicting the project area (APE) with a 0.25-mile search buffer.

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60 Stone Pine Road, Suite 100
Half Moon Bay, California 94019
Tel 650.440.4160 Fax 650.440.4165
www.swca.com

August 30, 2022

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

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Chairperson Ann Marie Sayers:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

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Thank you for your time and assistance in this matter, I look forward to hearing from you.

Sincerely,

Christina Alonso
Senior Project Manager
Attachment 1 – Project Maps

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60 Stone Pine Road, Suite 100
Half Moon Bay, California 94019
Tel 650.440.4160 Fax 650.440.4165
www.swca.com

August 30, 2022

Corrina Gould, Chairperson
The Confederated Villages of Lisjan
10926 Edes Avenue
Oakland, CA 94603

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Chairperson Corrina Gould:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

The Project area is located within the City of Oakland, Alameda County, California within the Oakland East, CA 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle. The work is located west of Oakport Street and approximately 100 feet east of San Leandro Bay.

SWCA submitted a cultural resources records search through the NWIC on July 15, 2022 and received results on August 17, 2022. A search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was submitted on July 15, 2022, with **negative** results.

SWCA is requesting any additional information you may have regarding properties, features, or cultural materials within the Project APE (see attached) that may be of concern to local Native Americans.

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Any comments you may have regarding cultural resources in this area would be greatly appreciated. Please feel free to contact me with any concerns, or if you have additional questions about the project. You may reach me by phone at (925)399-9220 or email me at Christina.Alonso@swca.com.

Thank you for your time and assistance in this matter, I look forward to hearing from you.

Sincerely,

Christina Alonso
Senior Project Manager
Attachment 1 – Project Maps

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August 30, 2022

Irene Zwierlein, Chairperson
Amah Mutsun Tribal Band of Mission San Juan Bautista
3030 Soda Bay Road
Lakeport, CA 95453

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Chairperson Irene Zwierlein:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

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August 30, 2022

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

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Chairperson Katherine Perez:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

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August 30, 2022

Kanyon Sayers-Roods
Indian Canyon Mutsun Band of Costanoan
1615 Pearson Court
San Jose, CA 95122

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Kanyon Sayers-Roods:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA); East Bay Municipal Utility District (EBMUD) will be the lead agency.

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

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August 30, 2022

Kenneth Woodrow, Chairperson
Wuksache Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct.
Salinas, CA 93906

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Chairperson Kenneth Woodrow:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

SupplyBank seeks to acquire the rights to develop two adjacent parcels of property owned by EBMUD at 5601 Oakport Street in the City of Oakland, Alameda County, California, via a parcel map waiver. Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. While the entirety of Parcel 2 will be developed, only 2 acres of Parcel 1 will be developed. The site will continue to be owned by EBMUD, and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space, including an office building, a warehouse, and a weld shop.

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www.swca.com

August 30, 2022

Monica Arellano, Vice Chairwoman
Muwekma Ohlone Indian Tribe of the SF Bay Area
20885 Redwood Road, Suite 232
Castro Valley, CA 94546

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Vice Chairwoman Monica Arellano:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

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August 30, 2022

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

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Chairperson Tony Cerda:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

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Half Moon Bay, California 94019
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August 30, 2022

Timothy Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: SupplyBank Cultural Resources Assessment, City of Oakland, California/ SWCA Project No. 74496

Dear Timothy Perez:

SWCA Environmental Consultants (SWCA) was retained by Lamphier-Gregory to provide archaeological support for the SupplyBank Project (project). The project is subject to review under the California Environmental Quality Act (CEQA).

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Sincerely,

Christina Alonso
Senior Project Manager
Attachment 1 – Project Maps

Sacred Lands File & Native American Contacts List Request

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

Information Below is Required for a Sacred Lands File Search

Project: SupplyBank

County: Alameda County

USGS Quadrangle Name: Oakland East

Township: 02S **Range:** 03W **Section(s):** 17

Company/Firm/Agency: SWCA Environmental Consultants

Street Address: 60 Stone Pine Road

City: Half Moon Bay **Zip:** 94019

Phone: 925-399-9220

Fax: ____________

Email: Christina.Alonso@swca.com

Project Description:

The project is located at 5601 Oakport Street. SWCA understands that East Bay Mud (EBMUD) owns these two adjacent properties; Parcel 1 (to the north) is approximately 30.7 acres in size, and Parcel 2 (to the south) is approximately 14.4 acres. SupplyBank seeks to acquire the rights to develop Parcel 2 and approximately 2 acres of Parcel 1 via a parcel map waiver. The site will continue to be owned by EBMUD and the new development will be managed by SupplyBank.Org as part of a long-term land lease agreement. The new development will include properties with a total of 293,000 square feet of building space including an office building, a warehouse, and a weld shop.


Nimitz Fwy
Coliseum Way
50th Ave
Tidewater Ave
Oakport St
Parcel 2
Parcel 1
Oakport St
Nimitz Fwy
Coliseum Way
Lions Creek
66th Av
Project Area
Project Site Parcels
Alameda County, CA
USGS 7.5' Quadrangle:
Oakland East, CA, 37122-G2
NAD 1983 UTM Zone 10N
37.7576°N 122.2139°W
Base Map: ESRI ArcGIS Online, accessed July 2022
Updated: 7/14/2022
Project No. 74496
Layout: 74496_SupplyBank_CR_Assessment ProjectLocation
Aprx: 74496_SupplyBank_CR_Assessment
0 410 820 Feet
0 100 200 Meters
N
1:10,000
SWCA
ENVIRONMENTAL CONSULTANTS

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 25, 2022

Christina Alonso
SWCA Environmental Consultants

Via Email to: Christina.Alonso@swca.com

Re: Supply Bank Project, Alameda County

Dear Ms. Alonso:

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

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Appendix L

Geotechnical Engineering Report for Oakport Buildings in Oakland, Alameda, California

Terracon Consultants, Inc. June 15, 2018

Geotechnical Engineering Report

Oakport Buildings

Oakland, Alameda, California

June 15, 2018

Terracon Project No. ND175105

Prepared for:

SupplyBank.Org
Oakland, CA

Prepared by:

Terracon Consultants, Inc.
Concord, California

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

REPORT SUMMARY

Topic [1]	Overview Statement [2]
Project Description	63,640 square foot (sf) warehouse 60,480 sf warehouse 25,000 sf 4-story office building 10,000 sf butler building (assumed metal frame with metal siding) Max. Column loads: 150-200 kips (warehouses), 300-400 kips (office building) Max. Wall loads: 4-8 kips per lineal foot Max. Slab loads: 300 psf Pipe laydown area with pipe stockpiled up to 7 feet high Materials (sand and gravel) bins with walls up to 10 feet tall and stockpiles up to 14 feet tall Fills up to 4 feet may be required to achieve final grade in some areas of the site. Excavations up to 4 feet are anticipated for loading dock and elevator pit construction. Expected traffic indexes/loads for pavement areas: ■ Auto Parking Areas: 5.0 ■ Auto Road: 5.5 ■ Truck Parking Areas: 6.0 ■ Truck Ramps and Roads: 8.0 Average Daily Truck Traffic (ADTT) for rigid pavements: ■ Car Parking and Access Lanes: 1 (Category A) ■ Truck Parking: 25 (Category B) ■ Dumpster Pad per Category C
Geotechnical Characterization	Up to 11 feet of Undocumented Fill blankets the site Approximately 3 to 7½ feet of elastic SILT (Bay Mud) underlies the FILL. Interbedded layers of native CLAY and SAND with varying consistencies/densities underlying the Bay Mud extend to the maximum depths explored. Groundwater was encountered in the borings at depths as shallow 3 feet below the ground surface (bgs).
Earthwork	Remove and re-compact existing undocumented fill in pavement and hardscape areas to a minimum depth of 2 feet bgs. Surface lean clays have moderately plasticity and are sensitive to moisture variation. The upper 24 inches of subgrade below hardscapes should consist of low volume change material (LVC). Existing fill may be reused as structural fill provided it is processed to remove debris, particles greater than 3 inches in greatest dimension, and organic material.
Shallow Foundations	Shallow foundations may be used to support low height landscaping walls (<3 feet in height) and light poles. Allowable bearing pressure = 500 lbs/sq ft Expected settlements: < 2-inch total, < 1-inch differential Shallow foundations may be considered for support of buildings and retaining walls in areas mitigated with **Ground Improvement** methods.

Deep Foundations	Buildings and accessory structures, including retaining walls, should be supported by driven piles unless **Ground Improvement** methods are used to mitigate anticipated settlements.
Retaining Structures	Office building elevator pit. Warehouse loading dock walls. Material Bin walls. **Lateral Earth Pressures** have been provided for use in design.
Pavements	Pavement sections are provided with subgrade prepared as noted in **Earthwork**. Alternative pavement sections utilizing triaxial geogrid reinforcement or lime/cement treatment are provided.
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Geotechnical Engineering Report

Oakport Buildings
5801 Oakport Street
Oakland, Alameda, California
Terracon Project No. ND175105
June 15, 2018

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed warehouses, office building, butler building, and associated parking and drives to be located at 5801 Oakport Street in Oakland, Alameda, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Soil corrosivity
- Liquefaction
- Foundation design and construction
- Floor slab design and construction
- Lateral earth pressures
- Pavement design and construction
- Infiltration rates
- Seismic site classification and design parameters per 2016 CBC

The geotechnical engineering scope of services for this project included the advancement of 28 test borings to depths ranging from approximately 5 to 51½ feet below existing site grades. Additionally, two cone penetrometer test (CPT) soundings were advanced to a depth of 100 feet bgs.

Maps showing the site and boring and CPT locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and/or as separate graphs in the **Exploration Results** section of this report.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 5801 Oakport Street in Oakland, Alameda, California. The parcel is approximately 16.4 acres in size. 37.7557°N 122.2115°W (approximate) (See Exhibit D)
Existing Improvements	The project location is primarily vacant land with an asphalt paved area on the northeastern portion of the site. The northern portion of the site is being used as an East Bay Municipal Utility District (EBMUD) backfill and pipe storage yard. We understand the parcel is also occasionally utilized for a carnival and parking.
Current Ground Cover	Earthen, grasses, and some fill and debris piles.
Existing Topography	The property is relatively flat with a gentle slope from the east down to the west.
Geology	The subsurface conditions consist of man-made artificial fill overlying Bay Mud and alluvial marine deposits.[1] The project site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.[2] The project site is located in an area as being a liquefaction hazard zone having a very high susceptibility to earthquake-induced liquefaction.[3]

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed in the project planning stage. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	A conceptual site plan of the project prepared by Ware Malcomb was provided by SupplyBank.org via email.
Project Description	The approximately 16.4-acre property is located west of Interstate 880 and borders San Leandro Bay. The property will be developed with two warehouses, an office building, a butler building, and associated parking and drives. Development will include material bins and a pipe laydown area.

[1] Dibblee, T.W., and Minch, J.A., 2005, Geologic map of the Oakland East quadrangle, Contra Costa and Alameda Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-160, scale 1:24,000

[2] California Department of Conservation Division of Mines and Geology (CDMG), *"Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Southern Region"*, , 2012.

[3] Witter, R.C., Knudsen, K.L., Sowers, J.M., Wentworth, C.M., Koehler, R.D., Randolph, C.E., 2006, Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California: A Digital Database, U.S. Geological Survey OFR 2006-1037.

Item	Description
Proposed Structures	■ 63,640 square foot (sf) warehouse ■ 60,480 sf warehouse ■ 25,000 sf, 4-story office building ■ 10,000 sf butler building. ■ Material bin retaining walls
Building Construction	■ The warehouse buildings will consist of concrete tilt-up construction with concrete slab floors. A portion of the buildings will have depressed loading docks. The exterior walls will extend up to 45 feet above the ground surface. ■ The office and butler buildings will consist of wood-frame and metal frame construction with concrete slab floors. ■ The material bin walls will be up to 10 feet tall and consist of concrete construction.
Maximum Loads (provided)	■ Warehouse columns: 150 to 200 kips ■ Office building columns: 300 to 400 kips ■ Walls: 4 to 8 kips per linear foot (klf) ■ Slabs: 300 pounds per square foot (psf) ■ Material Bin stockpiles: 1,700 psf
Grading	Up to 4 feet of cuts and 4 feet of fills are anticipated to develop final grade across the site and facilitate the office elevator pit and warehouse loading dock construction.
Retaining Structures	The office building will have at least one elevator pit. We anticipate the pit will extend 3 to 4 feet below the ground surface (bgs) The warehouses will have loading docks that will require to retain up to 4 feet of soil. The Materials Bins will require retaining walls up to 10 feet tall.
Pavements	Paved drives and parking will be constructed as part of development. Traffic indices (TIs) used for flexible pavements sections are as follows: ■ Auto Parking Areas: TI = 5.0 ■ Auto Road: TI = 5.5 ■ Truck Parking Areas: TI = 6.0 ■ Truck Ramps and Roads: TI = 8.0 Average Daily Truck Traffic used for rigid pavements are as follows: ■ Car Parking and Access Lanes: ADTT = 1 (Category A) ■ Truck Parking: ADTT = 25 (Category B) ■ Dumpster Pads: Per Category C The pavement design period is 20 years.
Estimated Start of Construction	Fall 2018

GEOTECHNICAL CHARACTERIZATION

Subsurface Profile

We understand the site was originally a tidal marshland. Miscellaneous fill was placed over the marshland in the 1950s and 1960s to create the existing relatively level parcel. We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction. The following table provides our geotechnical characterization.

The geotechnical characterization forms the basis of our geotechnical calculations and evaluation of site preparation, foundation options and pavement options. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/Density
1[1, 7]	5½ to 11	UNDOCUMENTED FILL SAND with variable amounts of gravel, silt and clay; CLAY with variable amounts of sand and gravel Some debris encountered throughout the fill	Very loose to very dense Soft to hard
2[2]	12½ to 17	Elastic SILT (Bay Mud)	Very soft to soft
3[3]	18½ to 34	SAND with variable amounts of gravel, silt and clay	Very loose to dense
4[4]	20½ to 50½	CLAY with variable amounts of silt and sand	Soft to stiff
5[5]	Undetermined	SAND with variable amounts of clay and gravel	Loose to dense
6[6]	Undetermined	Silty CLAY	Stiff

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/Density

1. Borings B13 through B24 terminated within this stratum.
2. Boring B27 terminated in this stratum.
3. Borings B2, B11, B25, and B26 terminated within this stratum.
4. Borings B6 and B10 terminated within this stratum.
5. Borings B1, B3, B8 and B9 terminated within this stratum.
6. Boring B7 terminated within this stratum. Stratum only encountered in Boring B7.
7. Practical auger refusal was encountered in boring B12 at a depth of 7 feet bgs. Refusal is defined as the depth below the ground surface at which a boring can no longer be advanced with the soil drilling technique being used. Refusal is subjective and is based upon the type of drilling equipment used, the types of augers used, and the effort exerted by the driller. We anticipate refusal was encountered in buried debris in the FILL or gravel/boulders. Additional borings, auger probes, test pits, or geophysical testing could be performed to obtain more specific subsurface information.

Conditions encountered at each boring/CPT location are indicated on the individual boring and CPT logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

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Groundwater Conditions

The boreholes were observed while drilling and after completion for the presence and level of groundwater. In addition, delayed water levels were also obtained in some borings. The water levels observed in the boreholes can be found on the boring logs in **Exploration Results**, and are summarized below.

Boring Number	Approximate Depth to Groundwater while Drilling (feet) [1]	Approximate Depth to Groundwater after Drilling (feet) [1]
B1	5	3 (3 hr. reading)
B2	9½	5 (6 hr. reading)
B3	8	3 (1 hr. reading)
B6	3	Not measured (NM)
B7	14	NM
B8	21½	NM
B9	6½	NM
B10	7	3 (0 hr. reading)
B11	17	NM
B15	Not encountered (NE)	4 (3 hr. reading)
B16	NE	3 (3 hr. reading)
B21	NE	4 (2 hr. reading)
B23	3	NM
B25	3	3 (1 hr. reading)
B26	8½	NM
B27	5	NM

1. Below ground surface

Groundwater was not observed in the remaining borings while drilling, or for the short duration the borings could remain open. However, this does not necessarily mean the borings terminated above groundwater, or the water levels summarized above are stable groundwater levels. Due to the low permeability of the soils encountered in the borings, a relatively long period may be necessary for a groundwater level to develop and stabilize in a borehole. Long term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of tidal fluctuations, rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structures may be higher or lower than the levels indicated on the boring/CPT logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project. **Dewatering should be anticipated and planned for in proposed excavations. The depth of dewatering below the bottom of excavations should be determined by the contractor and/or designer.** Pump tests for dewatering were not included in the scope of work for this report. However, Terracon can perform pump tests for an additional fee, if desired.

GEOTECHNICAL OVERVIEW

The subject site has several geotechnical considerations that will affect the construction and performance of the proposed warehouses, office building, butler building, pavements, hardscapes, and material bin walls. The following geotechnical considerations have been identified at the subject site:

- Liquefaction Considerations
- Undocumented Fill Considerations
- Compressible Bay Mud Considerations
- Moderately Plastic Soil Considerations

Liquefaction Considerations

A liquefaction potential analysis was calculated from a depth of 3 to 50 feet below the ground surface. Potentially liquefiable layers were encountered in our analysis at multiple depths with the largest liquefiable layer being located between the approximate depths of 15 and 30 feet bgs in several of the borings/CPTs. Based on our review of the calculations by various methods, it is our opinion the anticipated total liquefaction-induced settlements across the site may vary between 2 to 4½ inches. We anticipate the differential liquefaction-induced settlement across the proposed building footprints may be up to 2 inches as a result of the varying lithology encountered in our borings and CPTs. The effects of this anticipated liquefaction settlement can be mitigated by supporting the proposed buildings on **Deep Foundations** that derive support below to the potentially liquefiable soils or by **Ground Improvement** methods such as Deep Soil Mixing (DSM).

Undocumented Fill Considerations

Approximately 5½ to 11 feet of undocumented fill consisting of sand with variable amounts of clay, silt, and gravel and clay with variable amounts of sand and gravel blanketed the site. Debris consisting of wood fragments, concrete, and refuse was encountered throughout the fill. The density/consistency of the undocumented fill encountered in our borings varied from very loose to medium dense and soft to very stiff. Such undocumented fill can result in differential settlement and damage to proposed structures relying on the fill for structural support. As a result, the fill is not suitable to support the proposed buildings and retaining walls.

While the undocumented fill is not suitable to support the proposed buildings, the fill should be adequate to support proposed pavements and hardscapes provided **Earthwork** is conducted per the recommendations provided herein. The fill below pavement and hardscape areas should be over-excavated to a depth of 2 feet and the resulting subgrade should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted per the recommendations in the **Earthwork** section of this report. Following compaction of the subgrade, the over-excavated areas may be backfilled with compacted structural fill. The 2 feet of over-excavation is not required in areas improved by DSM or below buildings supported by **Deep Foundations**.

Even with the recommended earthwork procedures, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing all the existing undocumented fill, but can be reduced by following the recommendations contained in this report. To take advantage of the cost benefit of not removing the entire amount of undocumented fill, the owner must be willing to accept the risk associated with building over the undocumented fills following the recommended reworking of the material.

Compressible Bay Mud Considerations

The undocumented fill blanketing the site was underlain by 3 to 7½ feet of elastic silt (Bay Mud) to depths varying from 12½ to 17 feet bgs. The underlying Bay Mud is a largely unconsolidated and compressible geologic unit. We understand the undocumented fill was placed in the early 1960's over tidal marshland. Laboratory testing indicated the Bay Mud was slightly over-consolidated indicating primary settlement due to the existing fill placement is likely complete.

We understand site grades may be elevated up to 4 feet in some areas across the site to accommodate development. In addition, stockpiles of soil and gravel up to 14 feet high area are anticipated in the Materials Bin area of the development. Placement of additional fill and stockpiled material will likely trigger new consolidation settlement of the Bay Mud.

A consolidation settlement analysis was performed to estimate the anticipated total settlement under the weight of the new fill placement and stockpiled soil. The analysis was performed using the results of laboratory testing and our experience. A Bay Mud thickness of 7½ feet was used in our calculations. The results of our analysis are presented in the following Table for both normal weight and lightweight fill.

Consolidation Settlement from Fill Placement		
Additional Fill Height (feet)	**Fill Load (psf)**	**Estimated Total Consolidation Settlement (inches)**
	Normal Weight Engineered Fill (Unit Weight = 120 pcf)	
1	120	3
2	240	5½
3	360	7½
4	480	9
	Stockpiled Sand and Gravel (Unit Weight = 120 pcf)	
12	1,440	19
14	1,680	20½
	Lightweight Engineered Fill (Unit Weight = 50 pcf or less)	
1	50	1½
2	100	2½
3	150	3½
4	200	4½

These settlements due to fill placement and/or stockpiled materials could be reduced by various **Ground Improvement** methods including placement of lightweight fill, DSM, and rammed aggregate piers (RAP). In order to avoid the effect of these total and associated differential settlements on the proposed buildings, the buildings should be supported by **Deep Foundations** or subgrade mitigated by **Ground Improvement** methods. In addition, special design details should be considered for underground utility lines; site development such as hardscape, entrances, and pavement adjacent to pile or DSM supported structures; and site drainage. In areas not improved by DSM or other **Ground Improvement** methods, the anticipated differential movement should be considered when planning development in these areas. Long term maintenance should be planned for in pavement, drainage, and hardscape areas adjacent to building entrances. It is recommended utilities and piping be designed with flexible connections and/or other means to accommodate such soil movement to reduce the potential for damage. Utility and drain lines designed for gravity flow should consider and account for anticipated settlements.

Moderately Plastic Soil Considerations

The surficial soils across the project site are generally moderately plastic (expansive). Additional areas of localized moderately to highly plastic clays may be present where borings were not performed.

These plastic clays are prone to volume change with changes in moisture which may lead to excessive shrinking and swelling of pavements and hardscapes. In order to address the effects of the moderate to high volume change soils, we recommend exterior hardscapes be underlain by a minimum of 24 inches of low volume change (LVC) material. Using an LVC zone as recommended in this report may not eliminate all future subgrade volume change and resultant slab movements. However, the procedures outlined herein should help to reduce the potential for subgrade volume changes.

This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and cracking in the slabs should be anticipated. The severity of cracking and other (cosmetic) damage such as uneven slabs will likely increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more extensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

Earthwork will include clearing and grubbing, excavations and fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria as necessary to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

Site Preparation

Prior to placing fill, existing vegetation and root mat, debris, stockpiled soil and any otherwise unsuitable material should be removed. Complete stripping of the topsoil should be performed in the proposed building and parking/driveway areas.

The subgrade should be proof-rolled with an adequately loaded vehicle such as a fully loaded tandem axle dump truck. The proof-rolling should be performed under the direction of the

Geotechnical Engineer. Areas excessively deflecting under the proof-roll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by stabilizing as noted in the following section **Soil Stabilization**. Excessively wet or dry material should either be removed or moisture conditioned and recompacted. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

Subgrade Preparation

After clearing any required cuts should be made. The undocumented fill below pavement and hardscape areas should be over-excavated to a minimum depth of 2 feet. Terracon should be present to observe the subgrade conditions during over-excavation. The presence of over-sized debris or a high volume of organic material may warrant additional over-excavation at the time of grading operations. If needed, a geotextile fabric may be utilized as a separator between the undocumented fill and engineered fill. This over-excavation requirement is not required in areas improved by **Ground Improvement** methods or below slabs in buildings supported by **Deep Foundations**.

Once any required cuts have been made, and prior to placing any engineered fill the subgrade soil should be scarified and compacted. The depth of scarification of subgrade soils and moisture conditioning of the subgrade is highly dependent on the time of year of construction and the site conditions that exist immediately prior to construction. If construction occurs during the winter or spring, when the subgrade soils are typically already in a moist condition, scarification and compaction may only be 12 inches. If construction occurs during the summer or fall when the subgrade soils have been allowed to dry out deeper, the depth of scarification and moisture conditioning may be as much as 18 inches. Due to the shallow groundwater, the subgrade soil at the over-excavated depth is likely to be in an elevated moisture condition and compaction will likely require some drying before it can be compacted. A representative from Terracon should be present to observe the exposed subgrade and specify the depth of scarification and moisture conditioning required.

Following scarification and compaction of the subgrade, the over-excavated areas may be backfilled with compacted structural fill and any additional fill may be placed and compacted.

The moisture content and compaction of subgrade soils should be maintained until foundation/slab/pavement construction. Care should be taken to prevent wetting or drying of the bearing materials during construction.

Bay Mud was encountered as shallow as 5½ feet bgs. The depths to Bay Mud will fluctuate across the site and could be encountered at shallower depths. As a result, very soft Bay Mud conditions could be encountered in the bottom of excavations. These soils will likely be unworkable. The contractor may utilize dry crushed rock or clean granular fill material placed over a geotextile such as Mirafi RS580i or equivalent to stabilize wet subgrade materials in the bottom of the excavation prior to backfill. If further soil stabilization is needed or another method is preferred or desired, Terracon should be consulted to evaluate the situation as needed.

Fill placed on Bay Mud or in areas where Bay Mud is covered with less than 3 feet of soil can cause failure within the mud if large amounts of fill are placed too quickly. The weight of the fill can cause the Bay Mud to fail and flow away from the fill as a wave. In order to help reduce the potential for mud waves during fill placement, the first layer of fill should be placed slowly and in as thin a layer as possible without allowing the grading equipment to sink into the mud. In these areas lightweight equipment should be used to help minimize the required thickness of the first layer. We recommend monitoring the pore pressure in the Bay Mud during placement to help mitigate the potential for mud waves. The amount of the fill placed on a daily basis may need to be limited to help minimize pore pressure build up and subsurface failure.

Soil Stabilization

Methods of subgrade improvement, as described below, could include scarification, moisture conditioning and recompaction, and removal of unstable materials and replacement with granular fill (with or without geosynthetics). The appropriate method of improvement, if required, would be dependent on factors such as schedule, weather, the size of the area to be stabilized, cost and the nature of the instability. More detailed recommendations can be provided during construction as the need for subgrade stabilization occurs. Performing site grading operations during warm seasons and dry periods would help to reduce the amount of subgrade stabilization required.

If the exposed subgrade is unstable during proof rolling operations, it could be stabilized using one of the methods outlined below.

- **Scarification and Compaction** – It may be feasible to scarify, dry, and compact the exposed soils. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot, if the unstable soil is at or near groundwater levels, or if construction is performed during a period of wet or cool weather when drying is difficult.

- **Aggregate Base** – The use of Caltrans Class II aggregate base is the most common procedure to improve subgrade stability. Typical undercut depths would be expected to range from about 6 to 18 inches below finished subgrade elevation with this procedure. The use of high modulus geotextiles (i.e., engineering fabric or geogrid) could also be considered after underground work such as utility construction is completed. Prior to placing the fabric or geogrid, we recommend that all below-grade construction, such as utility line installation, be completed to avoid damaging the fabric or geogrid. Equipment should not be operated above the fabric or geogrid until one full lift of aggregate base is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should meet the manufacturer's specifications.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Existing Undocumented Fill

As noted in **Geotechnical Characterization**, 5½ to 11 feet of undocumented fill blanketed the site. The fill is considered undocumented as we have no records to indicate the degree of control that was performed during placement. Support of foundations, floor slabs, and pavements on or above existing fill soils is discussed in this report.

The density/consistency of the undocumented fill encountered in our borings varied from loose to medium dense and soft to very stiff. Such undocumented fill can result in differential settlement and damage to proposed structures relying on the fill for structural support. As a result, the fill is not suitable to support the proposed buildings. While the undocumented fill is not suitable to support the proposed buildings, the fill should be adequate to support proposed pavements and exterior hardscapes provided **Earthwork** is conducted per the recommendations provided herein. If the owner elects to construct pavements and hardscapes on the existing fill, the following protocol should be followed. The fill below pavement and hardscape areas should be over-excavated to a depth of 2 feet and the resulting subgrade should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted per the recommendations in the **Earthwork** section of this report. Following compaction of the subgrade, the over-excavated areas may be backfilled with compacted structural fill. The 2 feet of over-excavation is not required in areas improved by **Ground Improvement** methods.

Even with the recommended earthwork procedures, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing all the existing undocumented fill, but can be reduced by following the recommendations contained in this report. To take advantage of the cost benefit of not removing the entire amount of undocumented fill, the owner must be willing to accept the risk associated with building over the undocumented fills following the recommended reworking of the material.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures or pavements. General fill is material used to achieve grade outside of these areas. Earthen materials used for structural and general fill should meet the following material property requirements:

Fill Type[1]	USCS Classification	Acceptable Location for Placement
Lean Clay	CL (LL<45)	All structural and general fill locations and elevations, except as LVC material unless material explicitly meets LVC requirements.
Moderate to High Plasticity Material[2]	CH or CL (LL≥45 or PI≥25)	> 24 inches below finished grade in structural fill areas and in all general fill locations and elevations
Well-graded Granular[3]	GM, GC, SM, or SC	All structural and general fill locations and elevations
Low Volume Change (LVC) Material[4]	CL (LL<30 & PI<10) or Well-graded Granular Material [3]	All structural and general fill locations and elevations
On-site Soils[5]	SP, SM, SC, SW	All structural and general fill locations and elevations
	CL, CH	>24 inches below finished grade in structural and general fill locations
	MH	>24 inches below grade in general fill locations
Lightweight[6]	SM, SC, SP, SW, GM, GC Cellular Concrete EPS Geofoam	All structural and general fill locations and elevations

1. Compacted structural fill should consist of approved materials that are free of organic matter and debris. A sample of each material type should be submitted to Terracon for evaluation at least two weeks prior to grading.
2. Delineation of moderate to highly plastic clays should be performed in the field by a qualified geotechnical engineer or their representative, and could require additional laboratory testing.
3. Caltrans Class II aggregate base may be used for this material.
4. Low plasticity cohesive soil or granular soil having low plasticity fines. Material should be approved by the geotechnical engineer.
5. This material should be removed and recompacted if used as an engineered or structural fill as described in section **Fill Compaction Requirements**. The onsite undocumented fill may be used at structural or general fill provided the material is processed to remove debris, particles greater than 3 inches in greatest dimension, and organic material.
6. This material should have a maximum moist unit weight of 50 pcf or less.

Fill Compaction Requirements

Structural and general fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
Maximum Lift Thickness[2]	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used	Same as Structural fill
Minimum Compaction Requirements [1,3]	90% of max. below foundations 95% of max. above foundations and below floor slabs and pavements	90% of max.
Water Content Range [1]	Low plasticity cohesive: +1% to +3% above optimum High plasticity cohesive: +2% to +4% above optimum Granular: -2% to +2% above optimum	As required to achieve min. compaction requirements[4]

1. Maximum density and optimum water content as determined by the Modified Proctor test (ASTM D 1557).
2. Reduced lift thicknesses are recommended in confined areas (e.g., utility trenches, foundation excavations, and foundation backfill) and when hand-operated compaction equipment is used.
3. We recommend that engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved. This procedure is intended for soils with 30 percent or less material larger than ¾ inch. Accordingly, we recommend full time proof roll observation be performed instead of moisture density testing for materials containing more than 30 percent aggregate retained on the ¾-inch sieve.
4. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proof rolled.

Utility Trench Backfill

Special design may be required for the utilities at this site. Utility design should account for the anticipated settlements provide in **Geotechnical Overview.** It is recommended utilities and piping be designed with flexible connections and/or other means to accommodate such soil movement to preclude damage. Utility and drain lines designed for gravity flow should consider steeper gradients to account for anticipated settlements, especially where such lines enter buildings supported by piles or in areas improved by **Ground Improvement** methods.

As indicated, Bay Mud was encountered at depths varying from 5½ to 11 feet bgs in our boring and CPTs. The Bay Mud extended to depths of between 12½ and 17 feet bgs. The depth of Bay Mud can and will vary across the site. Depending on the planned depth of utilities, groundwater and very soft Bay Mud conditions should be anticipated in the bottom of the planned trench excavations. The soils will likely be unworkable. The contractor may utilize dry crushed rock or clean granular fill material placed over a geotextile such as Mirafi RS580i or equivalent to stabilize wet subgrade materials in the bottom of the excavation prior to backfill. If further soil stabilization is needed, Terracon should be consulted to evaluate the situation as needed.

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Lightweight fill should be considered for utility trench backfill to help reduce the potential for greater differential settlements. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cementitious flowable fill or cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill. Attempts should also be made to limit the amount of fines migration into the clean granular material. Fines migration into clean granular fill may result in unanticipated localized settlements over a period of time. To help limit the amount of fines migration, Terracon recommends the use of a geotextile fabric that is designed to prevent fines migration in areas of contact between clean granular material and fine-grained soils. Terracon also recommends that clean granular fill be tracked or tamped in place where possible in order to limit the amount of future densification which may cause localized settlements over time.

Utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath the buildings should be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the buildings. The trench should provide an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material should consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to comply with the water content and compaction recommendations for structural fill stated previously in this report.

Post construction trenching through geogrid in the pavement areas shall be accomplished with conventional trenching equipment. Repairs to the trenched section shall be accomplished using a full structural replacement of the displaced materials or with a repaired section that is identical to the original section. If the trench section is repaired to match the original, the trench backfill must be compacted to the same or higher density and the geogrid must be over-lapped a minimum 3-inches at the proper geogrid elevation.

Grading and Drainage

All grades must provide effective drainage away from the buildings during and after construction and should be maintained throughout the life of the structures. Water retained next to the buildings can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roofs should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the buildings.

Exposed ground should be sloped and maintained at a minimum 5 percent away from the buildings for at least 10 feet beyond the perimeter of the buildings. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. The Civil Engineer should account for long-term differential settlements in the design of site grades. After building construction and landscaping, final grades should be verified to document effective drainage has been achieved. Grades around the structures should also be periodically inspected and adjusted as necessary as part of the structure's maintenance program. Where paving or flatwork abuts the structure a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Planters located within 10 feet of the structures should be self-contained or lined with an impermeable membrane to prevent water from accessing building subgrade soils. Sprinkler mains and spray heads should be located a minimum of 5 feet away from the building lines.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structures. Trees and shrubbery should be kept away from the exterior of the structures a distance at least equal to their expected mature height.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of floor slabs and hardscapes. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over, or adjacent to, construction areas should be removed. If the subgrade desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and re-compacted, prior to slab construction.

The groundwater table could affect over-excavation efforts, especially for over-excavation and replacement of lower strength soils. A temporary dewatering system consisting of sumps with pumps could be necessary to achieve the recommended depth of over-excavation for required excavations. **Dewatering should be anticipated and planned for in proposed excavations. The depth of dewatering below the bottom of excavations should be determined by the contractor and/or designer.** Pump tests for dewatering were not included in the scope of work for this report. However, Terracon can perform pump tests for an additional fee, if desired.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations. Stockpiles of soil, construction materials, and construction equipment should not be placed near trenches or excavations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation and top soil, proof-rolling and mitigation of areas delineated by the proof-roll to require mitigation.

Each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet per lift of compacted utility trench backfill.

In areas of excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

Shallow foundations may be utilized to support light poles and low height (< 3 feet) landscape walls if needed. If it is elected to proceed with ground improvement measures, such as DSM, in building areas shallow foundations such as mat or post-tensioned slabs may be considered. Terracon can consult with the project Structural Engineer and ground improvement contractor to develop additional supplemental recommendations for these foundation types as needed.

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations supporting light poles and low height landscape walls.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing pressure [1]	500 psf
Required Bearing Stratum [3]	1 foot compacted structural fill
Minimum Foundation Width	12 inches
Maximum Foundation Width	60 inches
Ultimate Passive Resistance [2,6] **(equivalent fluid pressures)**	250 pcf
Ultimate Coefficient of Sliding Friction [3,6]	0.30
Minimum Embedment below Finished Grade [4]	18 inches
Estimated Static Total Settlement from Structural Loads [7]	2 inches – Pad footings 4 inches – Strip footings
Estimated Static Differential Settlement [5,7]	About 1/2 of total settlement

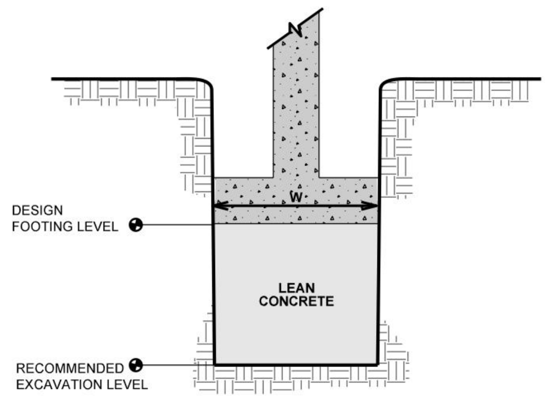
1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. These bearing pressures can be increased by 1/3 for transient loads unless those loads have been factored to account for transient conditions. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face.
3. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
4. Embedment necessary to minimize the effects of seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
5. Differential settlements are as measured over a span of 40 feet.
6. Passive pressure and sliding friction may be combined to resist sliding provided the passive pressure is reduced by 50 percent.
7. Settlements are static settlements and do not account for settlement due to liquefaction.

Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings 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 edge of the adjacent trench.

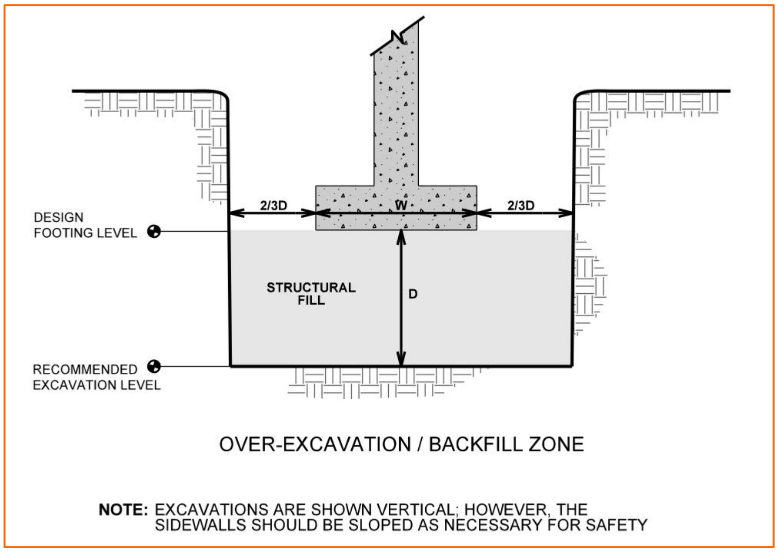
If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. This is illustrated on the sketch below.



LEAN CONCRETE BACKFILL

NOTE: EXCAVATIONS ARE SHOWN VERTICAL; HOWEVER, THE SIDEWALLS SHOULD BE SLOPED AS NECESSARY FOR SAFETY

Over-excavation for structural fill placement below footings should be conducted as shown below. The over-excavation should be backfilled up to the footing base elevation, with structural fill placed, as recommended in the **Earthwork** section.



GROUND IMPROVEMENT

As an alternative to supporting the buildings on deep foundations as a result of the anticipated settlement due to liquefaction, undocumented fill, and compressible Bay Mud, shallow foundations such as mat or post-tensioned slabs could be considered if ground improvement methods are utilized. Ground improvement methods are proprietary systems designed by licensed contractors who could provide further information regarding support options. It is our opinion Deep Soil Mixing (DSM) would be the most appropriate option to help mitigate the combined effects associated with the liquefaction, undocumented fil, and compressible Bay Mud concerns at this site. However, if the Contractor or Structural Engineer have worked with a different ground improvement method that has proven successful to mitigate the hazards present at this site with similar subgrade soil conditions, Terracon could consider such options if desired.

In addition, settlements in excess of 20 inches are anticipated in the Materials Bin and Pipe Laydown areas due to consolidation of the undocumented fill and compressible Bay Mud. In order to mitigate the excessive settlement under the loading of the proposed stockpiles and pipes to provide a suitable bearing surface for the construction of retaining walls for the Materials Bins, ground improvement methods of DSM or rammed aggregate piers (RAP) could be considered.

Deep Soil Mixing

Deep Soil Mixing (DSM) is achieved through a process of in-situ mixing the subsurface soils with cement or a lime-cement combination. This will result in physiochemical stabilization of the soils to increase the compressive and shear strength of the material and to decrease settlement. DSM is accomplished by either a wet mixing method using primarily cement, or a dry mixing method using lime-cement. The wet mixing method should be used for this site based on the subgrade soils and groundwater conditions. This method would significantly improve the stiffness/density and strength of the very soft to soft Bay Mud and loose sands that underlay the site. By improving the stiffness/density and strength of the very soft to soft Bay Mud and loose sands, DSM would also help improve the Seismic Site Class required for design at the site resulting in cost savings to the project. Additionally, while we believe the potential for lateral spread is low at this site, DSM would provide an added assurance against lateral spreading to occur by stabilizing potentially liquefiable soils. DSM would also help reduce the costs for future maintenance as future settlement in the improved areas would be low.

This process will require a specialty ground improvement contractor to complete this process. Since this would be specialty work, we recommend consideration of using a design-build process if this alternative is selected. DSM would occur after site clearing/preparation and prior to fill placement. We anticipate at least 3 to 4 feet of engineered fill would be placed over the DSM improved soil.

Typically, with DSM there is some potential to generate an excess volume of material that could be used as fill across the site or would require some exportation.

The soil properties of the areas improved by DSM should be verified to confirm the construction methods being used and the improved ground are meeting design specifications. This can be performed by conducting pre-construction laboratory testing to confirm proposed construction methods and mixes will achieve the desired design specifications and by post-construction verification consisting of either in-situ testing by cone penetrometer testing (CPT), dilatometer testing (DMT), standard penetration testing (SPT), or pressuremeter testing (PMT) or by obtaining cores for laboratory testing.

While there would be no need for instrumentation or monitoring during construction; post-construction survey monuments placed on the surface in the ground improved affected area are recommended to evaluate the performance of the contractor's work. Temporary handling of surface drainage could be readily accommodated through the construction area and would be the responsibility of the contractor.

Key elements for this alternative that need to be considered for design and construction are:

- Development of bridging documents for the recommended design-build process;
- Development of temporary drainage measures through the construction area to be implemented by the contractor;
- Development of a QA/QC plan to evaluate compliance with the plans developed in the design build process; and,
- Development of a post-construction monument plan for future evaluation of the performance of the work (if required).

Rammed Aggregate Piers

As an alternative to excessive settlement under stockpiled material loads at the Materials Bin and Pipe Laydown areas and as a way to facilitate the construction of retaining walls up to 10 feet tall at the Materials Bin area, the existing undocumented fill and compressible Bay Mud could be reinforced with a Rammed Aggregate Pier (RAP) system installed on a grid pattern. This option would eliminate the need for significant over-excavation or **Deep Foundations**, and would allow for the placement of stockpiled materials and retaining wall foundations directly atop the RAP-reinforced subgrade. RAP systems are typically installed after clearing and grubbing and prior to beginning of fill construction. The RAP system will serve to stiffen the existing undocumented fill and Bay Mud, and will also serve as gravel conduits for the dissipation of pore-water pressure, thereby shortening the time required for consolidation settlements.

Piers are constructed by advancing a drill or mandrel to design depths, then building a bottom bulb of clean, open-graded stone. The pier is built on top of the bottom bulb, using graded aggregate placed in thin lifts (12 to 24 inches compacted thickness). Shaft lengths typically range from 8 to 40 feet below footing bottoms. We anticipate shafts would extend to depths of 20 feet or less for this site. The result of construction is a reinforced zone of soils directly under the stockpiled materials and footings, which allows of the construction of shallow spread footings sized for relatively higher bearing pressures and with lower anticipated settlements.

A properly designed RAP ground improvement system should meet the following design criteria:

Bearing Capacity Factor of Safety = 2.0
Global Stability (static) = 1.3
Global Stability (dynamic) = 1.1
Post-construction Settlement < 2-inch
Post-construction Differential Settlement < 1”/40’

RAP systems should be designed and constructed by a specialty ground improvement contractor. Since this would be specialty work, we recommend consideration of using a design-build process if this alternative is selected. The contractor should provide detailed design calculations sealed by a professional engineer licensed in the State of California.

DEEP FOUNDATIONS

Steel piles driven to into firm native soil below the Bay Mud and liquefiable soil layers can be used to support the proposed buildings and retaining walls. Steel sections driven through the very soft Bay Mud and liquefiable soils to their design capacity, using an appropriately sized hammer, could be designed using a maximum allowable working stress of 35% of the steel’s yield stress under axial load and 55% of the steel’s yield stress under combined axial and bending stress.

Long-term settlement of a driven pile foundation designed and constructed in accordance with the recommendations presented in this report should be about ½ inch or less in addition to elastic shortening. Once the pile loads and layout are determined, Terracon should review the design and update anticipated settlements as needed.

Driven Pile Design Parameters

The following table can be used for preliminary design of pile capacities for individual conical tipped, closed ended, 18-inch diameter, steel pipe piles. The values are considered to be adequate for estimation of allowable (Factor of Safety = 3) load carrying capacity for driven piles ranging in depth from 65 to 100 feet. We recommend preliminarily designing for a tip elevation of 70 to 80 feet below existing grade. Driven piles should be spaced at least three pile widths apart (center-to-center) if side friction is used for compressive loads.

Driven Steel Pipe Pile Design Summary [1, 2]

Approximate Depth (feet)	Stratigraphy [3]		Skin Friction (psf) [4]	End Bearing Pressure (ksf) [5]
	No.	Material		
0-8	1	FILL	0	0
8-17	2	Elastic Silt (Bay Mud)	0	0
17-34	3	Sand with clay	0	0
34-42	4	Sandy Clay	0[6]	0
42-65	6	Silty Clay	250	0
65-85[5]	-	Sand	1,150	47
85-100[5]	-	Clay	250	3

1. Design capacities are dependent upon the method of installation, and quality control parameters. The values provided are estimates and should be verified when installation protocol have been finalized.
2. Design capacities can be increased by 33% for highly transient loads
3. See **Subsurface Profile** in **Geotechnical Characterization** for more details on Stratigraphy
4. Applicable for compressive loading only. Reduce to 2/3 of values shown for uplift loading. Effective weight of pile can be added to uplift load capacity.
5. Piles should extend 5 feet into the bearing stratum for end bearing to be considered.
6. Skin friction should not be used in this layer due to the presence of liquefiable sand lenses and transitional soils.

Placement of new fill across the site will result in settlement that should be considered in pile foundation design. A static drag load of 9.5 kips per pile should be accounted for in pile design due to the anticipated settlement. A dynamic drag load of 48 kips per pile has been estimated above the neutral plan due to liquefaction following a seismic event. These drag loads were calculated for a conical tipped, closed ended, 18-inch diameter steel pipe pile. If a different pile type or diameter will be used, Terracon should be consulted to provide revised drag loads for design. The project Structural Engineer should confirm combined drag and design loads do not exceed the structural capacity of the pile. If desired, down drag can be reduced the following methods:

- Pre-drilling oversized holes prior to pile driving and filling the resulting annular space with bentonite slurry
- Providing a casing sleeve around the piles to separate the piles from direct contact with settling soils
- Coating the piles with bitumen to allow slippage.

Driven Pile Lateral Loading

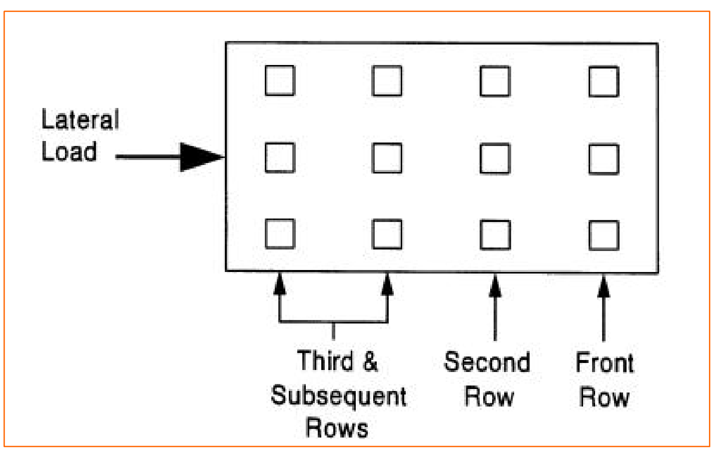
The following table lists input values for use in LPILE analyses. LPILE will estimate values of k_h and E_{50} based on strength; however, non-default values of k_h should be used where provided, in particular for the sand strata. Since deflection or a service limit criterion will likely control lateral capacity design, no safety/resistance factor is included with the parameters.

Stratigraphy [1]		L-Pile Soil Model	S_u (psf) [2]	f [2]	g' (pcf) [2,3]	ε_{50} [2]	K (pci) [2]	
Depth (feet)	Material						Static	Cyclic
5-8	FILL	Stiff Clay without free water (Reese)	250	--	48	0.02	100	--
8-17	Elastic Silt	Soft Clay (Matlock)	150	--	23	0.03	20	--
17-34	Sand with clay	Liquefied Sand	--	--	58	--	--	--
34-42	Sandy Clay	Stiff Clay without free water (Reese)	500	--	58	0.02	100	--
42-65	Silty Clay	Stiff Clay without free water (Reese)	1,250	--	58	0.007	400	150

Stratigraphy [1]		L-Pile Soil Model	S_u (psf) [2]	f [2]	g' (pcf) [2,3]	ε_{50} [2]	K (pci) [2]	
Depth (feet)	Material						Static	Cyclic
65-85	Sand	Sand (Reese)	--	38	72	--	125	--
85-100	Clay	Stiff Clay without free water (Reese)	4,400	--	52	0.004	2,000	800

1. See **Subsurface Profile** in **Geotechnical Characterization** for more details on Stratigraphy.
2. Definition of Terms:
   - S_u: Undrained shear strength
   - f : Internal friction angle
   - g': Effective unit weight
   - ε_{50}: Non-default E50 strain
   - K: Horizontal modulus of subgrade reaction
   - q_u: Non-default soil modulus – static. Refer to software guidelines for cyclic loading.
3. Buoyant unit weight values should be used below water table
4. Parameters assume groundwater is located at depth of 3 feet bgs.

When piles are used in groups, the lateral capacities of the piles in the second, third, and subsequent rows of the group should be reduced as compared to the capacity of a single, independent pile. Guidance for applying p-multiplier factors to the p values in the p-y curves for each row of pile foundations within a pile group where the piles have a minimum spacing of 3 pier diameters are as follows:



- Front row: $P_m = 0.8$;

- Second row: $P_m = 0.4$
- Third and subsequent row: $P_m = 0.3$.

The load capacities provided herein are based on the stresses induced in the supporting soil strata. The structural capacity of the piles should be checked to assure they can safely accommodate the combined stresses induced by axial and lateral forces. Lateral deflections of piles should be evaluated using an appropriate analysis method, and will depend upon the pile's diameter, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections for specific loading conditions upon request. The load-carrying capacity of piles may be increased by increasing the section (for H-piles), diameter (for pipe piles) and/or length.

Driven Pile Construction Considerations

The contractor should consider predrilling the pile locations through the undocumented fill due to the presence of debris throughout the fill. The pre-drilling should not extend more than 2 feet into the underlying Bay Mud. Soils that are pre-drilled should not be relied on for lateral support. We recommend the bore hole be no larger in diameter than the smallest dimension of the pile.

The contractor should select a driving hammer and cushion combination which can install the selected piling without overstressing the pile material. The hammer should have a rated energy in foot-pounds at least equal to 15 percent of the design compressive load capacity in pounds. The contractor should submit the pile driving plan and the pile hammer-cushion combination to the engineer for evaluation of the driving stresses in advance of pile installation. During driving a maximum of 10 blows per inch is recommended to reduce the potential of damage to the piles.

If practical refusal is experienced above the design embedment elevation, the pile may be on an obstruction and a replacement pile should be driven adjacent to the original pile. If this occurs, the situation should be evaluated by Terracon during the pile driving operations. The contractor should be prepared to cut or splice piles, as necessary. Splicing of piles should be in accordance with specifications provided by the project Structural Engineer.

Pile driving conditions, hammer efficiency, and stress on the pile during driving could be better evaluated during installation using a Pile Driving Analyzer (PDA). A Terracon representative should observe pile driving operations. Each pile should be observed and checked for buckling, crimping and alignment in addition to recording penetration resistance, depth of embedment, and general pile driving operations.

Vibrations during pile driving can cause settlement of fill materials and can adversely affects improvements on adjacent sites. Potential settlement of the fill materials across the site following pile driving should be planned and accounted for. The condition of improvements on adjacent site should be documented prior to pile installation and should be monitored during construction.

Pile driving should be stopped and Terracon contacted if movement or cracking of the existing improvements is observed. Monitoring vibration levels during pile driving should be considered. Although vibrations from pile driving may be below levels that will cause structural damage, they may be felt by occupants of the adjacent buildings.

Some ground heave may be experienced as a result of pile driving at each site. Therefore, it is recommended that the top elevations of the initial piles driven be surveyed. If any heave is noted after the driving of subsequent piles, the piles should be re-driven to their original top elevation. This problem can be particularly acute in pile groups.

The pile driving process should be performed under the direction of the Geotechnical Engineer. The Geotechnical Engineer should document the pile installation process including soil and groundwater conditions encountered, consistency with expected conditions, and details of the installed pile.

As indicated in the **Corrosivity** section of this report, testing indicated soils at the site exhibit a moderate to high corrosive potential to buried metal. We recommend that a certified corrosion engineer determine the need for corrosion protection and design appropriate protective measures for the piles.

Indicator Piles

For estimating purposes, we have recommended piles extend a minimum depth of 65 feet bgs. However, the subsurface profile across the site has significant variations. Subsequently, variations in the required pile lengths should be anticipated and planned for. In order to help establish final pile driving criteria, we recommend installing indicator piles. The number of and locations of the indicator piles required will be dependent on the layout of the piles and the site conditions at the time of construction. Terracon should review the final foundation plans and recommend the locations and quantity of indicator piles. Indicator piles should be at least 5 feet longer than anticipated pile lengths to confirm field pile capacities. The indicator piles should be driven with the same equipment as planned for use during production pile driving. Indicator piles may be used as production piles provided the piles meet minimum lengths and no structural damage occurs to the pile during installation.

Pile load testing is recommended to further optimize the proposed pile foundation design. The contractor typically is responsible for the supplying the required equipment and materials and conducting the testing program. Pile load testing should be reviewed and monitored by Terracon and the project Structural Engineer.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7-10. The Site Classification at this site could be improved from a Site Class F to a Site Class D by performing **Ground Improvement** that would improve the stiffness/density and strength of the very soft to soft Bay Mud and loose, potentially liquefiable sands which could help in cost savings to the project.

Description	Value
2016 California Building Code Site Classification (CBC) [1]	F [2, 4]
Site Latitude	37.7555°N
Site Longitude	122.2120°W
S_s, Spectral Acceleration for a Short Period [3,4]	1.856g
S_1, Spectral Acceleration for a 1-Second Period [3,4]	0.745g
F_a, Site Coefficient [3,4]	0.9
F_v, Site Coefficient (1-second period) [3,4]	2.4
S_{DS}, Spectral Acceleration for a Short Period [3,4]	1.114g
S_{D1}, Spectral Acceleration for a 1-Second Period [3,4]	1.192g

1. Seismic site classification in general accordance with the *2016 California Building Code*.
2. The 2016 California Building Code (CBC) uses a site profile extending to a depth of 100 feet for seismic site classification. A CPT at this site was extended to a maximum depth of 100 feet bgs. Additional deeper borings or geophysical testing may be performed to confirm the conditions.
3. These values were obtained using online seismic design maps and tools provided by the USGS (http://earthquake.usgs.gov/hazards/designmaps/).
4. The site qualifies as a site class F due to the presence of liquefiable soils. A site class E was used to develop the listed seismic design parameters due to the presence of the very soft to soft Bay Mud with low shear strength and high moisture contents. Structures may use the listed design parameters provided they have a period of 0.5s or less. Should the anticipated structures have a period greater than 0.5s, a site-specific ground motion analysis should be conducted to develop seismic design parameters. Terracon is qualified to perform such an analysis.

Faulting and Estimated Ground Motions

The site is located in the San Francisco Bay Area of California, which is a relatively high seismicity region. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. The following table indicates the distance of the fault zones and the associated maximum credible earthquake that can be produced by nearby seismic events, as calculated using the USGS Unified Hazard

Tool. Segments of the Hayward-Rogers Creek Fault, which is located approximately 5 kilometers from the site, are considered to have the most significant effect at the site from a design standpoint.

Characteristics and Estimated Earthquakes for Regional Faults			
Fault Name	**Approximate Contribution (%)**	**Approximate Distance to Site (kilometers)**	**Maximum Credible Earthquake (MCE) Magnitude**
Hayward- Rodgers Creek: HS, aPriori_D2.1	15.35	5.07	6.68
Hayward – Rodgers Creek: HS, MoBal	14.07	5.07	6.65
Hayward- Rodgers Creek: HN+HS, aPriori_D2.1	11.88	5.07	6.91
Hayward – Rodgers Creek: HN+HS, MoBal	11.14	5.07	6.86

Based on the ASCE 7-10 Standard, the peak ground acceleration (PGA_M) at the subject site is approximately 0.644g. The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.[4]

LIQUEFACTION

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 or low plasticity fine grained 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 and surrounding area is located within a liquefaction hazard zone designated as having very high susceptibility to liquefaction[5]. Therefore, a liquefaction analysis was performed to determine the liquefaction induced settlement.

Groundwater was observed in our borings at the time of field exploration at depths varying from 3 to 21½ bgs.

[4] California Department of Conservation Division of Mines and Geology (CDMG), *"Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Southern Region"*, CDMG Compact Disc 2000-003, 2000.

[5] Witter, R.C., Knudsen, K.L., Sowers, J.M., Wentworth, C.M., Koehler, R.D., Randolph, C.E., 2006, Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California: A Digital Database, U.S. Geological Survey OFR 2006-1037.

A liquefaction analysis was performed in general accordance with California Geologic Survey Special Publication 117. The liquefaction study utilized the software “LiquefyPro” by CivilTech Software and “CLiq” by GeoLogismiki Geotechnical Software. This analysis was based on the soil data from the CPT soundings. A Peak Ground Acceleration (PGA) of 0.644g and a mean magnitude of 6.76 for the project site was used. Analysis were performed on data obtained from both CPT1 and CPT2. Calculations utilized a groundwater depth of 3 feet bgs. CPT calculations were assessed using the Robertson (NCEER 2001), Robertson (2009), Idriss & Boulanger (2008), Moss et al. (2006), and Boulanger & Idriss (2014) methods. Settlement analysis in the “LiquefyPro” software was performed using the Ishihara/Yoshimine and method.

A liquefaction potential analysis was calculated from a depth of 3 to 50 feet below the ground surface. Based on the analysis, liquefiable layers were encountered at multiple depths with the largest liquefiable layer being located between the depths of 15 and 30 feet bgs. Based on our review of the calculations by the various methods, it is our opinion the anticipated total liquefaction-induced settlements across the site may vary between 2 to 4½ inches. Due to the lithology encountered in our borings and CPTs, we anticipate the differential liquefaction-induced settlement across the proposed building footprints may be up to 2 inches.

The project site has an approximate elevation of 8 to 12 feet above Mean Sea Level (MSL) based on a review of GoogleEarth Pro. The distance to San Leandro Bay varies along the property. The Bay is located about 350 to 550 feet west of the site. However, due to the discontinuous layers of undocumented fill and Bay Mud located in the upper 12 to 15 feet of subgrade soils, we believe the potential for lateral spreading is considered to be low. However, while we believe the potential for lateral spread is low at this site, DSM would provide an added assurance against lateral spreading to occur by stabilizing potentially liquefiable soils.

We anticipate a brief loss of shear strength during a significant seismic event where liquefaction may occur. The bearing strength and vertical and lateral stiffness of the subsurface soils will be reduced to the residual shear strength of the liquefiable layer, causing the anticipated settlement noted above.

Accurate evaluation of the effects of liquefaction-induced instability requires accurate estimation of the shear strength of the liquefied soils. Terracon should be consulted to evaluate the subsurface conditions and foundation capacities after a significant event where liquefaction has occurred.

FLOOR SLABS

Due to anticipated settlements from liquefaction and consolidation settlement, the building floor slabs should be entirely structurally supported by **Deep Foundations.** Alternative floor slab options may be considered if the subgrade in the area of the buildings is improved by DSM.

Floor Slab Design

The use of a vapor retarder should be considered beneath concrete slabs on grade 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/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

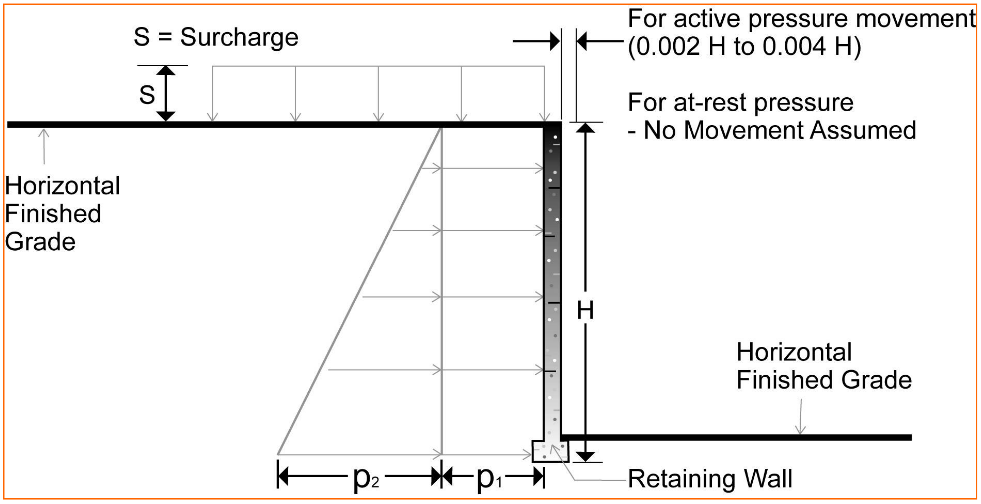
LATERAL EARTH PRESSURES

Design Parameters

The lateral earth pressure recommendations given in the following paragraphs are applicable to the design of rigid retaining walls subject to slight rotation, such as cantilever or gravity type concrete walls. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls. Recommendations covering these types of wall systems are beyond the scope of services for this assignment. However, we would be pleased to develop recommendations for the design of such wall systems upon request.

Low height (< 3 feet) landscape retaining walls may be supported by spread footings designed per the recommendations provided in **Shallow Foundations**. Retaining walls taller than 3 feet should be supported by **Deep Foundations** or **Shallow Foundations** supported on subgrade improved by **Ground Improvement** measures.

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



<table>
<tr><th colspan="5">Lateral Earth Pressure Design Parameters</th></tr>
<tr><th rowspan="2">Earth Pressure Condition [1]</th><th rowspan="2">Coefficient for Backfill Type [2]</th><th rowspan="2">Surcharge Pressure [3, 4, 5] p_1 (psf)</th><th colspan="2">Effective Fluid Pressures (psf) [2, 4, 5]</th></tr>
<tr><th>Unsaturated [6]</th><th>Submerged [6]</th></tr>
<tr><td rowspan="2">Active (Ka)</td><td>Structural fill/ Stockpile Sand and Gravel - 0.31</td><td>(0.31)S</td><td>(40)H</td><td>(80)H</td></tr>
<tr><td>Native Soil - 0.53</td><td>(0.53)S</td><td>(65)H</td><td>(95)H</td></tr>
<tr><td rowspan="2">At-Rest (Ko)</td><td>Structural fill/ Stockpile Sand and Gravel - 0.47</td><td>0.47)S</td><td>(55)H</td><td>(90)H</td></tr>
<tr><td>Native Soil - 0.69</td><td>(0.69)S</td><td>(85)H</td><td>(105)H</td></tr>
<tr><td rowspan="2">Passive (Kp)</td><td>Structural fill/ Stockpile Sand and Gravel – 3.25</td><td>---</td><td>(390)H</td><td>(250)H</td></tr>
<tr><td>Native Soil – 1.89</td><td>---</td><td>(225)H</td><td>(175)H</td></tr>
</table>

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, compacted to at least 90 percent of the ASTM D 698 maximum dry density, rendering a maximum unit weight of 120 pcf.
3. Uniform surcharge, where S is surcharge pressure.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. In order to achieve "Unsaturated" conditions, follow guidelines in **Subsurface Drainage for Below Grade Walls** below. "Submerged" conditions are recommended when drainage behind walls is not incorporated into the design.

Backfill placed against structures should consist of structural fill or low plasticity native soils. For the structural fill values to be valid, the structural backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

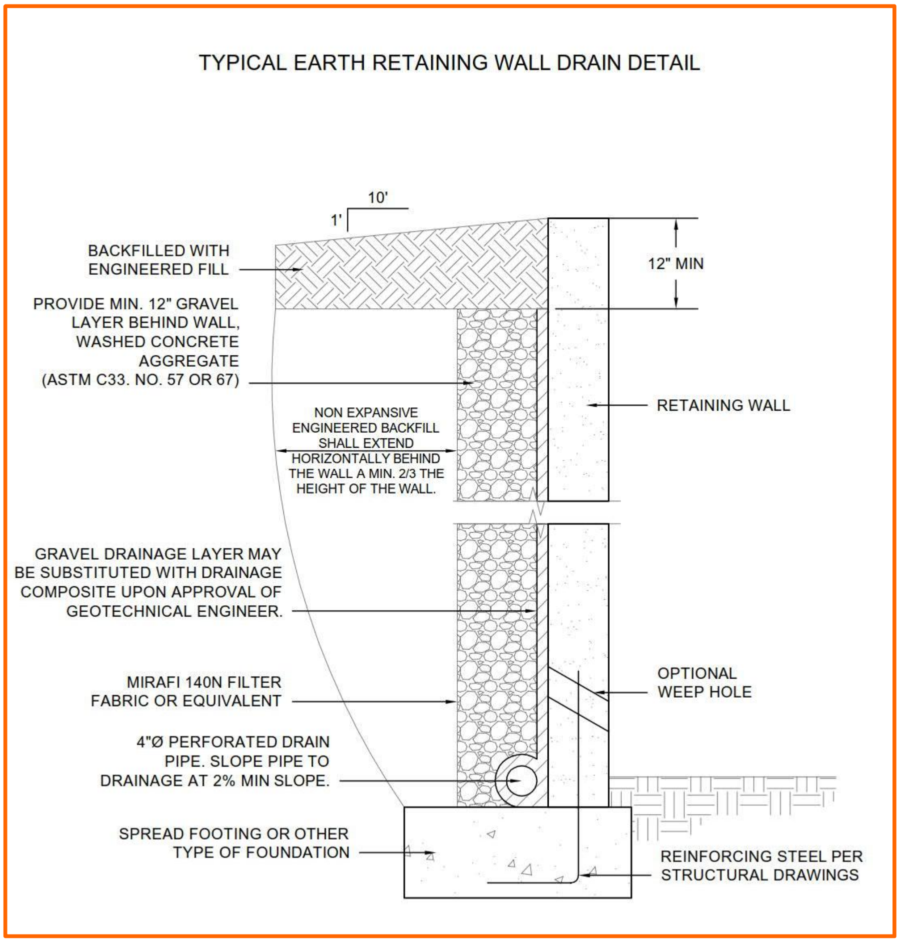
Total lateral earth pressures acting on retaining walls during a seismic event will likely include the active or at-rest static forces and a dynamic increment. The active dynamic increment should be applied to the wall as resultant force acting at 0.6H height from the base of the wall and the at-rest dynamic increment should be applied to the wall as resultant force acting at 0.63H height from the base of the wall. Such increments should be added to the static earth pressures. A dynamic lateral earth resultant force of $9H^2$ (in units of pounds per linear foot (plf), where H (in units of feet) is the height of the soil behind the wall[6] should be used in design.

Heavy equipment should not operate within a distance closer than the exposed height of retaining walls to prevent lateral pressures more than those provided. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Over-compaction may cause excessive lateral earth pressures which could result in wall movement.

Retaining Wall Drainage

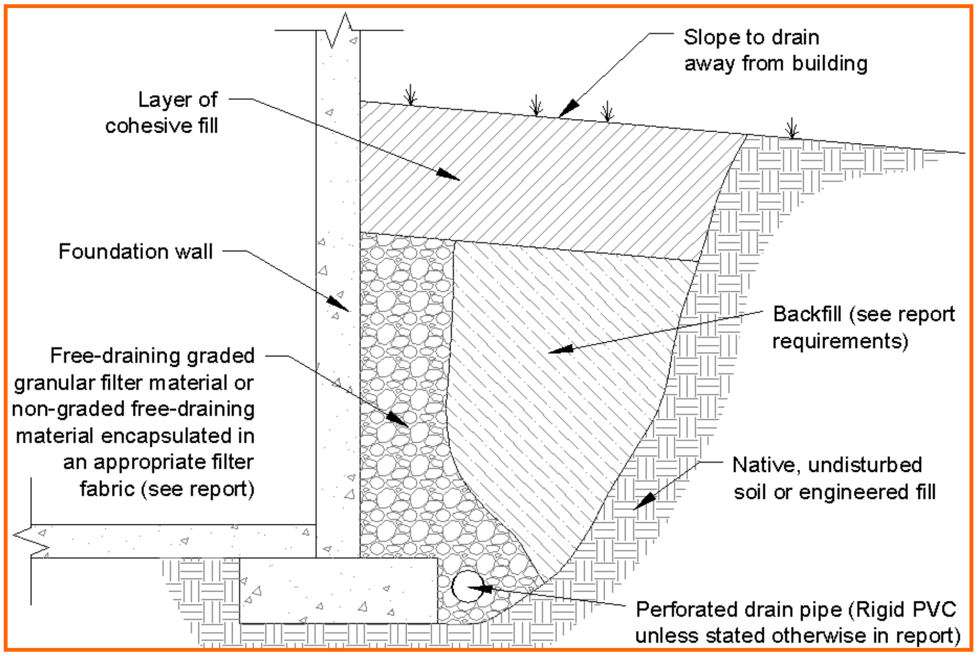
Drainage should not be required behind the Materials Bin walls retaining clean gravel and sand. However, for all other retaining walls, to control hydrostatic pressure behind the wall we recommend that a drain be installed at the bottom of the wall with a collection pipe leading to a reliable discharge. The drainage should consist of either a composite drain or a 12-inch thick free draining gravel blanket. Free draining gravel should consist of Caltrans Class II permeable material or ¾ inch clean gravel wrapped in Mirafi 140N filter fabric or equivalent. The drainage should extend from the bottom of the wall to within 12 inches of the top of the wall. The drainage should be capped with 12 inches of compacted cohesive soil. The collection pipe should be designed by the Civil Engineer but should be a minimum 4-inch diameter perforated Schedule 40 PVC or ABS drain pipe and should slope to an existing drainage system or to a positive gravity outlet. A typical earth retaining wall drain detail is illustrated on the following sketch.

[6] *Seed & Whitman (1970)*



Subsurface Drainage for Below Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5 percent passing the No. 200 sieve, such as No. 57 aggregate. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 1 foot of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a pre-fabricated drainage structure may be used. A pre-fabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion, and is fastened to the wall prior to placing backfill.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs, noted in this section, must be applied to the site, which has been prepared as recommended in the **Earthwork** section.

On most project sites, the site grading is accomplished relatively early in the construction phase. Fills are placed and compacted in a uniform manner. However, as construction proceeds, excavations are made into these areas, rainfall and surface water saturates some areas, heavy traffic from concrete trucks and other delivery vehicles disturbs the subgrade and many surface irregularities are filled in with loose soils to improve trafficability temporarily. As a result, the pavement subgrades, initially prepared early in the project, should be carefully evaluated as the time for pavement construction approaches.

We recommend the moisture content and density of the top 12 inches of the subgrade be evaluated and the pavement subgrades be proofrolled within two days prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and recompacted. 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 materials with properly compacted fills.

After proof rolling and repairing deep subgrade deficiencies, the entire subgrade should be scarified and developed as recommended in the **Earthwork** section this report to provide a uniform subgrade for pavement construction. Areas that appear severely desiccated following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

Support characteristics of subgrade for pavement design do not account for shrink/swell movements of an expansive clay subgrade or long term subsidence of the site due to the long consolidation of soft clays/silts (Bay Mud), such as soils encountered on this project. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell or settlement related movement of the subgrade.

Pavement Design Parameters

Design of Asphaltic Concrete (AC) pavement sections were calculated using the Caltrans Highway Design Manual, latest edition, and a 20-year design life. Design of Portland Cement Concrete (PCC) pavement sections were designed using ACI 330R-08, "Guide for the Design and Construction of Concrete Parking Lots."

Two representative samples of the near surface soil taken from our borings were tested in a Terracon laboratory to determine the Hveem Stabilometer Value (R-value). The tests produced R-values of 20 and less than 5. Due to the variability of the subgrade soils, a design R-Value of 5 was used to calculate the AC pavement thickness sections. A modulus of subgrade reaction of 50 pci was use for the PCC pavement designs. The values were empirically derived based upon our experience with the describe soil type subgrade soils and our understanding of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**. A modulus of rupture of 550 psi was used for pavement concrete.

Based on this relatively low R-value, the conventional pavement sections will be relatively thick. The deeper pavement sections will require more off haul of material on site if the same grades are kept. As an alternative to conventional pavement sections, the pavement sections can be constructed with triaxial geogrid reinforcement or cement/lime treatment of the subgrade soils may be performed to improve their physical support characteristics and reduce the pavement section.

Cement/lime treatment involves treating the pavement subgrade soils with a certain percentage of high calcium quicklime and cement, usually 3.5 to 5 percent based on the dry unit weight of the soil, for a depth of 12 inches. For estimating purposes, we recommend using 2.5 percent lime, 2.5 percent cement, and a soil unit weight of 110 pounds per cubic foot. For a 12-inch treatment depth, this results in an estimated minimum spread rate of 2.75 pounds of cement and 2.75 pounds of lime per square foot. The actual amount of cement and lime to be used should be determined by Terracon and by laboratory testing **at least three weeks prior** to the start of grading operations. Cement/lime treatment is performed after rough grading of the pavement areas is completed. Recommendations for conventional, geogrid reinforced, and cement/lime treated pavement sections are presented below.

Pavement Section Thicknesses

The following table provide options for AC, AC with geogrid reinforcement, AC with cement/lime treatment and PCC Sections:

Asphaltic Concrete Design				
Layer	Thickness (inches)			
	Auto Parking Areas (TI=5.0 assumed)[3]	Auto Road (TI=5.5 assumed)[3]	Truck Parking Areas (TI=6.0 assumed)[3]	Truck Ramps and Roads (TI=8.0 assumed)[3]
AC[1, 2]	3.0	3.5	3.5	5.0
Aggregate Base[1]	10.0	11.0	13.0	17.5

1. All materials should meet the current Caltrans Highway Design Manual specifications
   - Asphaltic Base – Caltrans Class 2 aggregate base
2. A minimum 1.5-inch surface course should be used on ACC pavements.
3. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic.

The follow table provides options for AC pavement sections reinforced with geogrid. The sections were calculated using the Tensar SpectraPave4PRO-California software. The geogrid material shall be Tensar TriAx TX5 or an equivalent conforming to the physical properties in the 2015 Greenbook Standard Specifications, Multi-Axial Geogrid Table 213-5.2 (E) Type R2. The geogrid shall be placed directly on the subgrade below the aggregate base layer. Adjacent rolls of geogrid shall be overlapped a minimum of 1 foot. Soft subgrade conditions may require up to 3 feet of overlap at the discretion of the geotechnical engineer. The development of wrinkles in the geogrid shall be avoided. A minimum loose fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. When underlying substrate is trafficable with minimal rutting, rubber tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). The geogrid should be installed in accordance with the manufacturer's specifications.

Asphaltic Concrete Design with Geogrid Reinforcement				
Layer	**Thickness (inches)**			
	Auto Parking Areas (TI=5.0 assumed)[3]	**Auto Road (TI=5.5 assumed)**[3]	**Truck Parking Areas (TI=6.0 assumed)**[3]	**Truck Ramps and Roads (TI=8.0 assumed)**[3]
AC [1, 2]	3.0	3.5	3.5	5.0
Aggregate Base [1]	5.0	6.0	8.0	11.0

1. All materials should meet the current Caltrans Highway Design Manual specifications
   - Asphaltic Base – Caltrans Class 2 aggregate base
2. A minimum 1.5-inch surface course should be used on ACC pavements.
3. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic.

Reinforced pavement design procedures developed by grid producers rely on product specific field and laboratory research. In some cases, this research has tested pavement sections within a limited range of subgrade conditions and pavement thicknesses. Extrapolations are typically used for thicker pavement sections outside those parameters based on computer modeling. These methods represent the state of the practice but have not always been specifically verified by performance testing.

Cement/Lime Treated Asphaltic Concrete Design				
Layer	Thickness (inches)			
	Auto Parking Areas (TI=5.0 assumed)[3]	Auto Road (TI=5.5 assumed)[3]	Truck Parking Areas (TI=6.0 assumed)[3]	Truck Ramps and Roads (TI=8.0 assumed)[3]
AC [1,2]	3.0	3.5	3.5	5.0
Aggregate Base [1]	5.0	5.0	6.0	8.0
Cement/lime Treated Subgrade[4,5,6]	12.0	12.0	12.0	12.0

1. All materials should meet the current Caltrans Highway Design Manual specifications
   - Asphaltic Base – Caltrans Class 2 aggregate base
   - Cement/Lime Treat Materials
2. A minimum 1.5-inch surface course should be used on ACC pavements.
3. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic.
4. Cement/lime treated subgrade soil will produce a minimum R-value of 50.
5. Cement/lime treated subgrade soil will produce a minimum unconfined compressive strength of 300 pounds per square inch.
6. Since it is not possible to compact the subgrade soil beneath the cement/lime treated portion, an additional 3 inches of cement/lime treated soil has been added to the calculated pavement section.

Portland Cement Concrete Design			
Layer	Thickness (inches)		
	Car Parking and Access Lanes [1]	Truck Parking[1]	Dumpster Pads [1,3]
PCC [2]	5.0	6.5	7.5
Aggregate base [2]	4.0	4.0	4.0

1. Car Parking and Access Lanes: ADTT = 1 truck per day
   Truck Parking: ADTT = 25 trucks per day
   Dumpster Pads: Per Category C
2. All materials should meet the current Caltrans Highway Design Manual specifications.
3. The trash container pad should be large enough to support the container and the tipping axle of the collection truck.

<u>As more specific traffic information becomes available for the project, we should be contacted to reevaluate the pavement calculations.</u>

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 550 psi, a minimum compressive strength of 4,500 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 and ACI 325R.9). PCC pavements should be provided with mechanically reinforced joints (doweled or keyed) in accordance with ACI 330R. Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its “green” state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

Thickened edges should be used along outside edges of concrete pavements. Edge thickness should be at least 2 inches thicker than concrete pavement thickness and taper to the actual concrete pavement thickness 36 inches inward from the edge. Integral curbs may be used in lieu of thickened edges.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

The pavement surfacing and adjacent sidewalks should be sloped to provide rapid drainage of surface water. Water should not be allowed to pond on or adjacent to these grade-supported slabs, since this could saturate the subgrade and contribute to premature pavement or slab deterioration. In areas where pavement sections abut bioswales, curb should extend below the planned AB section to intercept water infiltration below the pavement section. Water migration in and out of the pavement sections may result in repeated shrinkage and swelling and increasing pavement section fatigue.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. 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 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.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

CORROSIVITY

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary						
Boring	**Sample Depth (feet)**	**Soil Description**	**Soluble Sulfate (pp,)**	**Soluble Chloride (ppm)**	**Electrical Resistivity (Ω-cm)**	**pH**
B7	1-2½	SW-SC	103	233	1,164	8.27
B26	1-2	SW-SC	135	78	2,134	8.60

These test results are provided to assist in determining the type and degree of corrosion protection that may be required for the project. We recommend that a certified corrosion engineer determine the need for corrosion protection and design appropriate protective measures.

Resistivity

The resistivity value indicates the samples tested exhibit a moderate to high corrosive potential to buried metal pipes.

Evaluation of the test results is based upon the guidelines of J.F. Palmer, “Soil Resistivity Measurements and Analysis”, Materials Performance, Volume 13, January 1974. The following table outlines the guidelines for soil resistivity for corrosion potential.

Corrosion Potential of Soil on Steel	
Soil Resistivity (ohm-cm)	**Corrosion Potential**
0 to 1,000	Very High
1,000 to 2,000	High
2,000 to 5,000	Moderate
> 5,000	Mild

Sulfates

Results of the soluble sulfate testing indicate the samples of on-site soil tested pose a negligible exposure to sulfate when classified in accordance with Table 19.3.1.1 of Section 19.3.1 of the ACI 318-14 Design Manual. However, due to the shallow groundwater table and exposure to seawater, we recommend, as a minimum, a sulfate exposure class S1 and a chloride class C2 be considered for this site. Concrete should be designed in accordance with the provisions of the ACI 318-14 Design Manual, Section 19.3.

Laboratory pH

Data suggests the soil pH should not be the dominant soil variable affecting soil corrosion if the soil has a pH in the 5 to 8 range. The pH of the samples tested were above the recommended range, and should therefore be considered when determining soil corrosion potential.

INFILTRATION TESTING

We understand that three bioswales are planned to be constructed along the western edge of the site. The surficial stratum of lean clay present across much of the site can prevent surface water from infiltrating into the subgrade. Additionally, silt and clay sized soil particles can migrate into and clog filter drainage systems if they are not properly designed or maintained. Consequently, special care should be taken in the design of the drainage plan for the site. Planned bioswales at the site should be located no closer than 5 feet to structural site improvements.

Three infiltration tests were performed near the locations of planned bioswales at an approximate depth of 24 inches below the ground surface. The soil 24 inches below ground surface at the test locations classified as sandy lean clay to sandy lean clay with gravel.

The infiltration test was performed in general accordance with ASTM D3385; using a 12-inch diameter and 24-inch diameter double-ring infiltrometer. Depths of water levels were measured in each of the rings at regular intervals, and if needed, water was added to the rings to manually replenish the lost water. Readings were made until the infiltration rate roughly stabilized. The infiltration results are presented on the following tables.

Infiltration Test #1					
Time		Incremental Infiltration Rate			
Elapsed Time (min)	Elapsed Time (hr)	Inner (in/hr)	Annulus (in/hr)	Inner (cm/hr)	Annulus (cm/hr)
Start		0.00	0.00	0.00	0.00
25	0.42	0.15	0.15	0.38	0.38
45	0.75	0.08	0.08	0.21	0.21
30	0.5	0.13	0.13	0.32	0.32
30	0.5	0.13	0.13	0.32	0.32
25	0.42	0.15	0.15	0.38	0.38

Infiltration Test #2					
Time		Incremental Infiltration Rate			
Elapsed Time (min)	Elapsed Time (hr)	Inner (in/hr)	Annulus (in/hr)	Inner (cm/hr)	Annulus (cm/hr)
Start		0.00	0.00	0.00	0.00
55	0.92	0.95	2.45	2.42	6.23
25	0.42	0.15	2.10	0.38	5.33
60	1	0.50	2.00	1.27	5.08
60	1	0.63	2.00	1.59	5.08
30	0.5	0.13	1.00	0.32	2.54
30	0.5	0.25	1.50	0.64	3.81

Infiltration Test #3					
Time		Incremental Infiltration Rate			
Elapsed Time (min)	Elapsed Time (hr)	Inner (in/hr)	Annulus (in/hr)	Inner (cm/hr)	Annulus (cm/hr)
Start					
45	0.75	0.3	0.2	0.8	0.4
75	1.25	0.2	0.2	0.5	0.5
60	1	0.1	0.1	0.3	0.3
30	0.5	0.1	0.1	0.3	0.3
30	0.5	0.3	0.3	0.6	0.6
45	0.75	0.2	0.2	0.4	0.4
60	1	0.2	0.1	0.5	0.3
30	0.5	0.1	0.1	0.3	0.3
30	0.5	0.4	0.3	1.0	0.6

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 infiltration characteristics of the soils. As such, the bioswale designer should apply an applicable factor of safety to the results of the infiltration test.

GENERAL COMMENTS

As the project progresses, we address assumptions by incorporating information provided by the design team, if any. Revised project information that reflects actual conditions important to our services is reflected in the final report. The design team should collaborate with Terracon to confirm these assumptions and to prepare the final design plans and specifications. This facilitates the incorporation of our opinions related to implementation of our geotechnical recommendations. Any information conveyed prior to the final report is for informational purposes only and should not be considered or used for decision-making purposes.

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations 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. Terracon should be retained as the Geotechnical Engineer, where noted in the final report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our scope of services 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.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third party beneficiaries intended. Any third party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing. This report should not be used after 3 years without written authorization from Terracon.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings/CPTs	Boring/CPT Depth (feet) [1]	Location
4 borings	26½ to 51½	Warehouse 1 footprint
4 borings	26½ to 51½	Warehouse 2 footprint
2 borings	31½ and 41½	Office building footprint
2 borings	7 and 21½	Butler building footprint
3 borings	16½ to 21½	Materials bin and pipe laydown areas
12 borings	5	Parking and drive areas
1 CPT[2]	100	Warehouse 1 footprint
1 CPT	100	Warehouse 2 footprint

1. Below ground surface
2. Cone penetration test

Boring/CPT Layout: The boring/CPT layout was performed by Terracon. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±15 feet). If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the borings with a B-24 truck-mounted drill rig and a CME-75 truck mounted drill rig using continuous flight, solid and hollow stem augers and mud rotary method. Three to four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. Soil sampling was performed using split-barrel sampling. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. The values provided on our boring logs are uncorrected. Additionally, we observed and recorded groundwater levels during drilling and sampling. Per the requirements of the local health department and for safety purposes, all borings were backfilled with grout after their completion.

A Modified California sampler was also used during the field exploration to sample and test the subsurface soils on this project. The sampling procedure results in a distinctive penetration value and the results are reported on the boring logs. The penetration test results and resistance reported for the Modified California sampler are not equivalent to those results that would be obtained by standard penetration testing (SPT) according to ASTM and should not be used as such without interpretation by Terracon.

A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammers' efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

For the cone penetrometer testing, the CPT hydraulically pushes an instrumented cone through the soil while nearly continuous readings are recorded to a portable computer. The cone is equipped with electronic load cells to measure tip resistance and sleeve resistance and a pressure transducer to measure the generated ambient pore pressure. The face of the cone has an apex angle of 60° and an area of 10 cm^2. Digital Data representing the tip resistance, friction resistance, pore water pressure, and probe inclination angle are recorded about every 2 centimeters while advancing through the ground at a rate between 1½ and 2½ centimeters per second. These measurements are correlated to various soil properties used for geotechnical design. No soil samples are gathered through this subsurface investigation technique. CPT testing was conducted in general accordance with ASTM D5778 "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils."

The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs. The samples were placed in appropriate containers and taken to a Terracon soil laboratory for testing and classification by a geotechnical engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the geotechnical engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned various laboratory tests to better understand the engineering properties of the various soil strata as necessary for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods are applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D422 Standard Test Method for Particle-Size Analysis of Soils
- ASTM D2166/D2166M Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
- ASTM D2435/D2435M Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading

The laboratory testing program often includes examination of soil samples by an engineer. Based on the material's texture and plasticity, we describe and classify the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION and NEARBY GEOTECHNICAL DATA

Oakport Buildings ■ Oakland, Alameda, California

June 15, 2018 ■ Terracon Project No. ND175105

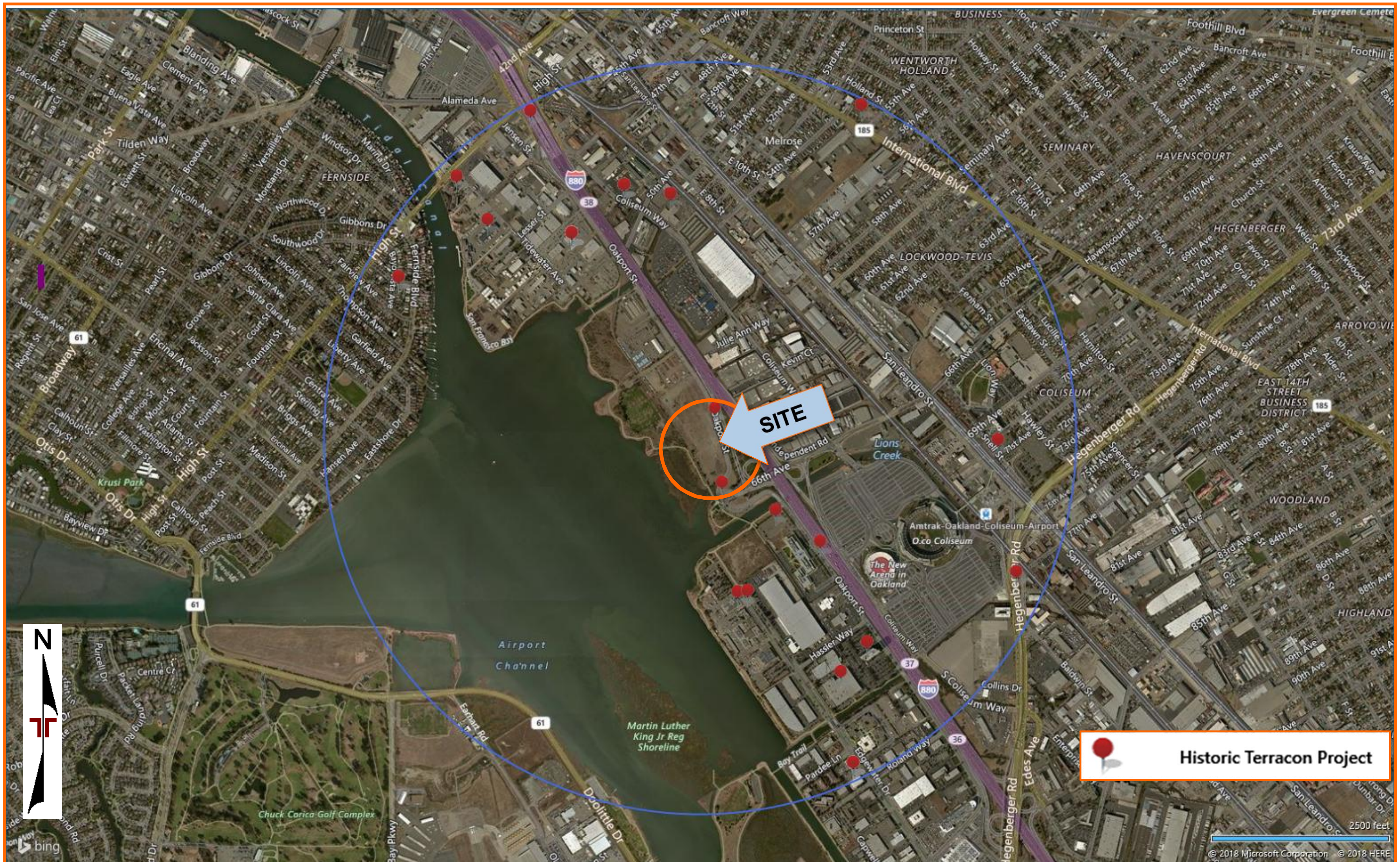


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Oakport Buildings ■ Oakland, Alameda, California

June 15, 2018 ■ Terracon Project No. ND175105

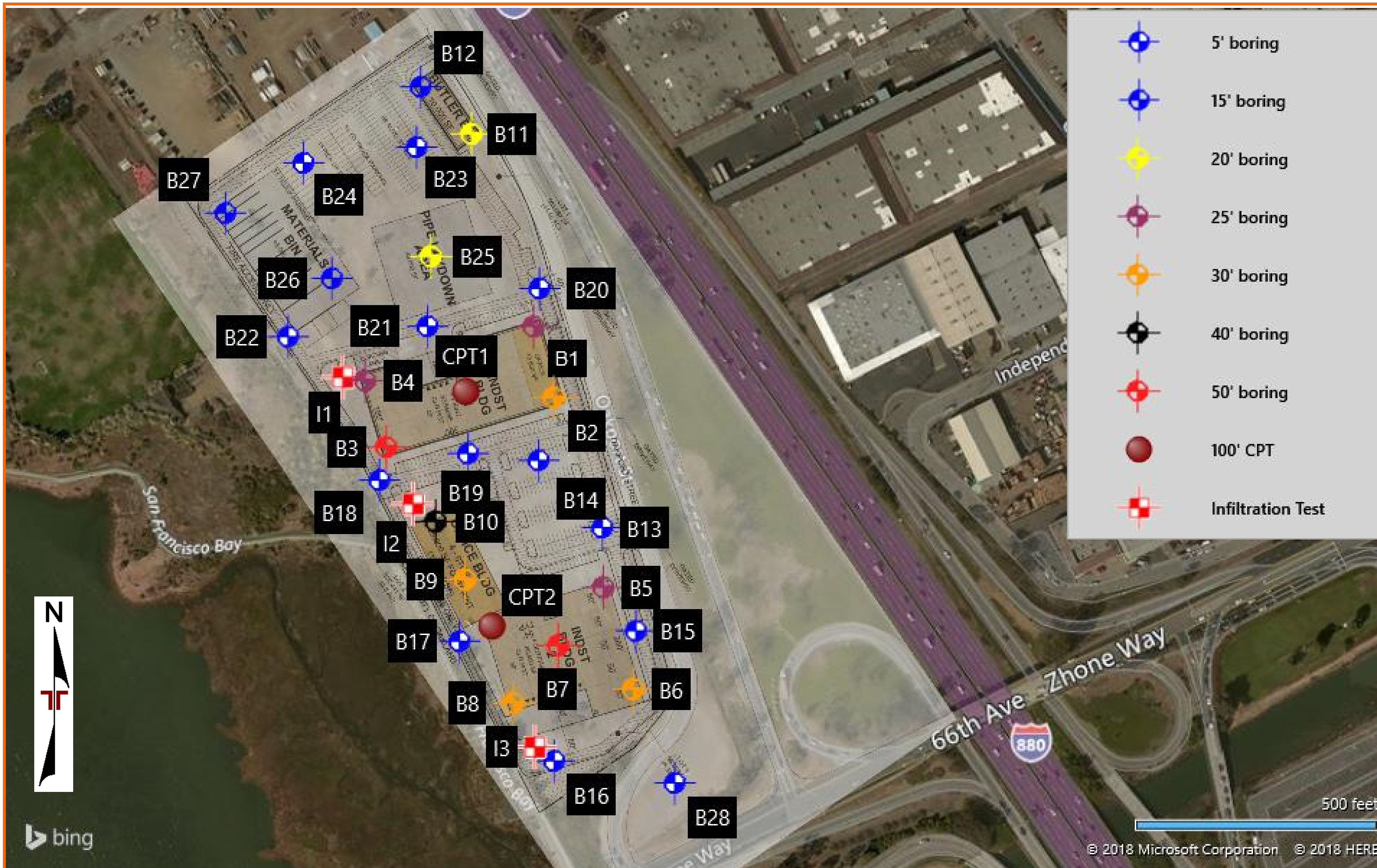


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

BORING LOG NO. B1

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.756102° Longitude: -122.21134°

DEPTH	Description
6.5	**FILL - CLAYEY SAND (SW-SC)**, trace gravel, fine to medium grained, dark brown, medium dense
9.0	**FILL - CLAYEY SAND (SW-SC)**, trace gravel, fine to medium grained, dark brown, medium dense, high organic content
12.5	**BAY MUD - ELASTIC SILT (MH)**, with clay, fine to medium grained, dark brown to dark gray, soft
18.5	**POORLY GRADED SAND (SP)**, trace silt, fine to medium grained, dark gray, loose
24.0	**SANDY LEAN CLAY (CL)**, trace silt, fine to medium grained, dark gray, medium stiff
26.5	**WELL GRADED SAND WITH GRAVEL (SW)**, trace silt, fine to coarse grained, brown, dense

Boring Terminated at 26.5 Feet

FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
7-14-11		12		24-16-8	18
22-11-13		10			
8-10-12 N=22		24			
1-2-1 N=3		36			
3-3-4 N=7		31			
3-3-4 N=7		23			
14-20-20 N=40		18			

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS
- ▽ *While drilling*
- ▽ *after 3 hours*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-23-2018	Boring Completed: 04-23-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B2

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.7557° Longitude: -122.211196°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2.0	**FILL - SANDY LEAN CLAY (CL)**, trace gravel, fine to medium grained, brown, medium stiff to stiff				7-10-21		13	100		
5.5	**FILL - WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)**, trace clay, fine to coarse grained, brown to gray, medium dense	5	▽							
8.0	**FILL - WELL GRADED SAND (SW)**, trace silt, fine to medium grained, dark gray, loose to medium dense				10-15-8		18	101		
			▽		13-4-5		42	72		
13.5	**-BAY MUD - ELASTIC SILT (MH)**, with clay, fine grained, dark brown to dark gray, soft	10			1-2-1		77	49		
19.0	**SILTY SAND (SM)**, fine grained, dark gray, loose	15			3-2-2		83			
24.0	**WELL GRADED SAND WITH GRAVEL (SW)**, fine to coarse grained, dark gray, medium dense	20			7-10-24		16			
28.0	**WELL GRADED SAND WITH GRAVEL (SW)**, trace silt, fine to coarse grained, brown, medium dense	25			7-13-18		19			
31.5	**WELL GRADED GRAVEL WITH SAND (GW)**, coarse to medium grained, brown, loose to medium dense	30			8-10-8		16			

Boring Terminated at 31.5 Feet

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *after 6 hours*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-23-2018	Boring Completed: 04-23-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B3

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.755418° Longitude: -122.212395°

DEPTH	Description
5.0	**FILL - CLAYEY SAND WITH GRAVEL (SC)**, trace silt, fine to coarse grained, dark brown, medium dense
9.5	**FILL - SANDY LEAN CLAY WITH GRAVEL (CL)**, coarse to medium grained, dark brown, soft to medium stiff, trace organics
14.5	**BAY MUD - ELASTIC SILT (MH)**, with clay, dark gray, very soft to soft, trace organics
21.0	**POORLY GRADED SAND WITH CLAY (SP-SC)**, trace silt, fine to medium grained, dark brown, loose
27.0	**SILTY CLAYEY SAND (SC-SM)**, dark brown, very loose to loose
34.0	**POORLY GRADED SAND WITH CLAY AND GRAVEL (SP-SC)**, fine to coarse grained, dark brown with gray, medium dense
42.5	**SANDY LEAN CLAY (CL)**, trace sand, brown, soft
50.5	**LEAN CLAY WITH SAND (CL)**, trace sand, fine grained, brown, medium stiff to stiff
51.5	**WELL GRADED SAND WITH CLAY (SW-SC)**, trace silt, brown with gray, medium dense
	Boring Terminated at 51.5 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
			4-4-15		10	99	30-17-13	42
5			2-4-3		36	67		
			10-1-1 N=2		35			
10			Shelby Tube					
15			0-2-4 N=6		36			
20			0-0-2 N=2		26			
25			4-5-5 N=10		26		25-21-4	44
30			7-8-5 N=13		23			
35			1-1-2 N=3		33		31-19-12	69
40			1-2-2 N=4		27			
45			3-5-7 N=12		25			
50			4-8-10 N=18		24			

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

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

after one hour

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-27-2018	Boring Completed: 03-27-2018
Drill Rig: CME 75	Driller: Robert Anderson
Project No.: ND175105	

BORING LOG NO. B6

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.754049° Longitude: -122.210626°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
3.5	**FILL - SANDY LEAN CLAY (CL)**, fine to medium grained, dark brown, stiff		▽	SPT	8-12-8 N=20		15			
10.0	**FILL - POORLY GRADED SAND WITH CLAY AND GRAVEL (SP)**, fine to medium grained, dark brown, loose to medium dense	5								
15.0	**BAY MUD-ELASTIC SILT (MH)**, fine grained, dark gray, very soft to soft	10		SPT	2-1-2 N=3		30			
20.5	**POORLY GRADED SAND WITH CLAY (SP-SC)**, fine to medium grained, dark gray, very loose	15		SPT	1-2-2 N=4		19			
25.0	**SILTY CLAY (CL-ML)**, trace sand, fine grained, dark gray, stiff	20		SPT	5-6-7 N=13		25			
31.5	**SANDY LEAN CLAY (CL)**, fine to medium grained, brown, medium stiff	25		SPT	4-5-6 N=11		22			
		30		SPT	1-4-9 N=13		26			

Boring Terminated at 31.5 Feet

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-27-2018	Boring Completed: 04-27-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B7

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.754296° Longitude: -122.211163°

DEPTH	Description
5.0	**FILL - WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)**, trace silt, fine to coarse grained, dark brown, loose to medium dense
11.0	**FILL - CLAYEY SAND (SC)**, trace silt, fine to medium grained, dark brown, very loose to loose
14.0	**BAY MUD - ELASTIC SILT WITH SAND (MH)**, trace clay, fine grained, dark gray, very soft to soft
17.5	**SILTY SAND (SM)**, trace clay, fine to medium grained, dark gray, loose
23.0	**WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)**, fine to coarse grained, dark gray, very loose
27.5	**SILTY CLAY (CL-ML)**, trace sand, dark gray, soft to medium stiff
33.0	**SILTY SAND (SM)**, trace clay, fine to medium grained, brown, medium dense
40.0	**CLAYEY SAND WITH GRAVEL (SC)**, fine to coarse grained, brown, medium dense
43.0	**WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)**, fine to coarse grained, brown, loose
51.5	**SILTY CLAY (CL-ML)**, brown, stiff

Boring Terminated at 51.5 Feet

FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
5-5-4		9	88		
7-15-17		9	94		
2-2-1		18	100		
2-1-2		34	78		
1-2-3 N=5		47			22
3-1-1 N=2		25			15
2-2-3 N=5		37			
7-10-15 N=25		21			43
4-5-8 N=13		25			46
3-4-4 N=8		40			
4-4-5 N=9		27			
6-1-9 N=10		20			73

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

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-27-2018	Boring Completed: 03-28-2018
Drill Rig: CME 75	Driller: Robert Anderson
Project No.: ND175105	

BORING LOG NO. B8

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.753971° Longitude: -122.211485°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, dark brown, medium stiff				4-5-5	2.5 (HP)	16		26-15-11	70
10.0		5								
	BAY MUD - ELASTIC SILT (MH), fine grained, dark gray, very soft to soft	10			2-1-2		79			
15.0										
	POORLY GRADED SAND WITH CLAY (SP), trace silt, fine to medium grained, dark gray, very loose	15			4-3-2					
18.5										
	SILTY CLAY (CL-ML), fine to medium grained, dark gray, soft									
20.5		20	∇		4-7-10 N=17		28			
	WELL GRADED SAND (SW), fine to medium grained, dark gray, medium dense									
27.0		25			4-7-9 N=16					
	CLAYEY SAND (SC), fine to medium grained, brown, loose									
31.5		30			3-4-5 N=9		22			
	Boring Terminated at 31.5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

∇ *While drilling*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-27-2018	Boring Completed: 04-27-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B9

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.754669° Longitude: -122.211831°

DEPTH	Material Description
5.5	**FILL - WELL GRADED SAND WITH CLAY AND GRAVEL** , trace silt, fine to coarse grained, dark brown, loose
9.5	**FILL - SANDY LEAN CLAY (CL)**, with silt, fine to medium grained, dark brown, soft to medium stiff
14.0	**SANDY LEAN CLAY (CL)**, fine grained, dark gray to brown, very soft to soft
19.0	**POORLY GRADED SAND WITH SILT (SP)**, fine to medium grained, dark gray, loose
27.5	**SILTY CLAY (CL-ML)**, trace sand, fine grained, dark bluish gray, medium stiff to stiff
31.5	**WELL GRADED SAND WITH GRAVEL (SW)**, trace silt, fine to coarse grained, dark gray, loose
	Boring Terminated at 31.5 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
			5-6-5		11			
5	▽		4-3-5		22	101		
10			1-1-2 N=3		76		36-20-16	64
15			2-2-5 N=7		28			
20			4-5-6 N=11		22			
25			3-4-5 N=9		25			
30			2-3-2 N=5		30			

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

Hammer Type: Rope and Cathead

Advancement Method:
"4"" Solid Stem Auger"

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-27-2018	Boring Completed: 04-27-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B10

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.754997° Longitude: -122.212041°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, soft to medium stiff		▽		2-1-3	2.5 (HP)	20	87	27-14-13	56
					3-4-4	1.5 (HP)	21	84		
5.5		5								
	BAY MUD-ELASTIC SILT (MH), with clay, dark gray, very soft to soft		▽		2-2-2		29	85		
		10			2-1-1		81	46	67-38-29	99
13.0										
	POORLY GRADED SAND WITH CLAY (SP-SC), trace silt, fine to medium grained, dark gray, very loose to loose	15			0-1-1 N=2		31			
		20			2-2-3 N=5		42			
25.0		25								
	POORLY GRADED SAND WITH CLAY (SP-SC), trace silt, fine to medium grained, brownish gray, medium dense				5-7-8 N=15		23			
28.0										
	WELL GRADED SAND WITH CLAY AND GRAVEL (SP-SC), trace silt, fine to coarse grained, dark brown with gray, dense	30			15-23-7 N=30		16			
33.5										
	SILTY CLAY (CL-ML), brown, medium stiff to stiff	35			2-2-3 N=5		36			
		40			4-5-7 N=12		21			
41.5	***Boring Terminated at 41.5 Feet***									

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

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS
▽ *While drilling*
▽ *after boring completed*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-27-2018	Boring Completed: 03-27-2018
Drill Rig: CME 75	Driller: Robert Anderson
Project No.: ND175105	

BORING LOG NO. B11

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.757192° Longitude: -122.211785°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, dark brown, stiff				4-6-7	2.0 (HP)	17	92		
		5			7-9-13	1.0 (HP)	17	92		
9.5	**BAY MUD-ELASTIC SILT (MH)**, with clay, dark gray, soft	10			3-2-2	0.5 (HP)	48	54		
15.5	**SILTY SAND (SM)**, fine to medium grained, dark gray, loose	15	▽		5-5-4 N=9		31			
21.0	**POORLY GRADED SAND (SP)**, fine to medium grained, brown, loose to medium dense	20			2-7-17 N=24		31			
21.5	***Boring Terminated at 21.5 Feet***									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Terracon

5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B12

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.757459° Longitude: -122.212159° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, stiff			X	7-8-15	1.5 (HP)	16			
	3.0 **FILL - SANDY LEAN CLAY WITH GRAVEL (CL)**, trace silt, fine to coarse grained, yellowish brown, stiff to very stiff			X	8-13-13		12			
	4.5 **FILL - POORLY GRADED SAND WITH GRAVEL (SP)**, trace organics, fine to coarse grained, dark brown, stiff to very stiff	5		X	8-8-50/3"		16			
	7.0 ***Refusal at 7 Feet***									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-23-2018	Boring Completed: 04-23-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B13

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.754964° Longitude: -122.210858°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	2.0 **FILL - SANDY LEAN CLAY WITH GRAVEL (CL)**, trace silt, fine to coarse grained, dark brown, stiff				6-6-6	2.5 (HP)	12	96		
	5.0 **FILL - SANDY LEAN CLAY (CL)**, trace silt, fine to medium grained, dark brown, medium stiff	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B14

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.754379° Longitude: -122.210618° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, very stiff									
	5.0	5		X	8-19-13 N=32		15			
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B15

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.753643° Longitude: -122.211203°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, medium stiff		∇	X	5-4-3 N=7		13			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

∇ *after 3 hours*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B16

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.754321° Longitude: -122.211881°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, very stiff		▽	SPT	8-18-8 N=26		18			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *after 3 hours*

5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B17

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.755232° Longitude: -122.212454° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, stiff to very stiff			X	9-6-9 N=15		18			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B18

PROJECT: Oakport Buildings - Confidential

**CLIENT: SupplyBank.Org
Oakland, CA**

**SITE: 5801 Oakport Street
Oakland, CA**

LOCATION See Exploration Plan

Latitude: 37.755344° Longitude: -122.211314°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC), fine to coarse grained, dark brown, medium dense			X	11-7-7 N=14		19			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018 | Boring Completed: 03-26-2018

Drill Rig: B-24 | Driller: CG

Project No.: ND175105

BORING LOG NO. B19

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.755383° Longitude: -122.21182°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, dark brown, medium stiff to stiff			X	5-5-5 N=10		12			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B20

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.756318° Longitude: -122.211308°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, hard			X	5-20-18 N=38		18			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018

Boring Completed: 03-26-2018

Drill Rig: B-24

Driller: CG

Project No.: ND175105

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ND175105 OAKPORT BUILDINGS.GPJ TERRACON_DATATEMPLATE.GDT 5/30/18

BORING LOG NO. B21

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.756104° Longitude: -122.212109°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC), trace silt, fine to coarse grained, dark brown, medium dense		▽	X	17-7-4 N=11		7			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *after 2 hours*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B22

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.756045° Longitude: -122.213107°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, dark brown, stiff									
					5-8-10		17			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-27-2018	Boring Completed: 04-27-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B23

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.757118° Longitude: -122.212188°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, dark brown, stiff		▽		8-8-6		16			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-27-2018	Boring Completed: 04-27-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B24

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

SITE: 5801 Oakport Street
Oakland, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.757029° Longitude: -122.212998° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, dark brown, soft to medium stiff				3-2-2		11			
	5.0	5								
	Boring Terminated at 5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-27-2018	Boring Completed: 04-27-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B25

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.756498° Longitude: -122.212075°

GRAPHIC LOG	DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		FILL - SANDY SILTY CLAY WITH GRAVEL (CL-ML), trace silt, fine to coarse grained, dark brown, medium stiff to stiff		▽		4-4-5	1.0 (HP)	19	97	24-17-7	53
	6.0	**FILL - WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)**, fine to coarse grained, dark reddish brown, medium dense	5			7-19-20	1.5 (HP)	22	83		
						15-10-4		19			
	10.0	**BAY MUD-ELASTIC SILT (MH)**, with clay, dark gray, soft	10			2-2-2 N=4		99			
			15			2-2-2 N=4		32			
	17.0	**SILTY SAND (SM)**, fine to medium grained, dark gray, medium dense	20			4-4-10 N=14		28			
	21.5	***Boring Terminated at 21.5 Feet***									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *after one hour*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018

Boring Completed: 03-26-2018

Drill Rig: B-24

Driller: CG

Project No.: ND175105

BORING LOG NO. B26

PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org Oakland, CA

SITE: 5801 Oakport Street Oakland, CA

LOCATION See Exploration Plan

Latitude: 37.756375° Longitude: -122.212794°

DEPTH	Material Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2.5	**FILL - WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)**, trace silt, fine to coarse grained, dark brown, loose				6-6-50/3"		17	98		
7.0	**FILL - SANDY LEAN CLAY WITH GRAVEL (CL)**, trace silt, fine to coarse grained, dark brown, stiff to very stiff	5			3-5-13/3"	2.5 (HP)	19	94		
9.5	**FILL - WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)**, trace silt, fine to coarse grained, dark brown, very dense		▽		32-26-7/3"		29			
13.5	**BAY MUD-ELASTIC SILT (MH)**, with clay, fine to medium grained, dark gray, very soft	10			1-1-1 N=2		74			
16.5	**SILTY SAND (SM)**, fine to medium grained, dark gray, loose	15			3-6-6 N=12		19			

Boring Terminated at 16.5 Feet

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 03-26-2018	Boring Completed: 03-26-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

BORING LOG NO. B27

PROJECT: Oakport Buildings - Confidential

**CLIENT: SupplyBank.Org
Oakland, CA**

**SITE: 5801 Oakport Street
Oakland, CA**

LOCATION See Exploration Plan

Latitude: 37.756744° Longitude: -122.213556°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SANDY LEAN CLAY (CL), trace silt, fine to medium grained, dark brown, stiff to very stiff				12-16-15	4.5+ (HP)	12			
		5	▽		4-7-8	1.75 (HP)	19			
	7.0									
	FILL - SANDY LEAN CLAY WITH GRAVEL (CL), trace silt, fine to coarse grained, dark brown, medium stiff				2-4-6		28			
	10.0									
	BAY MUD - ELASTIC SILT (MH), trace organics, fine grained, dark gray, soft	10			2-1-1 N=2		86			
		15			2-2-3		71			
	16.5									
	Boring Terminated at 16.5 Feet									

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

Hammer Type: Rope and Cathead

Advancement Method:
4" Solid Stem Auger

Abandonment Method:
Boring backfilled with cement-bentonite grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

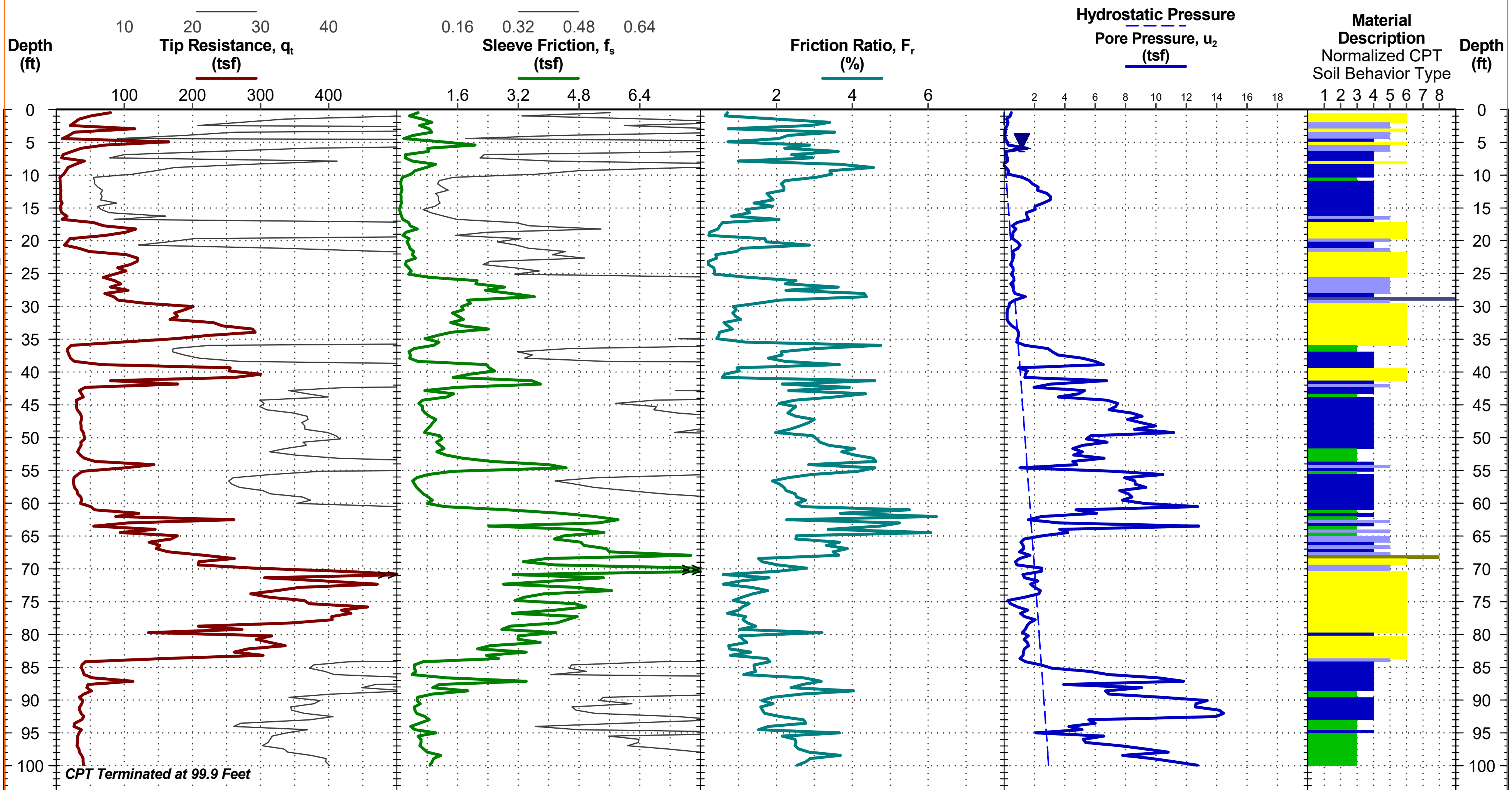
▽ *While drilling*

Terracon
5075 Commercial Cir Ste E
Concord, CA

Boring Started: 04-23-2018	Boring Completed: 04-23-2018
Drill Rig: B-24	Driller: CG
Project No.: ND175105	

CPT LOG NO. CPT-1

PROJECT: Oakport Buildings - Confidential	**CLIENT:** SupplyBank.Org Oakland, CA	**TEST LOCATION:** See Exploration Plan
SITE: 5801 Oakport Street Oakland, CA		Latitude: 37.7557359° Longitude: -122.2118357°



See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

Dead weight of rig used as reaction force.

CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Clay - silty clay to clay
4 Silt mixtures - clayey silt to silty clay
5 Sand mixtures - silty sand to sandy silt
6 Sands - clean sand to silty sand
7 Gravelly sand to dense sand
8 Very stiff sand to clayey sand
9 Very stiff fine grained

WATER LEVEL OBSERVATION	Notes:	Terracon 5075 Commercial Cir Ste E Concord, CA	CPT Started: 3/28/2018	CPT Completed: 3/28/2018
▼ 6 ft estimated water depth (used in normalizations and correlations; See Supporting Information)			Rig: CPT	Operator: G
			Project No.: ND175105	

CPT LOG NO. CPT-2

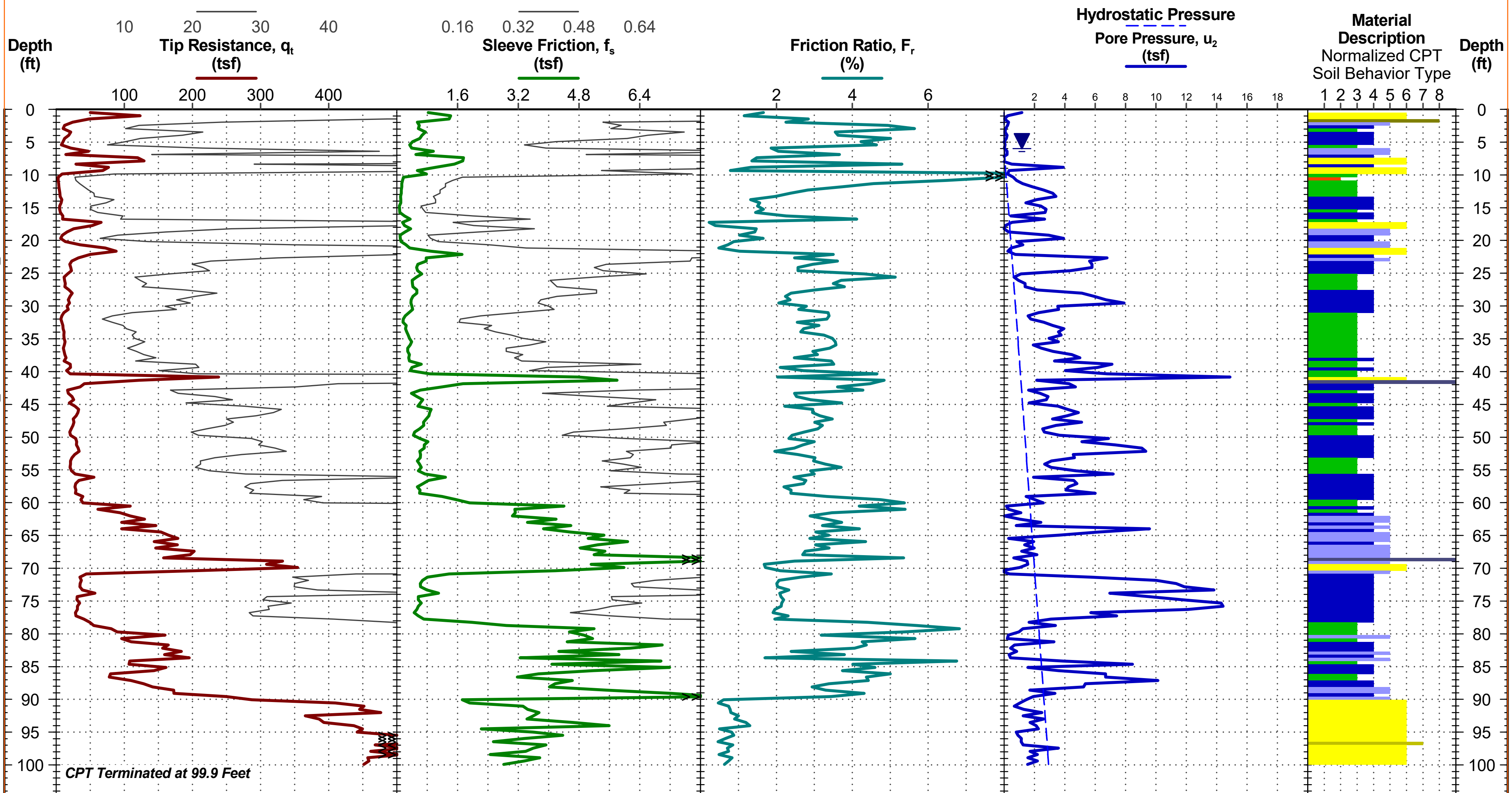
PROJECT: Oakport Buildings - Confidential

CLIENT: SupplyBank.Org
Oakland, CA

TEST LOCATION: See Exploration Plan

SITE: 5801 Oakport Street
Oakland, CA

Latitude: 37.75440668°
Longitude: -122.2116489°



See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

Dead weight of rig used as reaction force.
CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Clay - silty clay to clay
4 Silt mixtures - clayey silt to silty clay
5 Sand mixtures - silty sand to sandy silt
6 Sands - clean sand to silty sand
7 Gravelly sand to dense sand
8 Very stiff sand to clayey sand
9 Very stiff fine grained

WATER LEVEL OBSERVATION

6 ft estimated water depth
(used in normalizations and correlations; See Supporting Information)

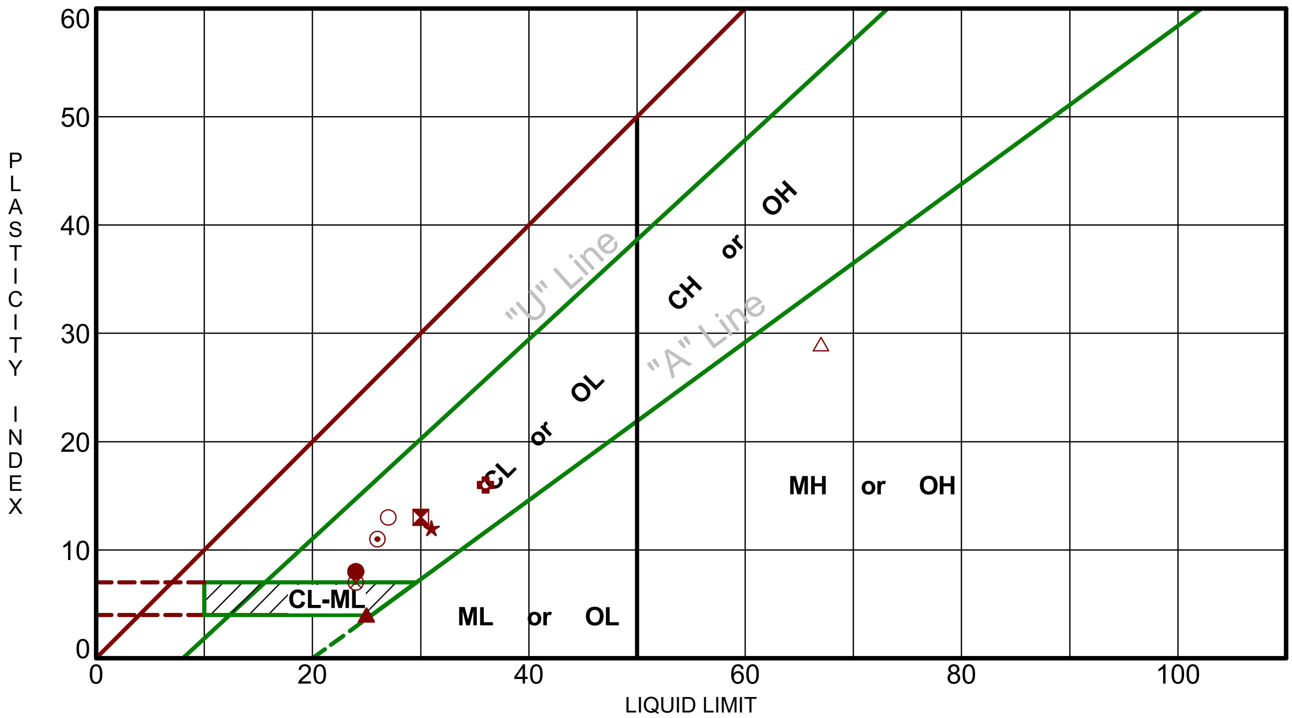
Notes:

Terracon
5075 Commercial Cir Ste E
Concord, CA

CPT Started: 3/28/2018	CPT Completed: 3/28/2018
Rig: CPT	Operator: G
Project No.: ND175105	

ATTERBERG LIMITS RESULTS

ASTM D4318



	Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
●	B1	1 - 2.5	24	16	8	18	SC	CLAYEY SAND
⊠	B3	1 - 2.5	30	17	13	42	SC	CLAYEY SAND
▲	B3	25 - 26.5	25	21	4	44	SC-SM	SILTY, CLAYEY SAND
★	B3	35 - 36.5	31	19	12	69	CL	SANDY LEAN CLAY
⊙	B8	2.5 - 4	26	15	11	70	CL	SANDY LEAN CLAY
✿	B9	10 - 11.5	36	20	16	64	CL	SANDY LEAN CLAY
○	B10	1 - 2.5	27	14	13	56	CL	SANDY LEAN CLAY
△	B10	10 - 11.5	67	38	29	99	MH	ELASTIC SILT
⊗	B25	1 - 2.5	24	17	7	53	CL-ML	SANDY SILTY CLAY

PROJECT: Oakport Buildings - Confidential

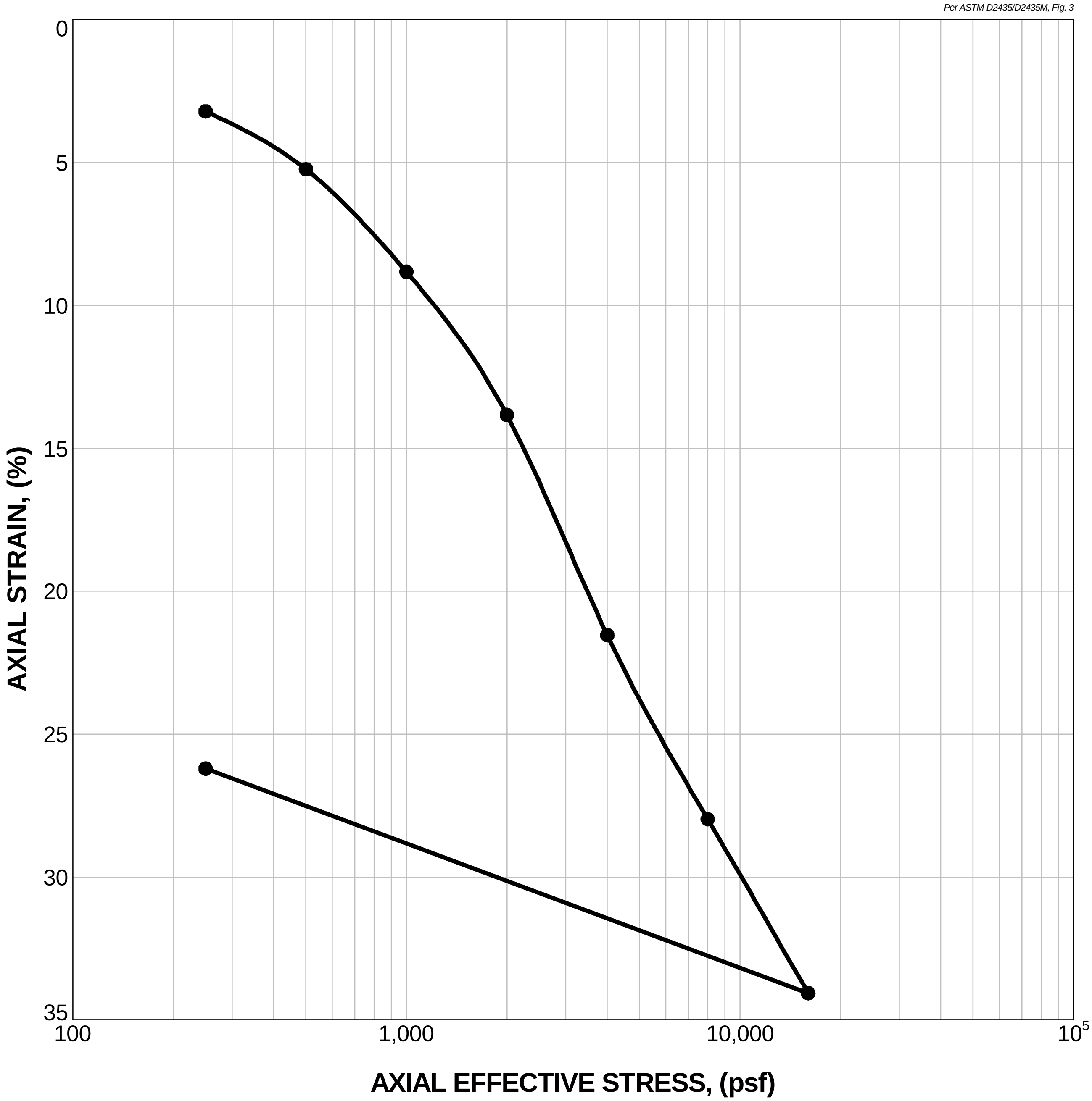
SITE: 5801 Oakport Street
Oakland, CA

Terracon
5075 Commercial Cir Ste E
Concord, CA

PROJECT NUMBER: ND175105

CLIENT: SupplyBank.Org
Oakland, CA

CONSOLIDATION TEST (D2435)



Natural		Initial Dry Density (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c (% / log stress)	C_r (% / log stress)	Initial Void Ratio
Saturation	Moisture									
97.5 %	90.9 %	47.6			2.65					

MATERIAL DESCRIPTION	USCS	AASHTO
Bay Mud		

NOTES:

Borehole: B3 Depth: 10 ft Specimen #: 1

PROJECT: Oakport Buildings - Confidential

SITE: 5801 Oakport Street
Oakland, CA

Terracon
5075 Commercial Cir Ste E
Concord, CA

PROJECT NUMBER: ND175105

CLIENT: SupplyBank.Org
Oakland, CA

EXHIBIT: B-1

CHEMICAL LABORATORY TEST REPORT

Project Number: ND175101
Service Date: 04/06/18
Report Date: 04/15/18
Task:

Terracon

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Project

Oakport Buildings

Sample Submitted By: Terracon (ND) **Date Received:** 4/4/2018 **Lab No.: 18-0398**

Results of Corrosion Analysis

Sample Number		
Sample Location	B7-1-I	B26-1-I
Sample Depth (ft.)		
pH Analysis, AWWA 4500 H	8.27	8.60
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	103	135
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil
Chlorides, ASTM D 512, (mg/kg)	233	78
Red-Ox, AWWA 2580, (mV)	+681	+663
Total Salts, AWWA 2540, (mg/kg)	1137	1187
Resistivity, ASTM G 57, (ohm-cm)	1164	2134

Analyzed By: Trisha Campo

Trisha Campo
Chemist

SUPPORTING INFORMATION

UNIFIED SOIL CLASSIFICATION SYSTEM

Oakport Buildings ■ Oakland, Alameda, California

June 15, 2018 ■ Terracon Project No. ND175105

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 ³ 4 and 1 £ Cc £ 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 ³ 6 and 1 £ Cc £ 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"		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 ³ 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 ³ 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 ³ 30% plus No. 200 predominantly sand, add "sandy" to group name.

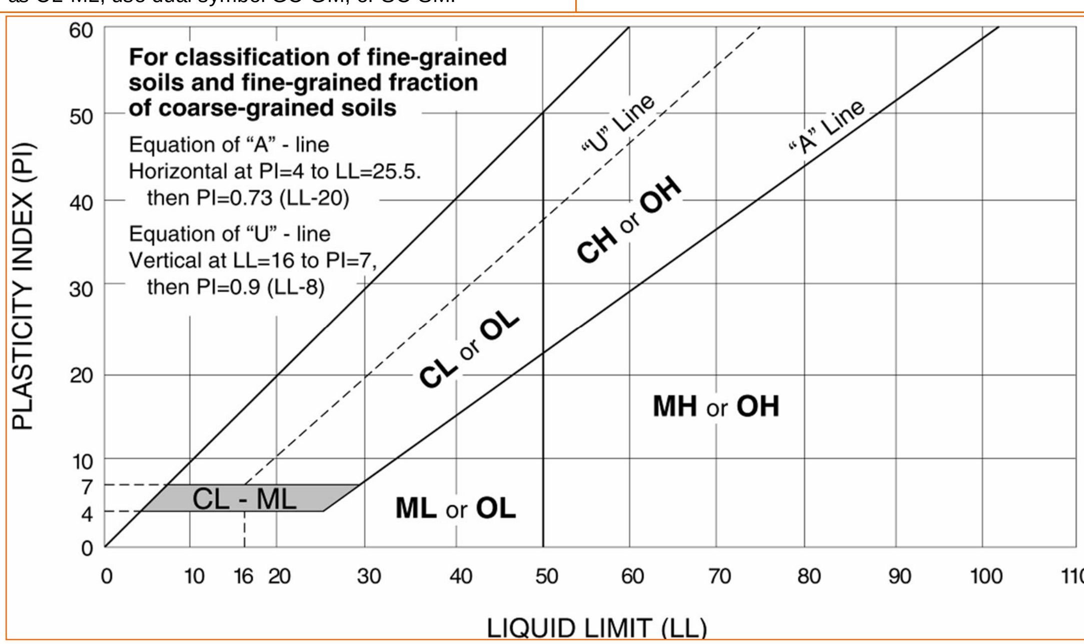
[M] If soil contains ³ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ³ 4 and plots on or above "A" line.

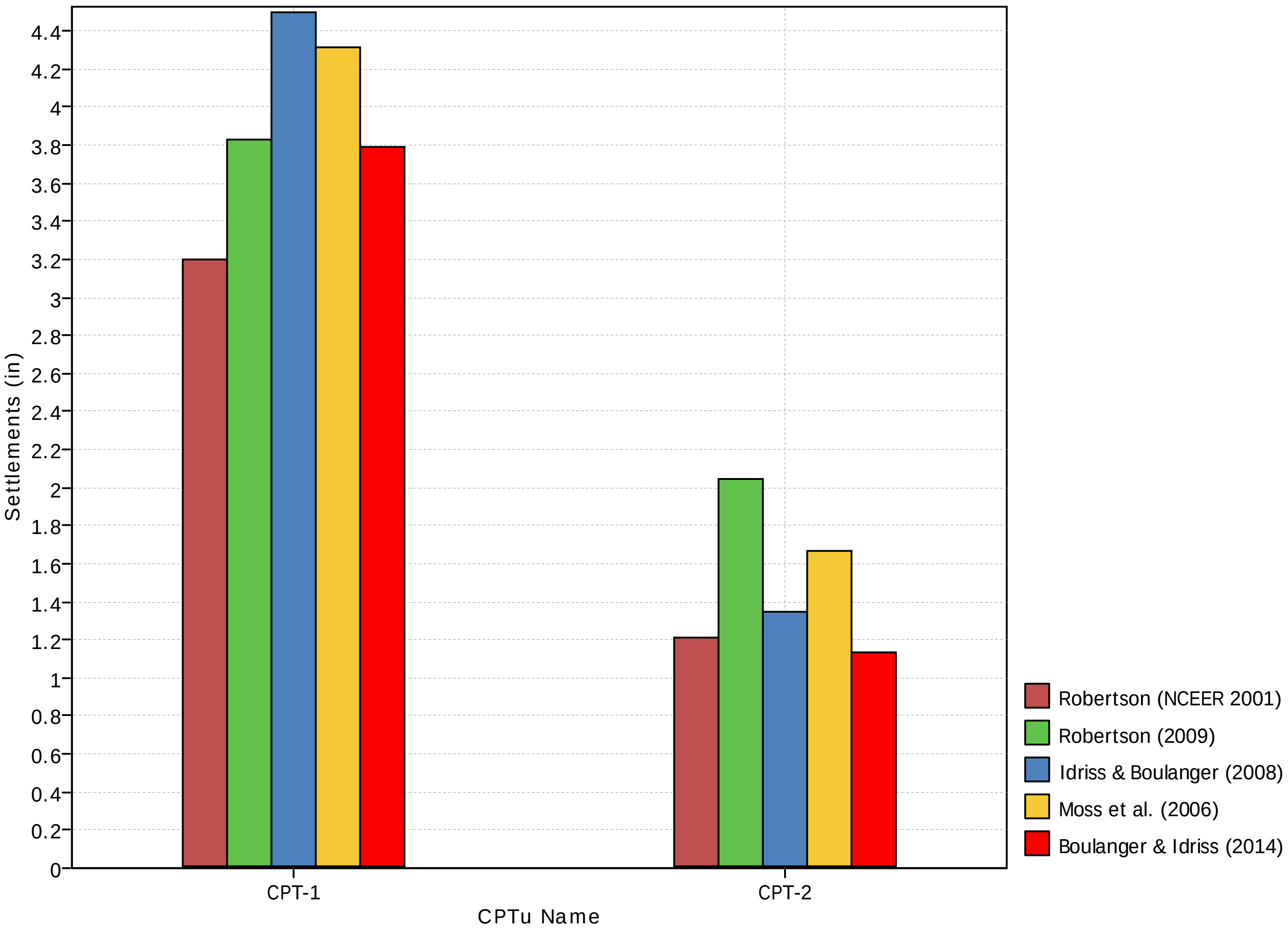
[O] PI < 4 or plots below "A" line.

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

[Q] PI plots below "A" line.



Overall Parametric Assessment Method



:: CPT main liquefaction parameters details ::

CPT Name	Earthquake Mag.	Earthquake Accel.	GWT in situ (ft)	GWT earthq. (ft)
CPT-1	6.76	0.64	3.00	3.00
CPT-2	6.76	0.64	3.00	3.00

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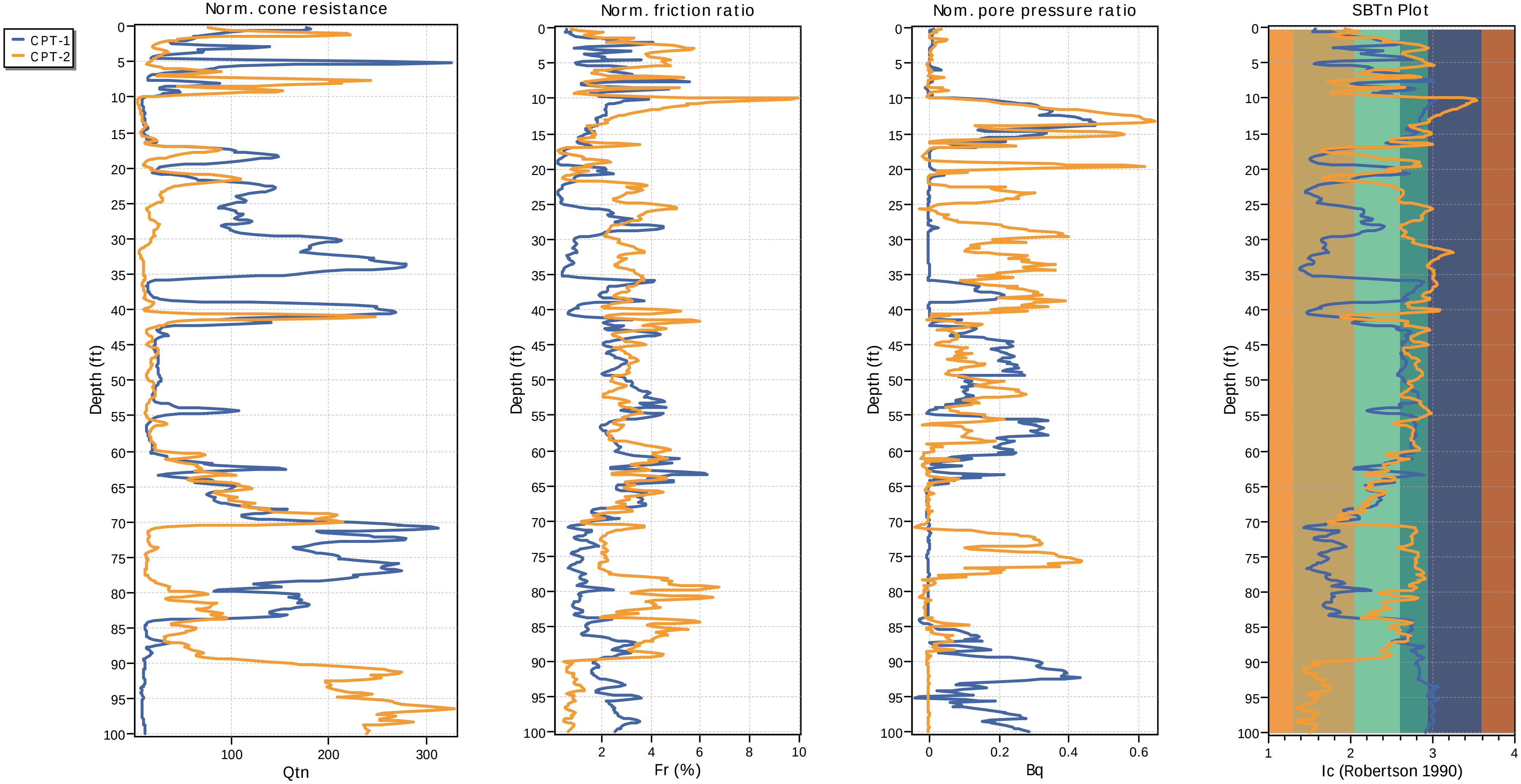
5075 Commercial Cir., Suite E
Concord, CA 94520
www.terracon.com

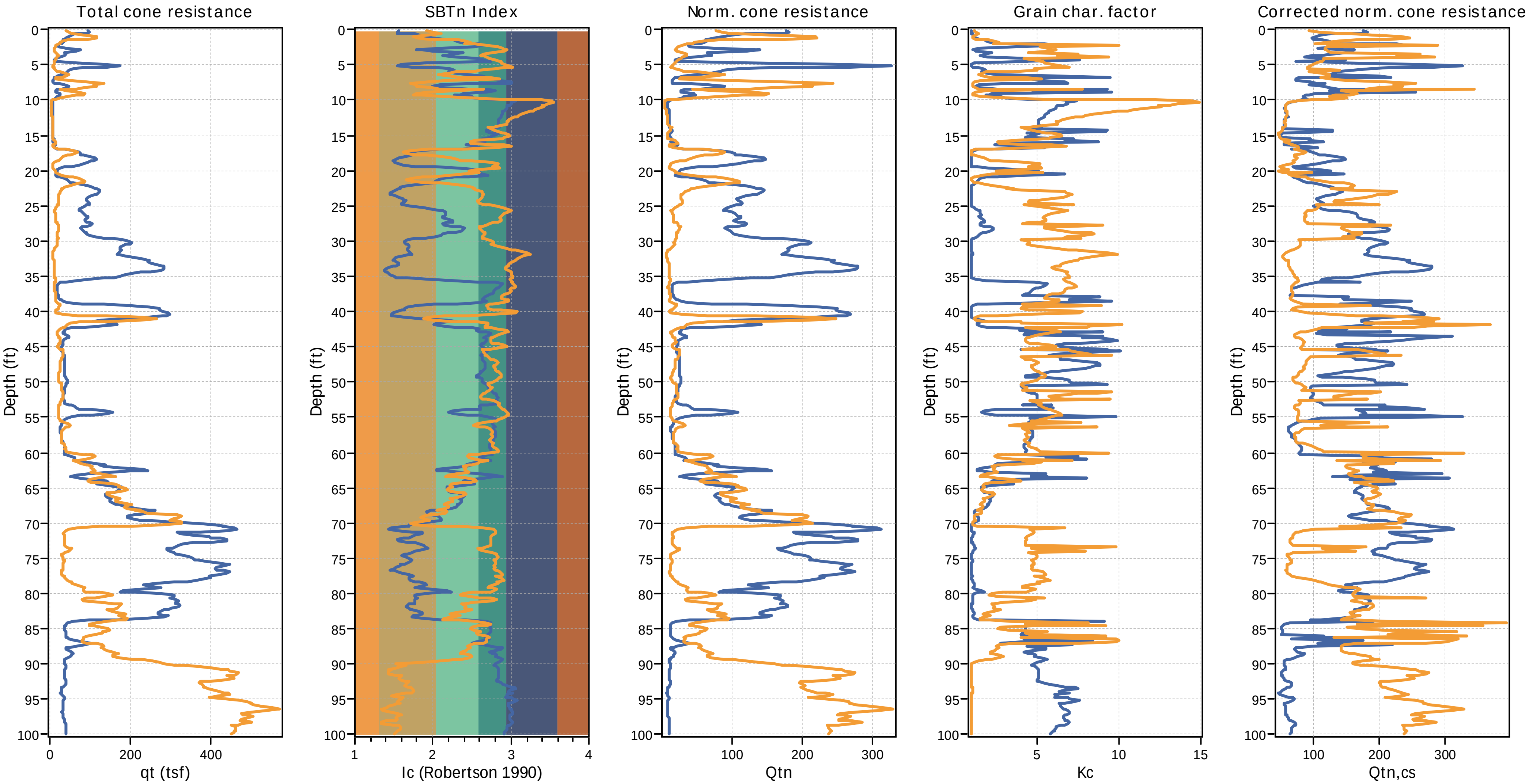
Project: Oakport

Overlay Normalized Plots



Project: Oakport

Overlay Intermediate Results



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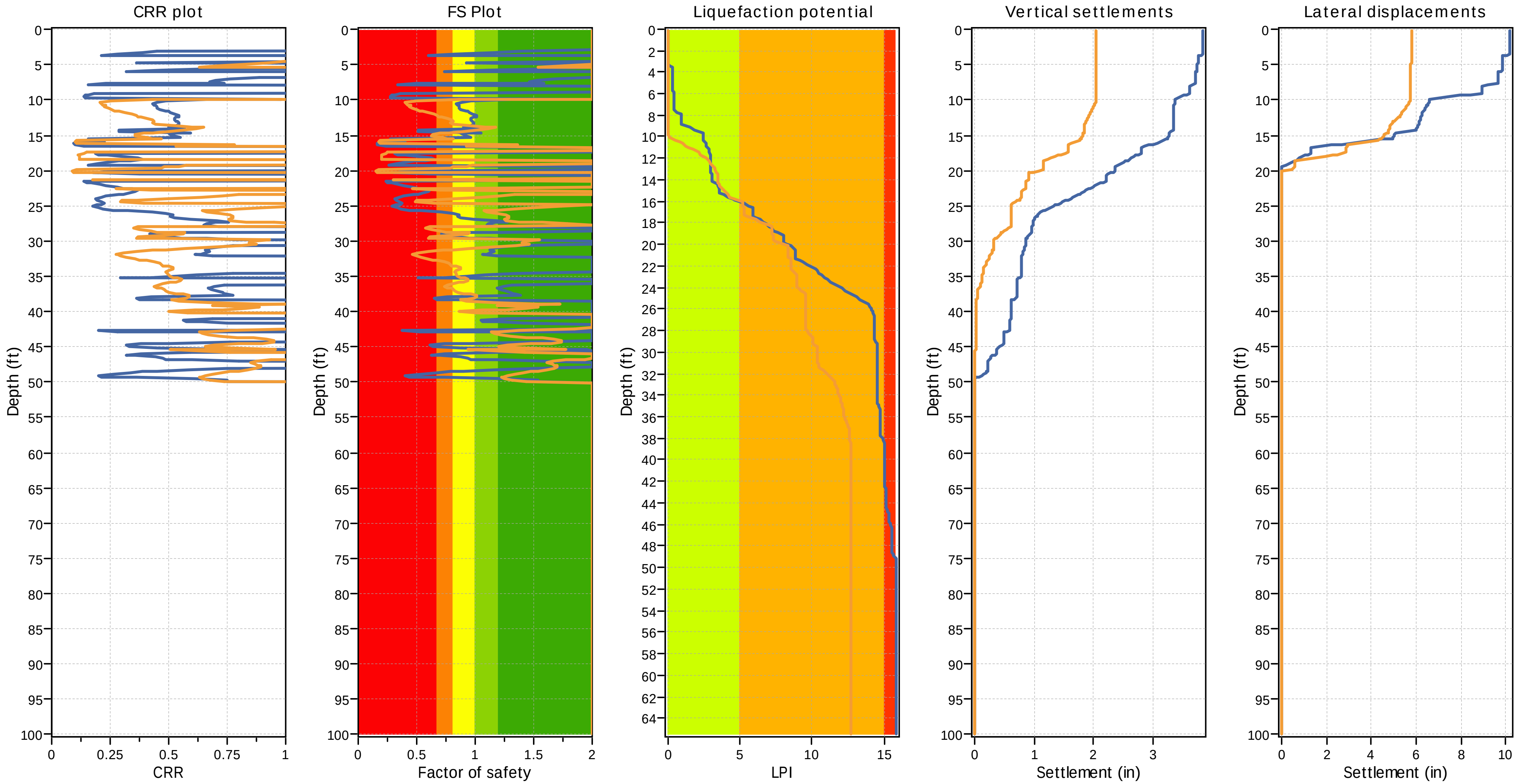
Project: Oakport

Overlay Cyclic Liquefaction Plots



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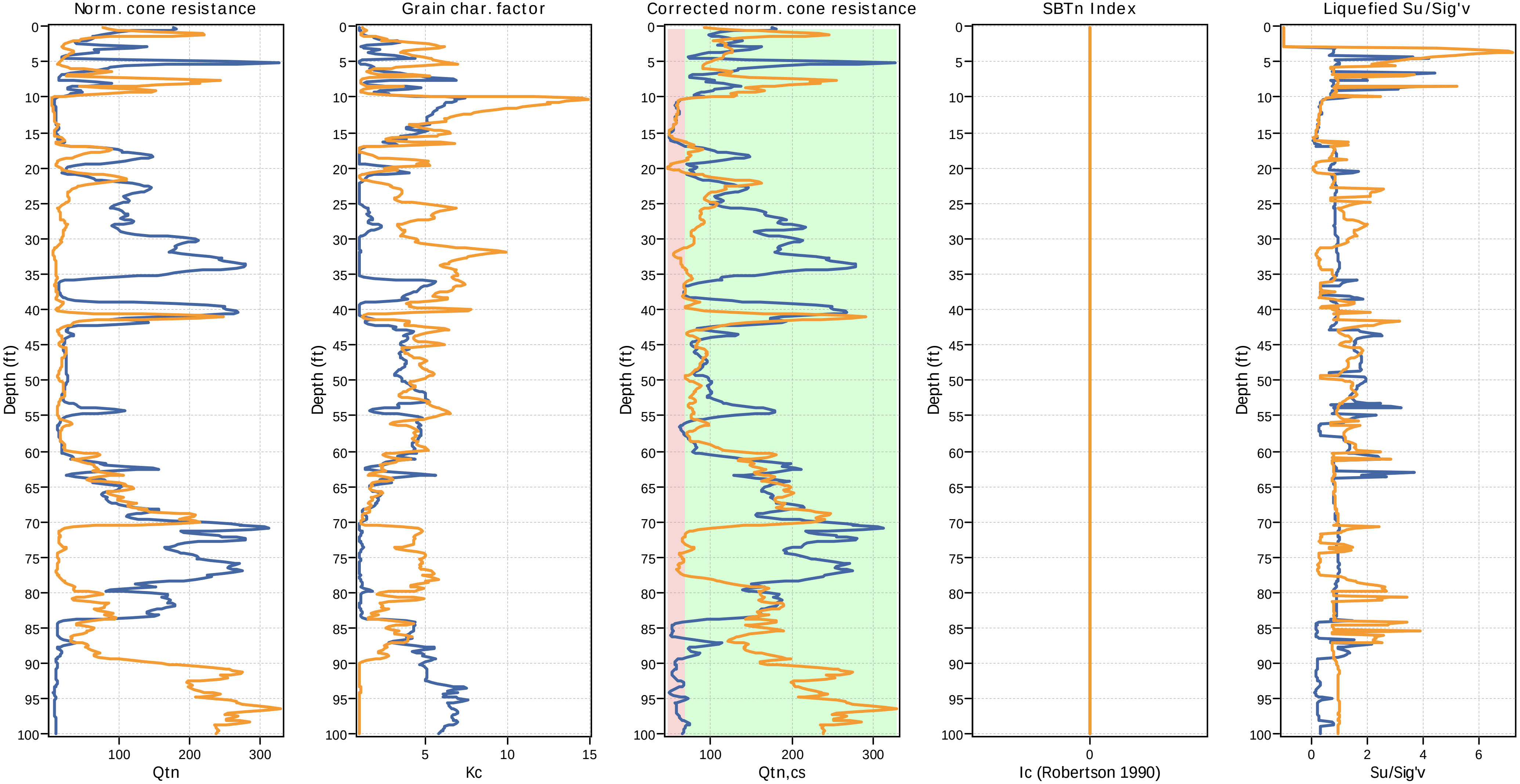
Project: Oakport

Overlay Strength Loss Plots

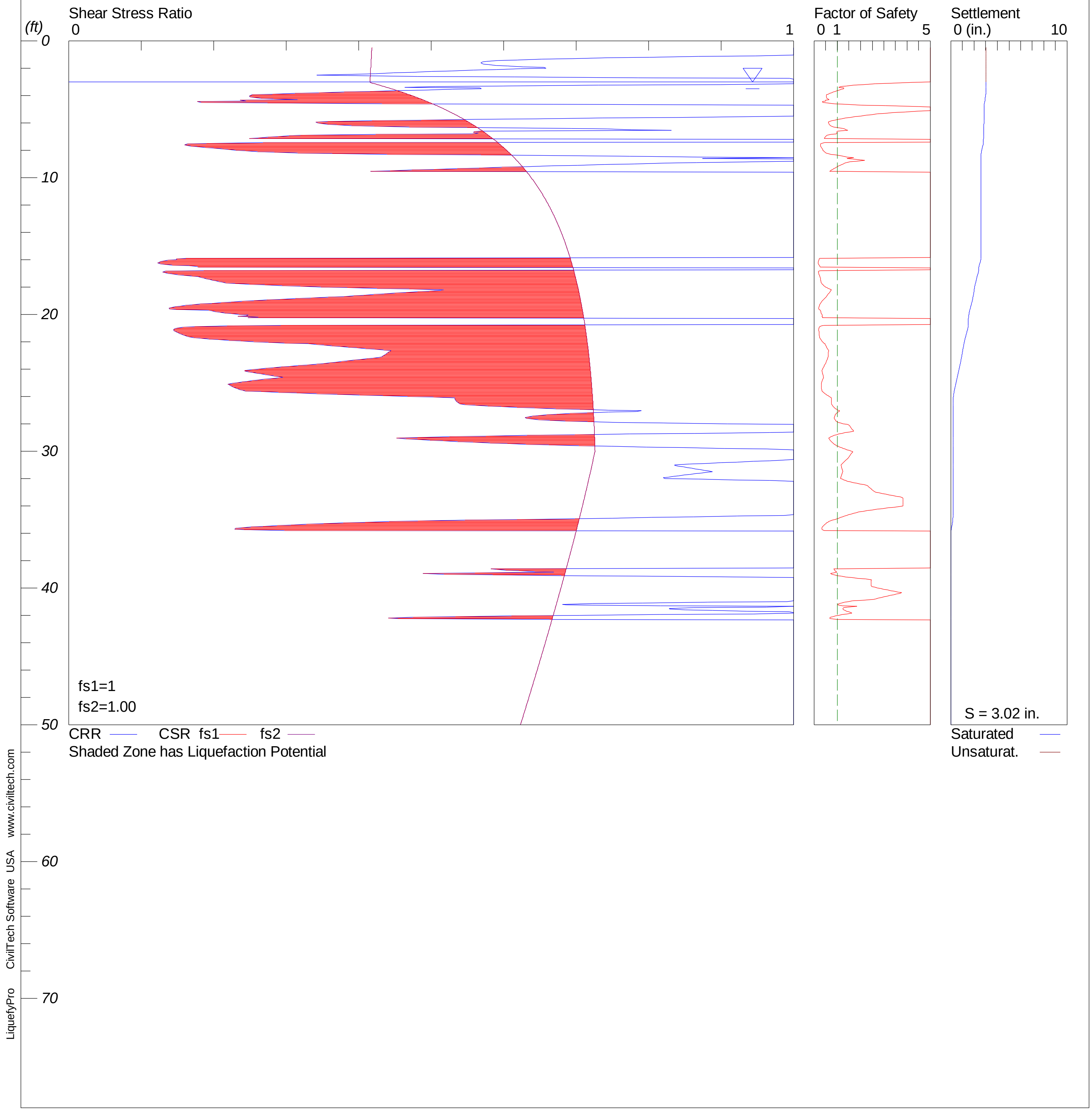


LIQUEFACTION ANALYSIS

Oakport Buildings

Hole No.=CPT-1 Water Depth=3 ft Surface Elev.=8

Magnitude=6.76
Acceleration=0.644g

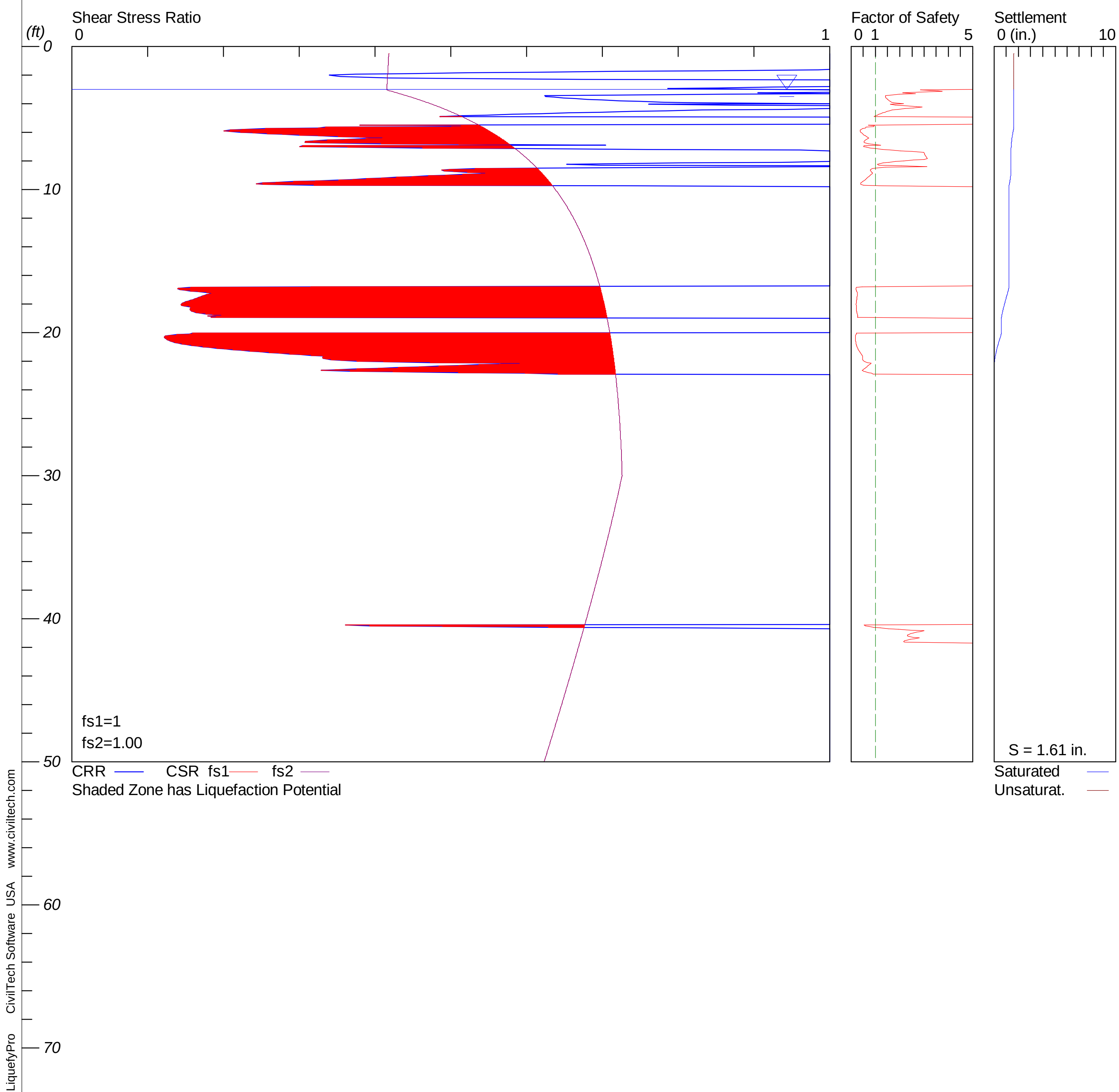


LIQUEFACTION ANALYSIS

Oakport Builldings

Hole No.=CPT-2   Water Depth=3 ft   Surface Elev.=8

Magnitude=6.76
Acceleration=0.644g



Terracon Consultants, Inc.

Liquefaction 2

USGS Design Maps Detailed Report

ASCE 7-10 Standard (37.75546°N, 122.21202°W)

Site Class E – "Soft Clay Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1]	S_S = 1.856 g
From Figure 22-2 [2]	S_1 = 0.745 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class E, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

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

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

Section 11.4.3 — Site Coefficients and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4–1: Site Coefficient F_a

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

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

For Site Class = E and S_S = 1.856 g, F_a = 0.900

Table 11.4–2: Site Coefficient F_v

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

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

For Site Class = E and S_1 = 0.745 g, F_v = 2.400

Equation (11.4–1):	$S_{MS} = F_aS_S = 0.900 \times 1.856 = 1.670$ g
Equation (11.4–2):	$S_{M1} = F_vS_1 = 2.400 \times 0.745 = 1.788$ g

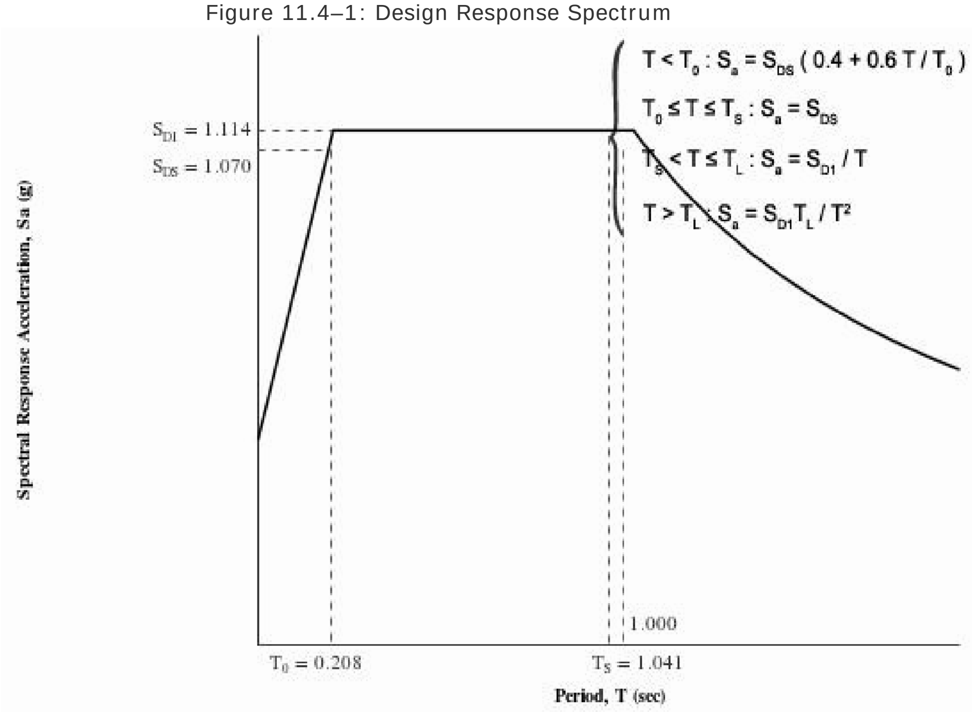
Section 11.4.4 — Design Spectral Acceleration Parameters

Equation (11.4–3):	$S_{DS} = ⅔\ S_{MS} = ⅔ \times 1.670 = 1.114$ g
Equation (11.4–4):	$S_{D1} = ⅔\ S_{M1} = ⅔ \times 1.788 = 1.192$ g

Section 11.4.5 — Design Response Spectrum

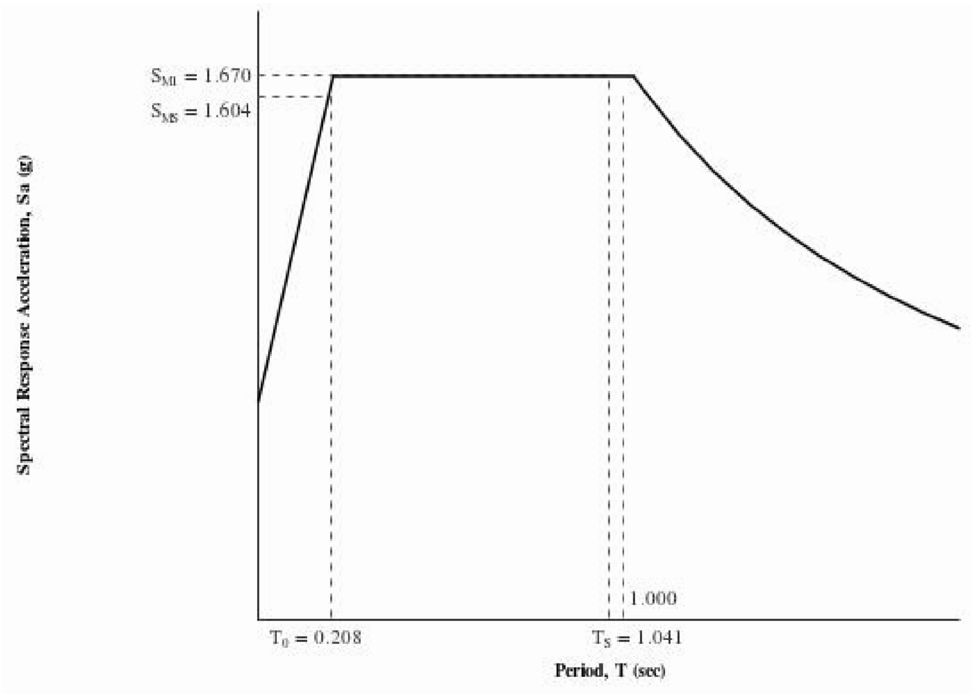
From Figure 22-12 [3]	T_L = 8 seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.715

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 0.900 \times 0.715 = 0.644$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

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

For Site Class = E and PGA = 0.715 g, F_{PGA} = 0.900

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 1.033

From Figure 22-18 [6] C_{R1} = 1.008

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

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

For Risk Category = I and S_{DS} = 1.114 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

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

For Risk Category = I and S_{D1} = 1.192 g, Seismic Design Category = D

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

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

Appendix M

<u>ECAP Consistency Checklist</u>

SupplyBank.org., May 2023

CITY OF OAKLAND

CITY OF OAKLAND
Equitable Climate Action Plan Consistency Checklist

250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612-2031
Zoning Information: 510-238-3911
https://www.oaklandca.gov/topics/planning

The purpose of this Equitable Climate Action Plan Consistency Review Checklist is to determine, for purposes of compliance with the California Environmental Quality Act (CEQA), whether a development project complies with the City of Oakland Equitable Climate Action Plan (ECAP) and the City of Oakland's greenhouse gas (GHG) emissions reduction targets. CEQA Guidelines require the analysis of GHG emissions and potential climate change impacts from new development.

- If a development project completes this Checklist and can qualitatively demonstrate compliance with the Checklist items as part of the project's design, or alternatively, demonstrate to the City's satisfaction why the item is not applicable, then the project will be considered in compliance with the City's CEQA GHG Threshold of Significance.
- If a development project cannot meet all of the Checklist items, the project will alternatively need to demonstrate consistency with the ECAP by complying with the City of Oakland GHG Reduction Plan Condition of Approval.
- If the project cannot demonstrate consistency with the ECAP in either of those two ways, the City will consider the project to have a significant effect on the environment related to GHG emissions.

Application Submittal Requirements

1. The ECAP Consistency Checklist applies to all development projects needing a CEQA GHG emissions analysis, including a specific plan consistency analysis.
2. If required, the ECAP Consistency Review Checklist must be submitted concurrently with the City of Oakland Basic Application.

Application Information

Applicant's Name/Company: Benito Delgado-Olson / K to College DBA SupplyBank.org.

Property Address: 5601 Oakport Street

Assessor's Parcel Number: **41-3904-1-5, 41-3903-2-7 and 41-3903-2-8**

Phone Number: (510) 967-8978-

E-mail: Benito@supplybank.org

Checklist Item (Check the appropriate box and provide explanation for your answer).			
Transportation & Land Use			
1. Is the proposed project substantially consistent with the City's over-all goals for land use and urban form, and/or taking advantage of allowable density and/or floor area ratio (FAR) standards in the City's General Plan? (TLU1)	**Yes**	**No**	**N/A**
	Yes		
Please explain how the proposed project is substantially consistent with the City's General Plan with respect to density and FAR standards, land use, and urban form. The Project would develop a currently vacant and underutilized site for non-profit commercial (SupplyBank.org) and institutional (EBMUD) uses, consistent with the Project site's Business Mix General Plan land use designation. Pursuant to applicable zoning, the maximum non-residential FAR for the site is 4.0, whereas the Project seeks approval of a development at an FAR of only 0.46 within the Development Area. While this development intensity does not maximize the zoning allowance, it is fully consistent with zoning, and the lower FAR results in less intrusion on the adjacent marsh habitat.			
2. For developments in "Transit Accessible Areas" as defined in the Planning Code, would the project provide: i) less than half the maximum allowable parking, ii) the minimum allowable parking, or iii) take advantage of available parking reductions? (TLU1)	**Yes**	**No**	**N/A**
			N/A
Please explain how the proposed project meets this action item. The Project site is not located within a "Transit Accessible Area" as defined in the Planning Code. The Project site is not within one-half (1/2) mile of a BART Station, a BRT Station, or a designated rapid bus line. The Project is located about one mile from the Coliseum BART Station. The nearest bus stop to the Project site is on 66th Avenue at Coliseum Way, about 0.4 mile east of the Project site. This bus stop is served by AC Transit Line 98, which operates with 20-minute headways during the peak commute periods on weekdays.			
3. For projects including structured parking, would the structured parking be designed for future adaptation to other uses? (Examples include, but are not limited to: the use of speed ramps instead of sloped floors.). (TLU1)	**Yes**	**No**	**N/A**
			N/A
Please explain how the proposed project meets this action item. The Project does not propose to construct any structured parking at the site.			
4. For projects that ***are*** subject to a Transportation Demand Management Program, would the project include transit passes for employees and/or residents? (TLU1)	**Yes**	**No**	**N/A**
	Yes		
Please explain how the proposed project meets this action item. The Project's future tenants will be provided with free or reduced cost transit passes for employees to increase transit mode share. Additionally, the Project will include a privately funded shuttle that will loop between the Project's Office building and the Coliseum BART station, enabling full integration with local transit agencies (e.g. BART, AC Transit and Amtrak). Passes for the shuttle will be offered to individuals employed by SupplyBank.org, EBMUD, or any tenant of the Project, as well as visitors, free of charge during normal hours of operation.			

	Yes	No	N/A
5. For projects that are ***not*** subject to a Transportation Demand Management Program, would the project incorporate one or more of the optional Transportation Demand Management measures that reduce dependency on single-occupancy vehicles? (Examples include but are not limited to transit passes or subsidies to employees and/or residents; carpooling; vanpooling; or shuttle programs; on-site carshare program; guaranteed ride home programs) (TLU1 & TLU8)			N/A
Please explain how the proposed project meets this action item. The Project is subject to a Transportation Demand Management Program (see Required SCA's below)			
6. Does the project comply with the Plug-In Electric Vehicle (PEV) Charging Infrastructure requirements (Chapter 15.04 of the Oakland Municipal Code), if applicable? (TLU2 & TLU-5)	Yes		
Please explain how the proposed project meets this action item. The Project will comply with PEV Charging Infrastructure requirements of the Oakland Municipal Code, and the required EV chargers will be provided as part of the Project.			
7. Would the project reduce or prevent the direct displacement of residents and essential businesses? (For residential projects, would the project comply with SB 330, if applicable? For projects that demolish an existing commercial space, would the project include comparable square footage of neighborhood serving commercial floor space.) (TLU3)	Yes		
Please explain how the proposed project meets this action item. The Project's proposed Development Area is a vacant site with no internal improvements. Occasionally, EBMUD permits this site to be used for seasonal outdoor use and temporary overflow parking, but generally it remains vacant most of the time. The Project's proposed development within the Development Area would not directly or indirectly displace residents or essential businesses. The Northerly Area of the Project site is actively used by EBMUD as the site of the Oakport Wet Weather Treatment Facility (Oakport WWF) and construction materials storage. Development of the Project includes relocation of certain of these EBMUD construction materials storage uses, but would not directly or indirectly displace residents or essential businesses.			

8. Would the project prioritize sidewalk and curb space consistent with the City's adopted Bike and Pedestrian Plans? (The project should not prevent the City's Bike and Pedestrian Plans from being implemented. For example, do not install a garage entrance where a planned bike path would be unless otherwise infeasible due to Planning Code requirements, limited frontage or other constraints.) (TLU7)	**Yes**	**No**	**N/A**
	Yes		

Please explain how the proposed project meets this action item.

The Project will prioritize bike and pedestrian conveyance in support of the City of Oakland's Bike and Pedestrian Plans. The Project's shuttle between the Project and the Coliseum BART station will provide a reliable option to access the Bay Trail directly from the shuttle stop at the Project. Bike storage lockers and on-site bicycle maintenance station(s) are planned as part of the development and the interface between the Project and the Bay Trail.

Buildings

9. Does the project not create any new natural gas connections/hook-ups? (B1 & B2)	**Yes**	**No**	**N/A**
	Yes		

Please explain how the proposed project meets this action item.

The Project is proposed with all electric power, and no new natural gas connections or hook-ups are proposed.

10. Does the project comply with the City of Oakland Green Building Ordinance (Chapter 18.02 of the Oakland Municipal Code), if applicable? (B4)	**Yes**	**No**	**N/A**
	Yes		

Please explain how the proposed project meets this action item.

The Project will meet the energy performance and other standards of the City's Green Building Ordinance

11. For retrofits of City-owned or City-controlled buildings: Would the project be all-electric, eliminate gas infrastructure from the building, and integrate energy storage wherever technically feasible and appropriate? (B5)	**Yes**	**No**	**N/A**
			N/A

Please explain how the proposed project meets this action item.

The Project is not a retrofit of City-owned or City-controlled buildings.

Material Consumption & Waste			
12. Would the project reduce demolition waste from construction and renovation and facilitate material reuse in compliance with the Construction Demolition Ordinance (Chapter 15.34 of the Oakland Municipal Code)? (MCW6)	**Yes**	**No**	**N/A**
	Yes		
Please explain how the proposed project meets this action item. The Project will comply with the Construction Demolition Ordinance by requiring the Project contractor to reduce demolition waste and facilitates material reuse as required.			

City Leadership			
13. For City projects: Have opportunities to eliminate/minimize fossil fuel dependency been analyzed in project design and construction? (CL2)	**Yes**	**No**	**N/A**
			N/A
Please explain how the proposed project meets this action item. The Project is not a City project, it is a private commercial development project with additional improvements for a private utility service (EBMUD)			

Adaptation			
14. For new projects in the Designated Very High Wildfire Severity Zone: Would the project incorporate wildfire safety requirements such creation of defensible space around the house, pruning, clearing and removal of vegetation, replacement of fire resistant plants, as required in the Vegetation Management Plan? (A4)	**Yes**	**No**	**N/A**
			N/A
Please explain how the proposed project meets this action item. The Project site is well outside of any areas classified as a Very High Fire Hazard Severity Zone, which are identified throughout the East Bay Hills and more than 3 miles east of the Project site			

Carbon Removal			
15. Would the project replace a greater number of trees than will be removed in compliance with the Tree Preservation Ordinance (Chapter 12.36 of the Oakland Municipal Code) and Planning Code if applicable and feasible given competing site constraints? (CR-2)	**Yes**	**No**	**N/A**
	Yes		
Please explain how the proposed project meets this action item. Based on the Tree Survey conducted for the Project, the Development Area includes six existing trees that are proposed to be removed; 1 eucalyptus, 2 date palms and 3 olive trees. All of the other vegetation along the Project site's westerly boundary (adjacent to Damon Marsh) would remain. Other than the eucalyptus tree, removal of the other 5 olive and date palm trees require approval of a Tree Removal Permit, but none of these trees are native trees that would require replacement plantings. However, the Project's proposed Landscape Plan includes 58 new trees along Oakport Street frontage, internal parking lot planting islands, and additional trees along the Project's westerly boundary near Damon Marsh.			
The 16. Does the project comply with the Creek Protection, Stormwater Management and Discharge Control Ordinance (Chapter 13.16 of the Oakland Municipal Code), as applicable? (CR-3)	**Yes**	**No**	**N/A**
	Yes		
Please explain how the proposed project meets this action item. A Creek Protection Plan will be prepared for City approval, to be submitted to the City at the time of site improvement applications. The Project will implement the Creek Protection Plan and will incorporate the contents required under section 13.16.150 of the Oakland Municipal Code including Best Management Practices ("BMPs") during construction and after construction to protect the Oakland Estuary waterway.			

I understand that answering ***yes*** to all of these questions, means that the project ***is in compliance with*** the City's Energy and Climate Action Plan as adopted on to July 28, 2020 and requires that staff apply the Project Compliance with the Equitable Climate Action Plan (ECAP) Consistency Checklist Condition of Approval as adopted by the Planning Commission on December 16, 2020 and all Checklist items must be incorporated into the project

I understand that answering ***no*** to any of these questions, means that the project ***is not in compliance*** with the City's Energy and Climate Action Plan as adopted on to July 28, 2020 and requires that staff apply the Greenhouse Gas (GHG) Reduction Plan Condition of Approval as adopted by the Planning Commission on December 16, 2020 which will require that the applicant prepare a quantitative GHG analysis and GHG Reduction Plan for staff's review and approval. The GHG Reduction Plan and all GHG Reduction measures shall be incorporated into the project and implemented during construction and after construction for the life of the project.

DocuSigned by:
Benito Delgado-Olson
90DB06EF5180459...

Name and Signature of Preparer

5/25/2023

Date

Appendix N

Phase I Environmental Site Assessment

Terracon Consultants, Inc., May 2, 2018

Phase I Environmental Site Assessment

Approximately 16.4-Acre Parcel

5601 and 5801 Oakport Street

Oakland, Alameda County, California

May 2, 2018

Terracon Project No. ND177017

Prepared for:

SupplyBank.Org
Oakland, California

Prepared by:

Terracon Consultants, Inc.
Sacramento, California

May 2, 2018

SupplyBank.Org
7730 Pardee Lane
Oakland, CA 94621

Attn: Mr. Benito Delgado-Olson
P: (510) 569-5862
E: benito@supplybank.org

Re: Phase I Environmental Site Assessment
Approximately 16.4-Acre Parcel
5601 and 5801 Oakport Street
Oakland, Alameda County, California
Terracon Project No. ND177017

Dear Mr. Delgado-Olson:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Phase I Environmental Site Assessment (ESA) report for the above-referenced site. This assessment was performed in accordance with Terracon Proposal No. PND177017 dated September 26, 2017.

We appreciate the opportunity to be of service to you on this project. In addition to Phase I services, our professionals provide geotechnical, environmental, construction materials, and facilities services on a wide variety of projects locally, regionally and nationally. For more detailed information on all of Terracon's services please visit our website at www.terracon.com. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,
Terracon Consultants, Inc.

DRAFT	DRAFT	DRAFT
Daniel P. Stringer Staff Engineer	Kristin A. Stout Project Manager	Carl A. Parten Principal

Attachments

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APPENDICES

EXECUTIVE SUMMARY

This Phase I Environmental Site Assessment (ESA) was performed in accordance with Terracon Proposal No. PND177017 dated September 26, 2017, and was conducted consistent with the procedures included in ASTM E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The ESA was conducted under the supervision or responsible charge of Kristin Stout, Environmental Professional. Daniel P. Stringer performed the site reconnaissance on March 30, 2018.

Findings and Opinions

A summary of findings is provided below. 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.

Site Description and Use

The site is located at 5801 Oakport Street (Assessor's Parcel Number [APN] 41-3904-1-5) and the southern portion of 5601 Oakport Street (APN 41-3903-2-8) Oakland, Alameda County, California and consists of approximately 16.4 acres of primarily vacant land with an asphalt-paved area on the northeastern portion of the site. During the site reconnaissance, the northern portion of the site was observed operating as East Bay Municipal Utility District (EBMUD) backfill storage yard and a pipe distributer. Other site features include a gated construction area, barbed wire fencing along the northern and eastern boundaries, and an asphalt-paved area.

Historical Information

Based on a review of the historical information, the site consisted of undeveloped marshland from as early as 1897 through 1949, receiving fill dirt from as early as 1958 to at least 1963. Since approximately 1968 the site has remained as undeveloped land with a traveling carnival using the land occasionally for business, while the northern portion of the site was utilized as a pipe supply storage yard. Adjoining properties were primarily undeveloped marshland from at least 1987 through the late 1940's with commercial development in the late 1950s through present.

The fill dirt represents a REC to the site.

Previous Reports

EBMUD provided Terracon with a report titled Oakport Groundwater Storage Pilot Project, Volume 1 – Technical Memorandum No. 3, Phase 2 Field Investigation Report dated June 1999. This report was prepared to assess the hydrogeologic and technical feasibility for groundwater storage at the site and adjoining property to the north. Thirteen groundwater wells were installed as a part of the project and nine groundwater monitoring wells were reportedly located on the site at the time of the investigation. According to Mr. Kevin Minn, representative of EBMUD, only three groundwater monitoring wells remain on the northwestern corner of the site:

- S2-MWS1 screened at a depth of 50-80 feet bgs (shallow aquifer)
- S2-MWS2 screened at a depth of 140-180 feet bgs (middle aquifer)
- S2-MWD1 screened at a depth of 480-550 feet bgs (deep aquifer)

The groundwater samples collected from the monitoring wells were analyzed for pesticides and polychlorinated biphenyls (PCBs) by EPA Method 608, aromatic hydrocarbons by EPA Method 610, volatile organic compounds (VOCs) by EPA Method 624, semivolatile organic compounds (SVOCS) by EPA Method 625, general minerals, and metals. Former monitoring wells S2-TW-1 and S2-MWM-2 located onsite detected trichloroethane (TCE) reportedly at concentrations ranging from 47 micrograms per liter (µg/L) to 66 µg/L, which is above the San Francisco Bay Regional Water Quality Control Board (RWQCB) Tier 1 Environmental Screening Levels (ESLs) of 3 µg/L. The monitoring wells were reportedly screened in the middle aquifer zone. The report noted that a source of the TCE had not been identified. The detection of TCE concentrations in groundwater beneath the site represents an REC to the site and potential VEC.

Records Review

Selected federal and state environmental regulatory databases as well as responses from state and local regulatory agencies were reviewed. The site (address 5601 Oakport) was identified in the database report.

Oakport Materials / EBMUD Oakport Storage / Giacomazzi / Oakport Storage Center (5601 Oakport Street)
EBMUD – Oakport Wet Weather Facility (5597 Oakport Street)

The listed facilities include the northern portion of the site and adjoining property to the north. The facilities and a portion of the site are listed on the Statewide Environmental Evaluation and Planning System Underground Storage Tank (SWEEPS UST), Historic UST (HIST UST), California Facility Inventory (CA FID UST), RCRA – Small Quantity Generators (RCRA-SQG), the Aboveground Storage Tank (AST), Leaking UST (LUST), Alameda County Contaminated Sites (Alameda County CS), California Hazardous Materials Incident Report System (CHMIRS), and the Hazardous Waste & Substance Site List (HIST CORTESE) databases. Based on a review of Alameda County Department of Environmental Health (ACDEH) records, the addresses of 5597, 5601, and 5779 Oakport Road are associated with the EBMUD property; therefore, are discussed together. Based on a review of the RCRA-SQG database listing, the site is registered as a small quantity hazardous waste generator on February 27, 2004 with no reported violations. Hazardous waste streams generated by the site are reported under the RCRA-SQG database as ignitable wastes, corrosive wastes, and lead. The CHMIRS listings are related to the wet weather station located approximately 975 feet north of the site. Based on a review of the SWEEPS UST and CA FID UST database listings, the facility reportedly operated a 7,700-gallon leaded gasoline UST and one 2,000-gallon diesel UST. Two 10,000-gallon, one 1,000-gallon, and one 20-gallon USTs are listed as having stored product.

Based on records provided by the ACDEH the northern adjoining property had one 8,000-gallon unleaded gasoline UST (also reported in the files as 7,500-gallon and 7,700-gallon), one 2,000-gallon diesel UST, and one 1,000-gallon UST contents unknown. Per the ACDEH records, these USTs are located approximately 975 feet north of the site. These tanks were removed in 1988 and issued closure in 1996. During tank removal, groundwater was reported at depths of approximately 4.26 to 8.74 feet bgs and flowing easterly. Due to the case closure status and distance from the site, these USTs are not considered a REC to the site.

One 10,000-gallon diesel UST and one 10,000-gallon gasoline UST was removed in June 1987 and according to the map provided in the ACDEH records, the UST was located south of an unidentified building. According to electronic correspondence with Mr. Minn, these former USTs were located approximately 415 feet northwest of the site. Case closure documentation was not found. Additionally, Mr. Minn also indicated that two ASTs are located 400 feet northwest of the site. Based on the reported distance of the database listings to the site, the facilities located at 5601 and 5597 Oakport Street do not appear to represent a REC to the site.

Oakport Center (5885 Oakport Street)
The above listed facility, western adjoining property and topographically down-gradient relative to the site, is listed on the AST database. The facility reportedly operated a 2,500-gallon AST under the owner name of EBMUD. Based on the facility's absence of hazardous release incidents and topographic down-gradient position relative to the site, the Oakport Center facility does not represent a REC to the site.

The remaining facilities listed in the database report do not appear to represent RECs to the site at this time, based upon regulatory status, apparent topographic gradient, and/or distance from the site.

Site Reconnaissance
During the site reconnaissance, an approximately 12 cubic yard pile of scrap wood debris, minor amounts of trash, a slurry disposal area, approximately 410 cubic yards of fill piles, an asphalt pile, a large demolition debris pile, two shallow muddy ponds, two standpipes (with three nested monitoring wells), and were observed. The slurry disposal area, monitoring wells and undocumented stockpile represent a REC to the site.

Adjoining Properties
The properties to the adjoining north of the site consist of a EBMUD backfill storage yard and steel storage containers, and an unmarked pipe distributer (5799 Oakport Street). The properties to the adjoining east of the site consist of Oakport Street, followed by Interstate 880, followed by Colombo (580 Julie Ann Way), vacant land (6195 Coliseum Way), unidentified building (6201 Coliseum Way), and East Bay Glass (515 Independent Road). The properties to the adjoining

south of the site consist of Oakport Street, followed by an empty flat gravel lot. The properties to the adjoining west of the site consist of a bike trail to San Leandro Bay, a dirt and gravel storage yard, and a sport field.

Significant Data Gaps

Significant data gaps were not identified.

Conclusions

We have performed a Phase I ESA consistent with the procedures included in ASTM Practice E 1527-13 at 5601 and 5801 Oakport Street, Oakland, Alameda County, California, the site. The following RECs or Controlled RECs (CREC) were identified in connection with the site:

- **Artificial Fill On-Site**: The unknown source of the artificial fill onsite represents an REC to the site.
- **Undocumented Soil and Debris Stockpiles**: The unknown source of the soil stockpiles represents an REC to the site.
- **Slurry Disposal Area**: The practice of dumping slurry from unknown saw cut areas of asphalt and concrete represent an REC to the site.
- **TCE in Groundwater:** The detected concentrations of TCE in groundwater beneath the site represents an REC and potential VEC to the site.

Recommendations

Based on the scope of services, limitations, and conclusions of this assessment, Terracon recommends additional investigation to evaluate potential impacts from the identified RECs and significant data gaps.

1.0 INTRODUCTION

1.1 Site Description

Site Name	Approximately 16.4-Acre Parcel
Site Location/Address	Assessor's Parcel Number [APN] 41-3903-2-8 and the southern portion of 5601 Oakport Street (APN 41-3904-1-5), Oakland, Alameda County, California
Land Area	Approximately 16.4-acres.
Site Improvements	The majority of the site is undeveloped land. The remaining areas of the site consist of a pipe supply storage yard and a gated construction area occupied by East Bay Municipal Utility District (EBMUD), an asphalt-paved area, a gravel walkway, and barbed wire fencing.
Anticipated Future Site Use	Redevelopment for commercial use.
Purpose of the ESA	Acquiring the site.

The location of the site is depicted on Exhibit 1 of Appendix A, which was reproduced from a portion of the USGS 7.5-minute series topographic map. The site and adjoining properties are depicted on the Site Diagram, which is included as Exhibit 2 of Appendix A. Acronyms and terms used in this report are described in Appendix F.

1.2 Scope of Services

This Phase I ESA was performed in accordance with Terracon Proposal No. PND177017 dated September 26, 2017, and was conducted consistent with the procedures included in ASTM E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The purpose of this ESA was to assist the client in developing information to identify RECs in connection with the site as reflected by the scope of this report. This purpose was undertaken through user-provided information, a regulatory database review, historical and physical records review, interviews, including local government inquiries, as applicable, and a visual noninvasive reconnaissance of the site and adjoining properties. Limitations, ASTM deviations, and significant data gaps (if identified) are noted in the applicable sections of the report.

ASTM E1527-13 contains a new definition of "migrate/migration," which refers to "the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface." By including this explicit reference to migration in ASTM E1527-13, the Standard clarifies that the potential for vapor migration should be addressed as part of a Phase I ESA. This Phase I ESA has considered vapor migration in evaluation of RECs associated with the site.

1.3 Standard of Care

This ESA was performed in accordance with generally accepted practices of this profession, undertaken in similar studies at the same time and in the same geographical area. We have endeavored to meet this standard of care, but may be limited by conditions encountered during performance, a client-driven scope of work, or inability to review information not received by the report date. Where appropriate, these limitations are discussed in the text of the report, and an evaluation of their significance with respect to our findings has been conducted.

Phase I ESAs, such as the one performed at this site, are of limited scope, are noninvasive, and cannot eliminate the potential that hazardous, toxic, or petroleum substances are present or have been released at the site beyond what is identified by the limited scope of this ESA. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. It should be recognized that environmental concerns may be documented in public records that were not reviewed. No ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs. No warranties, express or implied, are intended or made. The limitations herein must be considered when the user of this report formulates opinions as to risks associated with the site or otherwise uses the report for any other purpose. These risks may be further evaluated – but not eliminated – through additional research or assessment. We will, upon request, advise you of additional research or assessment options that may be available and associated costs.

1.4 Additional Scope Limitations, ASTM Deviations and Data Gaps

Based upon the agreed-on scope of services, this ESA did not include subsurface or other invasive assessments, vapor intrusion assessments or indoor air quality assessments (i.e. evaluation of the presence of vapors within a building structure), business environmental risk evaluations, or other services not particularly identified and discussed herein. Credentials of the company (Statement of Qualifications) have not been included in this report but are available upon request. Pertinent documents are referred to in the text of this report, and a separate reference section has not been included. Reasonable attempts were made to obtain information within the scope and time constraints set forth by the client; however, in some instances, information requested is not, or was not, received by the issuance date of the report. Information obtained for this ESA was received from several sources that we believe to be reliable; nonetheless, the authenticity or reliability of these sources cannot and is not warranted hereunder. This ESA was further limited by the following:

An evaluation of the significance of limitations and missing information with respect to our findings has been conducted, and where appropriate, significant data gaps are identified and discussed in the text of the report. However, it should be recognized that an evaluation of significant data gaps is based on the information available at the time of report issuance, and an evaluation of information received after the report issuance date may result in an alteration of our conclusions, recommendations, or opinions. We have no obligation to provide information obtained or discovered by us after the issuance date of the report, or to perform any additional services, regardless of whether the information would affect any conclusions, recommendations, or opinions in the report. This disclaimer specifically applies to any information that has not been provided by the client.

This report represents our service to you as of the report date and constitutes our final document; its text may not be altered after final issuance. Findings in this report are based upon the site's current utilization, information derived from the most recent reconnaissance and from other activities described herein; such information is subject to change. Certain indicators of the presence of hazardous substances or petroleum products may have been latent, inaccessible, unobservable, or not present during the most recent reconnaissance and may subsequently become observable (such as after site renovation or development). Further, these services are not to be construed as legal interpretation or advice.

1.5 Reliance

This ESA report is prepared for the exclusive use and reliance of SupplyBank.Org. Use or reliance by any other party is prohibited without the written authorization of SupplyBank.Org and Terracon Consultants, Inc. (Terracon).

Reliance on the ESA by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, ESA report, and Terracon's Agreement for Services. The limitation of liability defined in the Agreement for Services is the aggregate limit of Terracon's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E1527-13 Sections 4.6 and 4.8. If the ESA will be used by a different user (third party) than the user for whom the ESA was originally prepared, the third party must also satisfy the user's responsibilities in Section 6 of ASTM E1527-13.

1.6 Client Provided Information

Prior to the site visit, Ms. Chris Emmons, Supply Bank, client's representative, was asked to provide the following user questionnaire information as described in ASTM E1527-13 Section 6.

Client Questionnaire Responses

Client Questionnaire Item	Client Did Not Respond	Client's Response	
		Yes	No
Specialized Knowledge or Experience that is material to a REC in connection with the site.			X

Client Questionnaire Item	Client Did Not Respond	Client's Response	
		Yes	No
Actual Knowledge of Environmental Liens or Activity Use Limitations (AULs) that may encumber the site.			X
Actual Knowledge of a Lower Purchase Price because contamination is known or believed to be present at the site.			X
Commonly Known or Reasonably Ascertainable Information that is material to a REC in connection with the site.			X
Obvious Indicators of Contamination at the site.			X

Terracon's consideration of the client provided information did not identify RECs. A copy of the questionnaire is included in Appendix C.

2.0 PHYSICAL SETTING

Physical Setting Information		Source
Topography		
Site Elevation	Approximately 10 feet above sea level.	USGS Topographic Map, Oakland East and San Leandro, California, dated 1993 and 1997 (Appendix A)
Topographic Gradient	Gently sloping to the west to southwest	
Closest Surface Water	San Leandro Bay, located approximately 450 feet west to southwest of the site.	
Soil Characteristics		
Soil Type	Urban land	Alameda County, CA USDA-NRCS Web Soil Survey issued October 3, 2017
Description	Variable soils within the first approximately 5 feet below ground surface (bgs). Does not meet the requirements for hydric soil classification.	
Geology/Hydrogeology		
Formation	Quaternary (Qoa)	California Department of Conservation, Geologic Map of California, dated 2012
Description	Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine, but includes marine deposits near the coast.	

Physical Setting Information		Source
Estimated Depth to First Occurrence of Groundwater	Approximately 3 to 5 feet bgs, measured in groundwater monitoring wells located approximately 400 feet east of the site.	GeoTracker, LUST Case No. T0600102109, 580 Julie Ann Way, Case Closure Summary, prepared by Alameda County Environmental Health, dated April 6, 2006
*Hydrogeologic Gradient	Not known - may be inferred to be parallel to topographic gradient (primarily to the west to southwest).	

* The groundwater flow direction and the depth to shallow, unconfined groundwater, if present, would likely vary depending upon seasonal variations in rainfall and other hydrogeological features. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

3.0 HISTORICAL USE INFORMATION

Terracon reviewed the following historical sources to develop a history of the previous uses of the site and surrounding area, in order to help identify RECs associated with past uses. Copies of selected historical documents are included in Appendix C.

3.1 Historical Topographic Maps, Aerial Photographs, Sanborn Maps

Readily available historical USGS topographic maps, selected historical aerial photographs (at approximately 10 to 15 year intervals) and historical fire insurance maps produced by the Sanborn Map Company were reviewed to evaluate land development and obtain information concerning the history of development on and near the site. Reviewed historical topographic maps, aerial photographs and Sanborn maps are summarized below.

Historical fire insurance maps produced by the Sanborn Map Company were requested from EDR to evaluate past uses and relevant characteristics of the site and surrounding properties. Based upon inquiries to the above-listed Sanborn provider, Sanborn maps were not available for the site.

- Topographic map:
  - Concord, California, published in **1897** and **1915** (1:62,500)
  - Hayward, California, published in **1915** (1:62,500)
  - Haywards, California, published in **1899** and **1915** (1:62,500)
  - Oakland East, California, published in **1947**, **1949**, **1959**, **1968**, **1973**, **1980**, **1997**, and **2012** (1:24,000)
  - San Leandro, California, published in **1947**, **1948**, **1959**, **1968**, **1973**, **1980**, **1996**, and **2012** (1:24,000)
- Aerial photograph:
  - USGS, **1946**, **1958**, **1963**, **1968**, and **1974**, 1”=500’
  - USGS/DOQQ, **1993**, 1”=500’
  - USDA, **1939**, **1982**, and **1998**, 1”=500’
  - USDA/NAIP, **2005**, **2010**, and **2014**, 1”=500’

Historical Maps and Aerial Photographs

Direction	Description
Site	Undeveloped land with marshes and distributaries (1897-1949); undeveloped marsh land with the eastern portion of the site receiving fill dirt (1958); undeveloped land with dirt road and additional fill dirt (1963); undeveloped land (1968-1980); undeveloped land with dirt roads (1982); storage of materials in the northeastern portion, remaining parcel appears vacant (1993-1997); storage of materials near the northern boundary and a traveling carnival (2005); vacant land with storage of materials near the northern boundary (2010-2012); developed with small structures on the northern boundary and a traveling carnival (2014).
North	Undeveloped land with marshes and distributaries (1897-1949); undeveloped land followed by developed land with commercial structures and a freeway (1958-1968); undeveloped land followed by freeway and developed land with additional commercial structures (1968-1982); developed land with small unknown structures (1993-1998); developed land with additional structures (2005-2014).
East	Undeveloped marshland followed by apparent racetrack (1897-1946); undeveloped land followed by power transmission line and railroad, racetrack no longer present (1947-1949); developed with freeway, followed by multiple commercial buildings (1958-1963); developed with additional roads, commercial buildings, and freeway onramps (1973); developed with additional commercial buildings and landscaping (1974-2014).
South	Undeveloped marshland with a river (1897-1915); Undeveloped marshland with a river followed by a coastal road (1939-1958); road removed (1959); river repositioned (1963); developed with multiple roads (1968-2014).
West	Undeveloped marshland followed by San Leandro Bay (1897-1963); additional road followed by undeveloped marshland and San Leandro Bay (1968-1974); additional single track railroad next to the road (1980); additional road between marshland and the bay (1982); developed with recreational field (1993-2014).

The apparent filling activities across portions of the site represents an REC.

3.2 Historical City Directories

The Haines Company, Inc., R. L. Polk & Co., Pacific Bell, and EDR Digital Archive city directories used in this study were made available through EDR (selected years reviewed: 1920 to 2014) and were reviewed at approximate five-year intervals, if readily available. Street listings were not available prior to 1955. The proposed address for the site is 5601 Oakport Street. The current street address for the northern portion of the site was identified as 5601 Oakport Street.

Historical City Directories

Direction	Description
Site	**5601 Oakport Street** – *Charles L. Campanella Wrecking Co. (1955)*; no listing (1956-1986); Dan Caputo Construction Co. (1991); no listing (1992-2010); East Bay Municipal Utility District Wastewater (2014). **5801 Oakport Street** – No listing (1955-2014).
North	**5601 Oakport Street** – *Charles L. Campanella Wrecking Co. (1955)*; no listing (1956-1986); Dan Caputo Construction Co. (1991); no listing (1992-2010); East Bay Municipal Utility District Wastewater (2014).
East	**500 Independent Road** – Schwartz & Lindheim Inc. (1980); no listing (1982-1984); Schwartz & Lindheim Inc (1986-1992); no listing (1993); Schwartz & Lindheim Inc. (1996-2000); no listing (2002); Meadows Corporation (2006); W & K Trading Group, Ye Ying Guang (2010); Tre Dep Tuoi, Auto Parts Xpress (2014). **535 Julie Ann Way** – No listing (1955-1967); Lindal Cedar Homes of California Inc., (1970); Lindal Cedar Homes, Bishop Cedar Homes (1975); no listing (1976-2014). **541 Julie Ann Way** – No listing (1955-2006); Six Robblees Inc. (2010-2014). **563 Julie Ann Way** – No listing (1955-1965); Pecks Inc. Duplicating Graphic Art Products (1967); no listing (1970-2014).
South	**5885 Oakport Street** – No listing (1955-1956); Giacomazzi Bros Transportation Co. (1962); no listing (1965); Giacomazzi Bros Transportation Co. (1967-1970); no listing (1973); Giacomazzi Transportation Bros Co. (1975); no listing (1976-2014).
West	None – San Leandro Bay.

The address of 5601 Oakport Street is associated with the northern portion of the site and the adjoining property to the north.

The above italicized property, Charles L. Campanella Wrecking Co., was identified in the city directories at 5601 Oakport Street in 1955. However, a wrecking yard or Oakport Street was not depicted in the aerial photographs or topographic maps, therefore, this address appears to be an error. The identified wrecking yard does not represent a REC to the site.

The underlined facilities are identified in the environmental regulatory database and discussed further in Section 4.1.

3.3 Site Ownership

Based on information obtained from the Alameda County Assessor's records, the current site owner is listed as East Bay Municipal Utility District. Previous owners were not reported.

3.4 Title Search

At the direction of the client, a title search was not included as part of the scope of services. Unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.5 Environmental Liens and Activity and Use Limitations

The EDR regulatory database report included a review of both Federal and State Engineering Control (EC) and Institutional Control (IC) databases. Based on a review of the database report, the site was not listed on the EC or IC databases. Please note that in addition to these federal and state listings, AULs can be recorded at the county and municipal level that may not be listed in the regulatory database report. Environmental lien and activity and use limitation records recorded against the site were not provided by the client. At the direction of the client, performance of a review of these records was not included as part of the scope of services and unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.6 Interviews Regarding Current and Historical Site Uses

The following individuals were interviewed regarding the current and historical use of the site.

Interviews

Interviewer	Name / Phone #	Title	Date
Kristin Stout	Ken Minn / (510) 287-0668	Employee / EBMUD	April 11, 2018 April 12, 2018 April 16, 2018 April 25, 2018

Terracon interviewed Mr. Minn, an employee with EBMUD, following the site reconnaissance via telephone and electronic correspondence. Mr. Minn provided Terracon with information in regards to monitoring wells observed onsite (refer to Section 3.7). In addition, Mr. Minn stated there were not any aboveground storage tanks (ASTs), underground storage tanks (USTs), septic tanks, drinking water wells, or dumping on the site. Mr. Minn indicated that the slurry area is a mixture of concrete, asphalt, and water that is generated when the EBMUD crews saw cut streets and sidewalks and vacuum up the slurry materials, then that material is disposed of in this area. Mr. Minn also provided information on the former USTs and present day ASTs located at 5601 Oakport Road and this information is summarized in Section 4.1. Mr. Minn was not aware of any environmental concerns associated with the site or surrounding properties.

3.7 Prior Report Review

Mr. Minn provided Terracon with a report titled Oakport Groundwater Storage Pilot Project, Volume 1 – Technical Memorandum No. 3, Phase 2 Field Investigation Report dated June 1999.

This report was prepared to assess the hydrogeologic and technical feasibility for groundwater storage at the site and adjoining property to the north. Thirteen groundwater wells were installed as a part of the project and nine groundwater monitoring wells were located on the site. According to Mr. Minn, only three groundwater monitoring wells remain onsite:

- S2-MWS1 screened at a depth of 50-80 feet bgs (shallow aquifer)
- S2-MWS2 screened at a depth of 140-180 feet bgs (middle aquifer)
- S2-MWD1 screened at a depth of 480-550 feet bgs (deep aquifer)

The groundwater samples collected from the monitoring wells were analyzed for pesticides and polychlorinated biphenyls (PCBs) by EPA Method 608, aromatic hydrocarbons by EPA Method 610, volatile organic compounds (VOCs) by EPA Method 624, semivolatile organic compounds (SVOCS) by EPA Method 625, general minerals, and metals. Former monitoring wells S2-TW-1 and S2-MWM-2 located onsite detected trichloroethane (TCE) reportedly at concentrations ranging from 47 micrograms per liter (µg/L) to 66 µg/L, which is above the ESL of 3 µg/L for TCE. The monitoring wells were reportedly screened in the middle aquifer zone. The report noted that a source of the TCE had not been identified. The on-site monitoring wells and the detection of TCE concentrations in groundwater beneath site represents an REC to the site and potential VEC.

4.0 RECORDS REVIEW

Regulatory database information was provided by EDR, a contract information services company. The purpose of the records review was to identify RECs in connection with the site. Information in this section is subject to the accuracy of the data provided by the information services company and the date at which the information is updated. The scope herein did not include confirmation of facilities listed as "unmappable" by regulatory databases.

In some of the following subsections, the words up-gradient, cross-gradient and down-gradient refer to the topographic gradient in relation to the site. As stated previously, the groundwater flow direction and the depth to shallow groundwater, if present, would likely vary depending upon seasonal variations in rainfall and the depth to the soil/bedrock interface. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

4.1 Federal and State/Tribal Databases

Listed below are the facility listings identified on federal and state/tribal databases within the ASTM-required search distances from the approximate site boundaries. Database definition, descriptions, and the database search report are included in Appendix D.

Federal Databases

Database	Description	Distance (miles)	Listings
CERCLIS	Comprehensive Environmental Response, Compensation, & Liability Information System	0.5	0
CERCLIS / NFRAP	Comprehensive Environmental Response, Compensation, & Liability Information System/No Further Remedial Action Planned	0.5	3
ERNS	Emergency Response Notification System	Site	0
IC / EC	Institutional Control/Engineering Control	Site	0
NPL	National Priorities List	1.0	0
NPL (Delisted)	National Priorities Delisted List	0.5	0
RCRA CORRACTS/ TSD	RCRA Corrective Action Activity	1.0	2
RCRA Generators	Resource Conservation and Recovery Act	Site and adjoining properties	3
RCRA Non-CORRACTS/ TSD	RCRA Non-Corrective Action Activity	0.5	0

State/Tribal Databases

Database	Description	Distance (miles)	Listings
Alameda County CS	Alameda County Contaminated Sites	0.5	29
AST	Aboveground Storage Tanks	0.25	5
CA BOND EXP. PLAN	Bond Expenditure Plan	1.0	4
CA FID UST	Facility Inventory Database	0.25	6
CALSITES	CalSites Database	1.0	5
CALSITES (AWP)	Active Annual Workplan Sites	1.0	0
Cortese	“Cortese” Hazardous Waste & Substances Site List	0.5	1
DEED	Deed Restriction Listing	0.5	1
ENVIROSTOR	EnviroStor Database	1.0	21
HIST UST	Hazardous Substance Storage Container Database	0.25	8
LUST	Leaking Underground Storage Tanks	0.5	26
RESPONSE	State Response Sites	1.0	5
SLIC	Statewide SLIC Cases (GEOTRACKER)	0.5	9
SWEEPS UST	SWEEPS UST Listing	0.25	6

Database	Description	Distance (miles)	Listings
SWF/LF	Solid Waste Facilities/Landfills	0.5	4
US BROWNFIELDS	A Listing of Brownfields Sites	0.5	1
UST	Underground Storage Tank Facilities	Site and adjoining properties	0
VCP	Voluntary Cleanup Program	0.5	0

In addition to the above ASTM-required listings, Terracon reviewed other federal, state, local, and proprietary databases provided by the database firm. A list of the additional reviewed databases is included in the regulatory database report included in Appendix D.

The following table summarizes the site-specific information provided by the database and/or gathered by this office for identified facilities. Facilities are listed in order of proximity to the site. Additional discussion for selected facilities follows the summary table.

Listed Facilities

<table>
<tr><th>Facility Name And Location</th><th>Estimated Distance / Direction/Gradient</th><th>Database Listings</th><th>Is a REC, CREC, or HREC to the Site</th></tr>
<tr><td>Oakport Materials Storage Yard
5601 Oakport Street</td><td rowspan="4">Northern Portion of the Site and Adjoining Northern Property</td><td>SWEEPS UST, HIST UST, CA FID UST</td><td rowspan="4">No, discussed below</td></tr>
<tr><td>EBMUD Oakport Storage Center
5601 Oakport Street</td><td>RCRA-SQG</td></tr>
<tr><td>Oakport (Giacomazzi)
5601 Oakport Street</td><td>HIST UST</td></tr>
<tr><td>Oakport Storage Center
5601 Oakport Street</td><td>AST</td></tr>
<tr><td>EBMUD – Oakport Wet Weather Facility
5597 Oakport Street</td><td></td><td>AST, LUST, Alameda County CS, CHMIRS, HIST CORTESE</td><td>No, discussed below</td></tr>
<tr><td>Oakport Center
5885 Oakport Street</td><td>Adjoining / West / Down-gradient</td><td>AST</td><td>No, discussed below</td></tr>
<tr><td>IBC-NCMFG-Oakland
580 Julie Ann Way</td><td rowspan="2">Approximately 420 feet / East / Up-gradient</td><td>AST</td><td rowspan="2">No, discussed below</td></tr>
<tr><td>Colombo Baking Company
580 Julie Ann Way</td><td>HIST UST, LUST, Alameda County CS, SWEEPS UST, CA FID UST, EMI, HIST CORTESE, WDS</td></tr>
</table>

Facility Name And Location	Estimated Distance / Direction/Gradient	Database Listings	Is a REC, CREC, or HREC to the Site
United Plastics Corporation 513 Independent Road	Approximately 475 feet / East / Up-gradient	RCRA-SQG, FINDS, ECHO	No, discussed below
Wells-Stack 515 Independent Road	Approximately 475 feet / East / Up-gradient	EDR Hist Cleaner	No, discussed below

Oakport Materials / EBMUD Oakport Storage / Giacomazzi / Oakport Storage Center (5601 Oakport Street)
EBMUD – Oakport Wet Weather Facility (5597 Oakport Street)

The listed facilities include the northern portion of the site and adjoining property to the north. The facilities and a portion of the site are listed on the Statewide Environmental Evaluation and Planning System Underground Storage Tank (SWEEPS UST), Historic UST (HIST UST), California Facility Inventory (CA FID UST), RCRA – Small Quantity Generators (RCRA-SQG), the Aboveground Storage Tank (AST), Leaking UST (LUST), Alameda County Contaminated Sites (Alameda County CS), California Hazardous Materials Incident Report System (CHMIRS), and the Hazardous Waste & Substance Site List (HIST CORTESE) databases. Based on a review of Alameda County Department of Environmental Health (ACDEH) records, the addresses of 5597, 5601, and 5779 Oakport Road are associated with the EBMUD property; therefore, are discussed together. Based on a review of the RCRA-SQG database listing, the site is registered as a small quantity hazardous waste generator on February 27, 2004 with no reported violations. Hazardous waste streams generated by the site are reported under the RCRA-SQG database as ignitable wastes, corrosive wastes, and lead. The CHMIRS listings are related to the wet weather station located approximately 975 feet north of the site. Based on a review of the SWEEPS UST and CA FID UST database listings, the facility reportedly had a 7,700-gallon leaded gasoline UST and one 2,000-gallon diesel UST. Two 10,000-gallon, one 1,000-gallon, and one 20-gallon USTs are listed as having stored product. Refer to the information below further discussing these USTs.

Based on records provided by the ACDEH the northern adjoining property operated one 8,000-gallon unleaded gasoline UST (also reported in the files as 7,500-gallon and 7,700-gallon), one 2,000-gallon diesel UST, and one 1,000-gallon UST contents unknown. Per the ACDEH records, these USTs are located approximately 975 feet north of the site. These tanks were removed in 1988 and issued closure in 1996. During tank removal, groundwater was reported at depths of approximately 4.26 to 8.74 feet bgs and flowing easterly. Due to the case closure status and distance from the site, these USTs are not considered a REC to the site.

One 10,000-gallon diesel UST and one 10,000-gallon gasoline UST was removed in June 1987 and according to the map provided in the ACDEH records, the UST was located south of an unidentified building. According to electronic correspondence with Mr. Minn, these former USTs were located approximately 415 feet northwest of the site. Case closure documentation was not found. Additionally, Mr. Minn also indicated that two ASTs are located 400 feet northwest of the site. Based on the reported distance of the database listings to the site, the facilities located at 5601 and 5597 Oakport Street do not appear to represent a REC to the site.

Based on the reported distance of the database listings to the site, these facilities do not represent a REC to the site.

Oakport Center (5885 Oakport Street)

Oakport Center is located on the western adjoining property and in a topographically down-gradient position relative to the site. The facility reportedly operated one 2,500-gallon AST under the owner name of EBMUD. Based on the facility's absence of documented release incidents and topographic down-gradient position relative to the site, the Oakport Center facility does not represent a REC to the site.

IBC-NCMFG-Oakland / Colombo Baking Company (580 Julie Ann Way)

The above listed facilities, identified approximately 400 feet north and topographically cross-gradient relative to the site is listed on the AST, LUST, HIST UST, Alameda County CS, SWEEPS UST, CA FID UST, HIST CORTESE, Emissions Inventory Data (EMI), and the Waste Discharge System (WDS) databases. Terracon reviewed the facility on the State Water Resources Control Board's (SWRCB) GeoTracker website regarding the LUST database listing. According to GeoTracker, the facility had a LUST case opened on September 15, 1995. Based on a review of the Case Closure Summary prepared by ACEH, dated April 6, 2006, the facility operated one 8,000-gallon gasoline UST and one 10,000-gallon diesel UST. The USTs were located approximately 500 feet east of the site boundary. The two USTs and associated piping were removed on September 15, 1995. Seven groundwater monitoring wells were installed at the facility. Groundwater flow direction was reported toward the northwest to northeast, cross-gradient relative to the site. The closure document indicates the plume was stable and localized the facility. The ACDEH concluded that the levels of residual contamination do not pose a significant threat to water resources, public health and safety, and the environment under the current building configuration. Based on the localization and attenuation of residual soil and groundwater contamination in the vicinity of the former UST's, the ACDEH granted closure for the LUST case on June 6, 2006. Based on the distance of the USTs relative to the site and reported plume boundaries, the IBC-NCMGF-Oakland and Colombo Baking Company facilities do not represent a REC to the site.

United Plastics Corporation (513 Independent Road)

The above listed facility, identified approximately 475 feet east and topographically up-gradient relative to the site, is listed on the RCRA-SQG, Facility Index System/Facility Registry System (FINDS), and Enforcement & Compliance History Information (ECHO) databases. Based on a review of the RCRA-SQG database, the facility was registered as a small quantity hazardous waste generator on September 1, 1996. Violations were not reported for the facility under the RCRA-SQG and ECHO databases. Based on the facility's distance relative to the site, the United Plastics Corporation facility does not represent a REC to the site.

Wells-Stack (515 Independent Road)
The above listed facility, identified approximately 475 feet east and topographically up-gradient relative to the site, is listed on the EDR Exclusive Historical Cleaners (EDR Hist Cleaner) database. The facility is listed operating in 1973 and 1974 as Wells-Stack Inc., a dry-cleaning business. Terracon reviewed the facility on the Department of Toxic Substances Control's (DTSC) Hazardous Waste Tracking System (HWTS) website regarding potential hazardous waste streams generated by the facility. Based on a review of the HWTS database, the facility was not identified. Based on the reported type of operations and absence of waste manifests, the Wells-Stack facility does not represent a REC to the site.

The remaining facilities listed in the database report do not appear to represent RECs to the site at this time based upon regulatory status, apparent topographic gradient, and/or distance from the site.

Unmapped facilities are those that do not contain sufficient address or location information to evaluate the facility listing locations relative to the site. The report listed two facilities in the unmapped section. Determining the location of unmapped facilities is beyond the scope of this assessment; however, none of these facilities were identified as the site or adjacent properties. These facilities are listed in the database report in Appendix D.

4.2 Local Agency Inquiries

Agency Contacted/ Contact Method	Response
Alameda County Department of Environmental Health / email: dehcupafilereview@acgov.org	On March 12, 2018, Terracon received a response from the agency indicating that records were not found for 5801 Oakport Street. On April 3, 2018 Terracon reviewed records at the Department of Environmental Health for adjoining properties. These records are described in Section 4.1
Bay Area Air Quality Management District / online: www.baaqmd.gov	On March 12, 2018, Terracon received a response from the agency indicating records were not found for 5801 Oakport Street. On March 27, 2018, Terracon received records 5601 Oakport Street which were related to air emissions from the EBMUD to the north of the site.
Department of Toxic Substances Control / Email: pubreqact@dtsc.ca.gov	On March 27, 2018, Terracon received a response from the agency indicating records were not found for the site.
City of Oakland Building and Planning Department / online: www.oaklandca.com	On March 30, 2018, Terracon reviewed records for 5601 Oakport Street. Records reviewed were related to the adjoining property to the north. Records were not on file for 5801 Oakport Street.
San Francisco Regional Water Quality Control District / email: mwong@waterboards.ca.gov	On April 4, Terracon received a phone response from the agency indicating records were not found for the site.

5.0 SITE RECONNAISSANCE

5.1 General Site Information

Information contained in this section is based on a visual reconnaissance conducted while walking through the site and the accessible interior areas of structures, if any, located on the site. The site and adjoining properties are depicted on the Site Diagram, which is included in Exhibit 2 of Appendix A. Photo documentation of the site at the time of the visual reconnaissance is provided in Appendix B. Credentials of the individuals planning and conducting the site visit are included in Appendix E.

General Site Information

Site Reconnaissance	
Field Personnel	Daniel P. Stringer
Reconnaissance Date	March 30, 2018
Weather Conditions	Sunny, 65° F
Site Contact/Title	None.
Site Utilities	
Drinking Water	EBMUD
Wastewater	EBMUD
Electric	Pacific Gas & Electric (PG&E)
Natural Gas	PG&E

5.2 Overview of Current Site Occupants

The site is located at Assessor's Parcel Number (APN) 41-3903-2-8 and a portion of 5601 and 5801 Oakport Street in Oakland, Alameda County, California (Assessor's Parcel Number [APN] 41-3904-1-5) and consists of approximately 16.4 acres of primarily vacant land with an asphalt-paved area on the northeastern portion of the site. During the site reconnaissance, the northern portion of the site was observed operating as a backfill storage yard and a pipe distributor occupied by EBMUD. Other site features include a gated construction area, barbed wire fencing along the northern and eastern boundaries, and an asphalt-paved area.

5.3 Overview of Current Site Operations

The majority of the site consists of vacant land, with the northern portion of the site as a backfill storage yard and a pipe distributer associated with EBMUD.

5.4 Site Observations

The following table summarizes site observations and interviews. Affirmative responses (designated by an “X”) are discussed in more detail following the table.

Site Characteristics

Category	Item or Feature	Observed or Identified
Site Operations, Processes, and Equipment	Emergency generators	
	Elevators	
	Air compressors	
	Hydraulic lifts	
	Dry cleaning	
	Photo processing	
	Ventilation hoods and/or incinerators	
	Waste treatment systems and/or water treatment systems	
	Heating and/or cooling systems	
	Paint booths	
	Sub-grade mechanic pits	
	Wash-down areas or carwashes	
	Pesticide/herbicide production or storage	
	Printing operations	
	Metal finishing (e.g., electroplating, chrome plating, galvanizing, etc.)	
	Salvage operations	
	Oil, gas or mineral production	
	Other processes or equipment	
Aboveground Chemical or Waste Storage	Aboveground storage tanks	
	Drums, barrels and/or containers ^{3} 5 gallons	
	MSDS or SDS	

Category	Item or Feature	Observed or Identified
Underground Chemical or Waste Storage, Drainage or Collection Systems	Underground storage tanks or ancillary UST equipment	
	Sumps, cisterns, French drains, catch basins and/or dry wells	
	Grease traps	
	Septic tanks and/or leach fields	
	Oil/water separators, clarifiers, sand traps, triple traps, interceptors	
	Pipeline markers	
	Interior floor drains	
Electrical Transformers/ PCBs	Transformers and/or capacitors	
	Other equipment	
Releases or Potential Releases	Stressed vegetation	
	Stained soil	
	Stained pavement or similar surface	X
	Leachate and/or waste seeps	
	Trash, debris and/or other waste materials	X
	Dumping or disposal areas	
	Construction/demolition debris and/or dumped fill dirt	X
	Surface water discoloration, odor, sheen, and/or free floating product	
	Strong, pungent or noxious odors	
	Exterior pipe discharges and/or other effluent discharges	
Other Notable Site Features	Surface water bodies	X
	Quarries or pits	
	Wastewater lagoons	
	Wells	

Releases or Potential Releases

Stained pavement or similar surface

An area labeled "slurry disposal" was observed in the northwestern corner of the site. According to Mr. Minn, the slurry area is the material generated when they vacuum asphalt and concrete saw cuts. The vacuumed material is then disposed of in this location. This area was observed to be wet. The unknown nature or location of the generated slurry represents an REC to the site.

Trash, debris and/or other waste materials

Scrap wood debris, approximately 12 cubic yards in size, was observed on the western portion of the site. Minor amounts of trash, consisting of typical municipal litter items such as plastic bags, blankets, bottles, and clothing, were observed next to the scrap wood debris. Due to a lack of odors or hazardous materials observed, the scrap wood debris material does not represent a REC to the site.

Construction/demolition debris and/or dumped fill dirt
During the site reconnaissance, eight fill piles were observed within the construction area in the center of the site. Three of the piles were approximately 120 cubic yards each in size and the remaining five piles were approximately 10 cubic yards each in size. The source of these stockpiles is not known,

An approximately 10 cubic yard pile of dark soil was observed on the northeast portion of the site. The source of this material is not known.

Demolition debris consisting of dirt, pipes, and wood, approximately 125 cubic yards in size, was observed on the northwest portion of the site. Staining or evidence of a release was not observed in connection with the fill dirt and debris. The source of this material is not known.

Based on volume and unknown source area of this debris, these materials represent an REC to the site.

Other Notable Site Features

Surface water bodies
Two approximately 75 square foot (SF) and 25 SF shallow muddy ponds were observed on the southern portion of the site. These appear to be generated from recent storm event. Based on visual observation, oily sheens and hazardous materials were not observed in the vicinity of the shallow ponds; therefore, they are not considered RECs.

Wells
Two steel casing / standpipes were observed during the site reconnaissance. The two features appear to be monitoring wells associated with the Oakport Groundwater Storage Pilot Project. Refer to Section 3.6 for additional information in regards to these wells. The presence of the monitoring wells appear to be part of a groundwater investigation project that included the on-site monitoring wells and the detection of TCE in groundwater above regulatory screening levels represents a REC in connection with the site.

6.0 ADJOINING PROPERTY RECONNAISSANCE

Visual observations of adjoining properties (from site boundaries) are summarized below.

Adjoining Properties

Direction	Description
North	The properties to the adjoining north of the site consist of EBMUD backfill storage yard and steel storage containers (5799 Oakport Street).
East	The properties to the adjoining east of the site consist of Oakport Street, followed by Interstate 880, followed by Colombo (580 Julie Ann Way), vacant land (6195 Coliseum Way), unidentified building (6201 Coliseum Way), and East Bay Glass (515 Independent Road).
South	The properties to the adjoining south of the site consist of Oakport Road, followed by an empty flat gravel lot.
West	The properties to the adjoining west of the site consist of a bike trail to San Leandro Bay, a dirt and gravel storage yard, and a sport field.

RECs were not observed with the adjoining properties.

7.0 ADDITIONAL SERVICES

Per the agreed scope of services specified in the proposal, the additional services were not conducted.

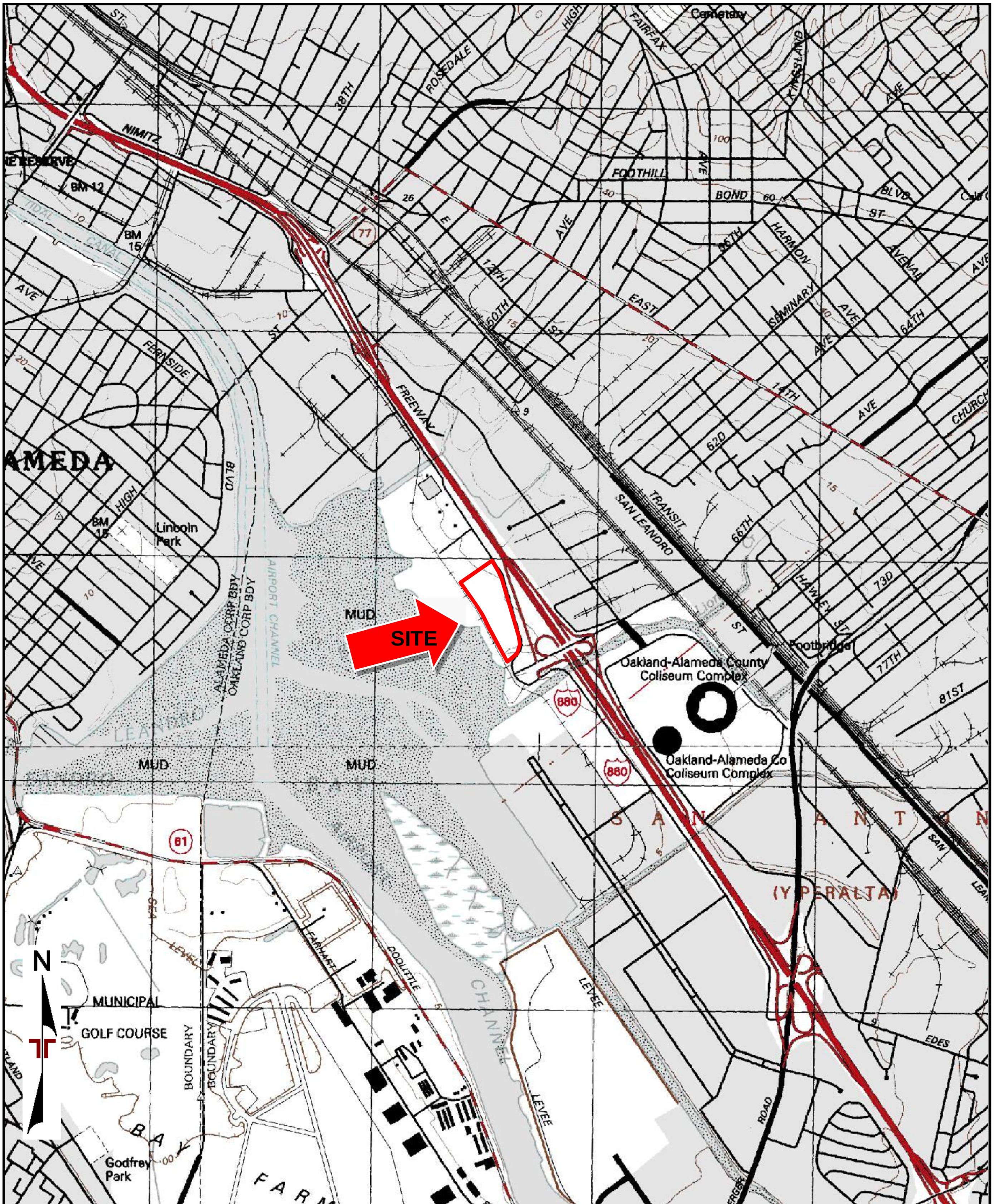
8.0 DECLARATION

I, Kristin Stout, declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312; and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the site. I have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

DRAFT

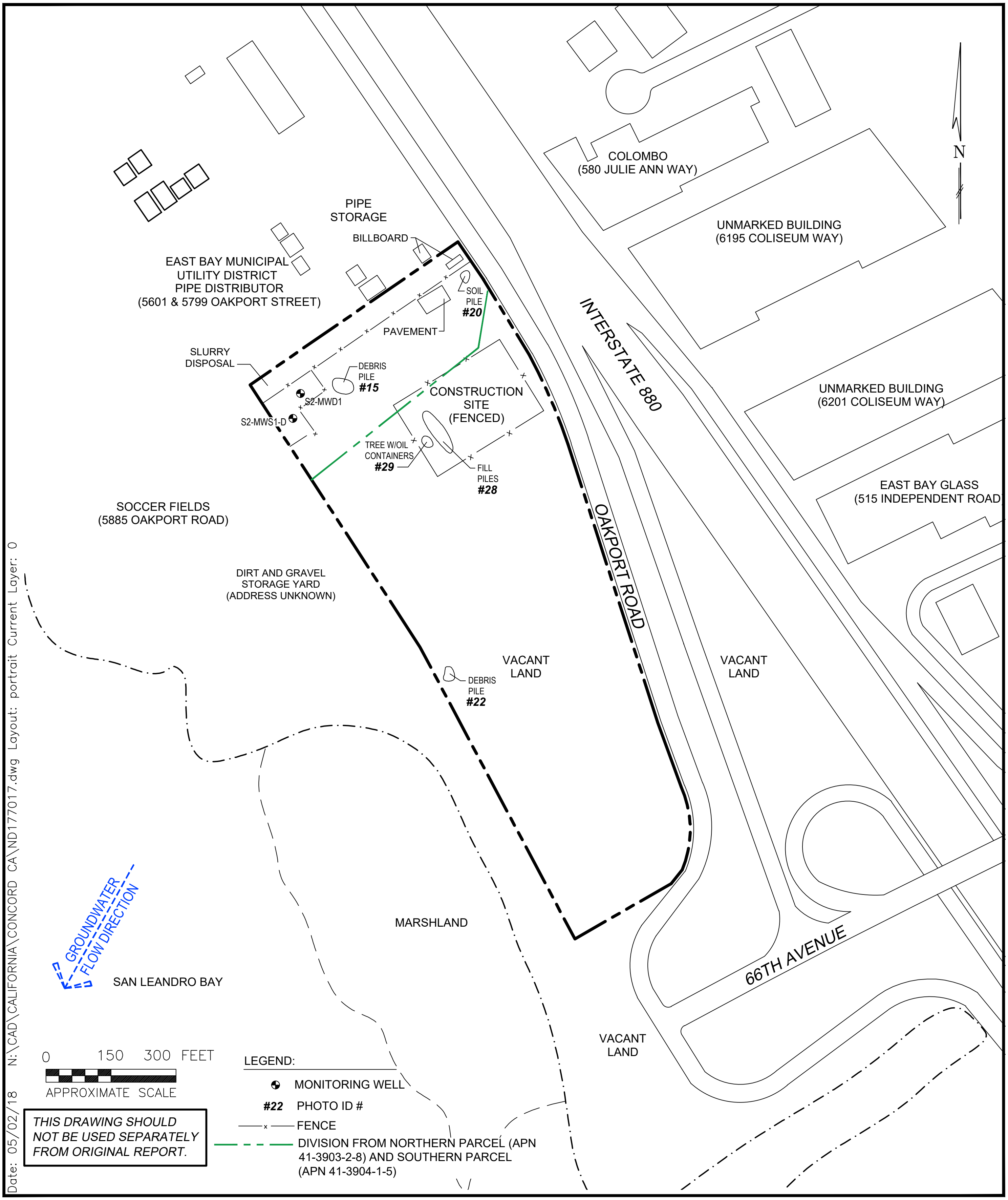
____
Kristin Stout
Sr. Scientist

APPENDIX A
EXHIBIT 1 – TOPOGRAPHIC MAP
EXHIBIT 2 – SITE DIAGRAM



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: OAKLAND EAST, CA (1/1/1997) and SAN LEANDRO, CA (1/1/1993).

Project Manager: KS	Project No. ND177017	Terracon 5075 Commercial Cir Ste E Concord, CA 94520-8531	TOPOGRAPHIC MAP	Exhibit
Drawn by: MD	Scale: 1"=2,000'		**APPROXIMATELY 16.4-ACRE PARCEL** 5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	1
Checked by: KS	File Name: TOPO			
Approved by: IRN	Date: APRIL 2018			



Project Mngr: MMD	Project No. ND177017	Terracon Consulting Engineers and Scientists	SITE DIAGRAM
Drawn By: CDD	Scale: AS SHOWN	5075 COMMERCIAL CIRCLE, UNIT 3 CONCORD, CA 74520	OAKPORT VACANT LAND
Checked By: MMD	Date: 05/02/18	PH. (925) 609-7224 FAX. (925) 609-6324	5601 AND 5801 OAKPORT STREET
Approved By: IRN			OAKLAND, ALAMEDA COUNTY, CALIFORNIA

EXHIBIT 2

APPENDIX B
SITE PHOTOGRAPHS

Photo #1 View of the Southern portion of the site, facing north.

Photo #2 View of the Southern portion of the site, facing south.

Photo #3 View of the northern side of the site, facing north.

Photo #4 View of the northern side of the site, facing east.

Photo #5 View of the northeast corner of the site and adjoining northern property, facing west.

Photo #6 View of the eastern side of the site, facing north.

Photo #7 View of the southern side of the site, facing east.

Photo #8 View of the western side of the site, facing north from the southwest site boundary.

Photo #9 View of the western side of the site, facing north.

Photo #10 View of the western side of the site, facing south from the northwest site boundary.

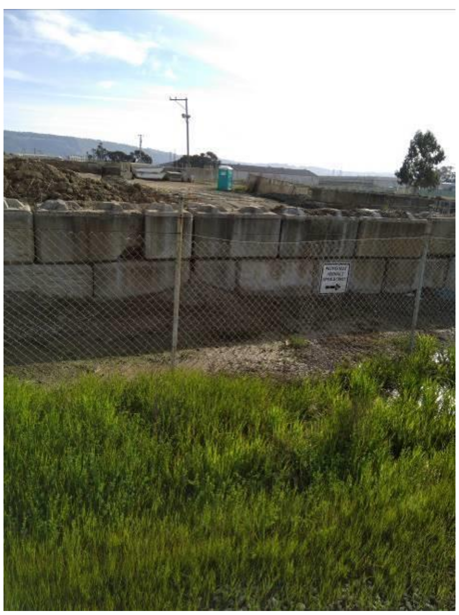


Photo #11 View of the northwest corner of the site, facing East (slurry pit area)..

Photo #12 View of monitoring well located on the northern portion of the site.

Photo #13 View of a monitoring well, located on the northern portion of the site.

Photo #14 View of fenced in area containing the monitoring wells, located on the northern portion of the site.

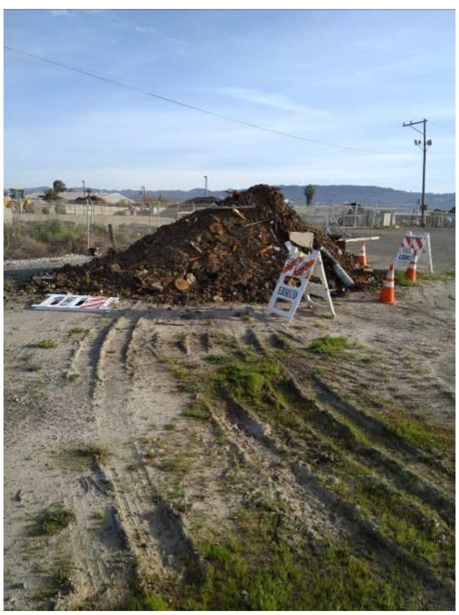


Photo #15 View of construction debris, located on the northern portion of the site.

Photo #16 View of a "Slurry Disposal" pit sign, located on the northern border of the site.

Photo #17 View of the pipe yard, located on the northern portion of the site.

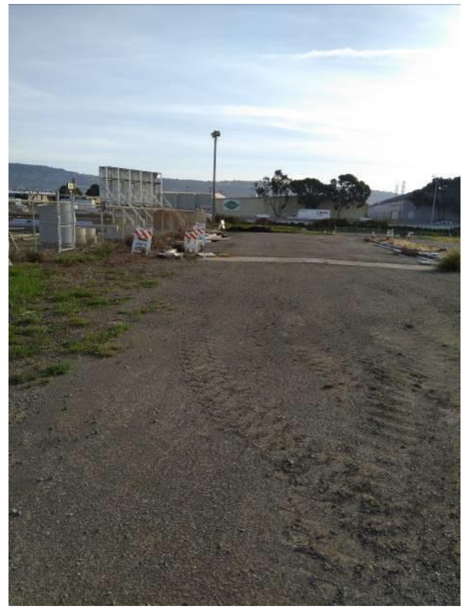


Photo #18 View of paved area and billboard, located on the northern portion of the site.

Photo #19 Additional view of the paved area, located on the northern portion of the site.

Photo #20 View of unidentified pile of fill, located on the northern portion of the site.

Photo #21 View of water connections, located on the northern portion of the site.

Photo #22 View of debris, located on the western portion of the site.

Photo #23 View of construction area fence boundary, located in the center of the site.

Photo #24 View of operations within the construction fence, facing east.

Photo #25 View of operations within the construction fence, facing west.

Photo #26 View of the piles of materials, located within the construction fence.

Photo #27 View of distressed vegetation, located within the construction fence.

Photo #28 View of fill piles, located within the construction fence.

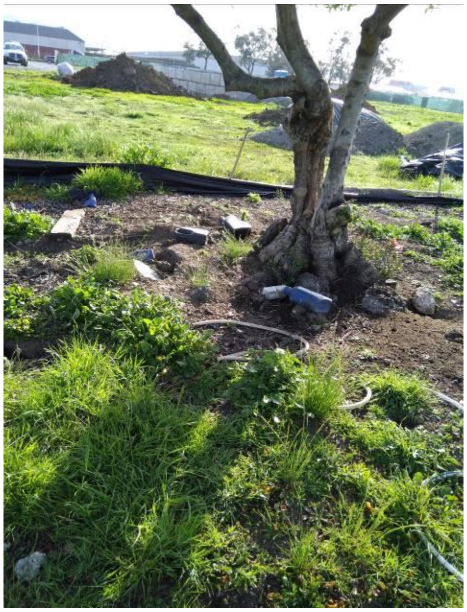


Photo #29 View of empty oil containers, located within the construction fence.

Photo #30 View of the pipe yard, located on the northeast corner of the site.

Photo #31 View of a power distribution meter, located in the pipe yard.

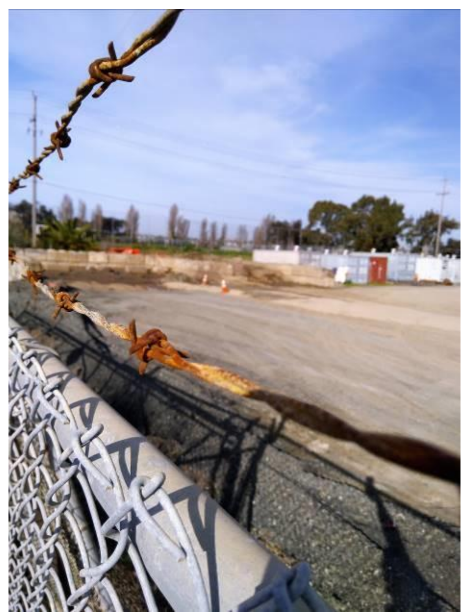


Photo #32 View of fill pits, located on the northwest corner of the site and the adjoining property to the north.

Photo #33 View of additional fill pits, located on the adjoining property to the north.

Photo #34 View of storage containers, located on the adjoining property to the north.

Photo #35 View of Colombo (580 Julie Ann Way), adjoining property to the northeast.

Photo #36 View of commercial buildings, adjoining properties to the east.

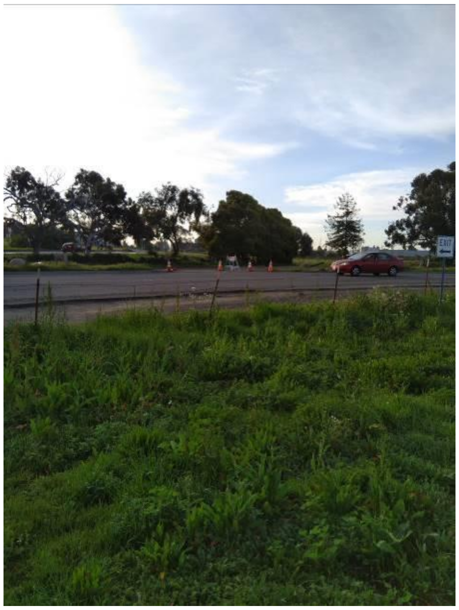


Photo #37 View of vacant lot, adjoining property to the south.

Photo #38 View of Oakport Field (5885 Oakport Road), adjoining property to the west.

Photo #39 View of a bike path followed by San Leandro Bay, adjoining properties to the west.

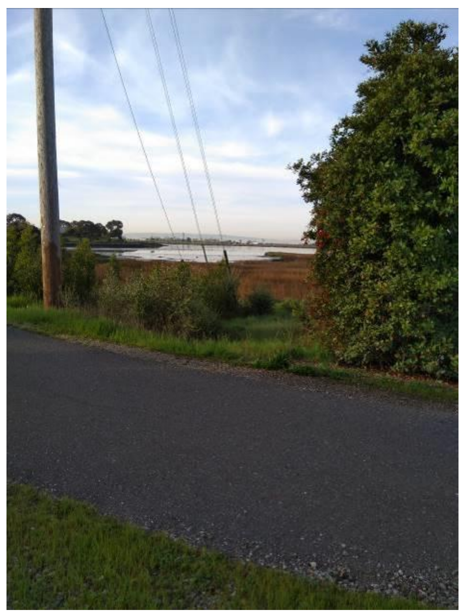


Photo #40 Additional view of a bike path followed by San Leandro Bay, adjoining properties to the west.

APPENDIX C
HISTORICAL DOCUMENTATION AND USER QUESTIONNAIRE

Client/User Required Questionnaire

Terracon

Person Completing Questionnaire	Name: Company: SUPPLYBANK.ORG Phone: 510-378-7184 Email: chris@supplybank.org
Site Name	OAKPORT ST
Site Address	5801 OAKPORT ST OAKLAND CA
Point of Contact for Access	Name: CHRIS EMMONS Company: SUPPLYBANK.ORG Phone: 510-378-7184 Email: chris@supplybank.ORG
Access Restrictions or Special Site Requirements?	__No X Yes (If yes, please explain) WE NEED TO NOTIFY EBMUD 48 HRS BEFORE YOU ARE ON SITE.
Confidentiality Requirements?	__No X Yes (If yes, please explain) TERRACON SIGNED AN NDA
Current Site Owner	Name: Company: EBMUD Phone: Email:
Current Site Operator	Name: Company: VACANT LAND Phone: Email:
Reasons for ESA (e.g., financing, acquisition, lease, etc.)	FINANCING, LEASE
Anticipated Future Site Use	2 WAREHOUSES + 100,000 SQ' OFFICE BLDG.
Relevant Documents?	Please provide Terracon copies of prior Phase I or II ESAs, Asbestos Surveys, Environmental Permits or Audit documents, Underground Storage Tank documents, Geotechnical Investigations, Site Surveys, Diagrams or Maps, or other relevant reports or documents.

ASTM User Questionnaire

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"), the user must respond to the following questions. Failure to provide this information to the environmental professional may result in significant data gaps, which may limit our ability to identify recognized environmental conditions resulting in a determination that "all appropriate inquiry" is not complete. This form represents a type of interview and as such, the user has an obligation to answer all questions in good faith, to the extent of their actual knowledge.

1) Did a search of recorded land title records (or judicial records where appropriate) identify any environmental liens filed or recorded against the property under federal, tribal, state, or local law (40 CFR 312.25)?
X No ___Yes ___Title search not completed (If yes, explain below and send Terracon a copy of the Chain of Title report.)

2) Did a search of recorded land title records (or judicial records where appropriate) identify any activity and use limitations (AULs), such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state, or local law (40 CFR 312.26)?
___No ___Yes ___Title search not completed (If yes, explain below and send Terracon a copy of the Chain of Title report.)

3) Do you have any specialized knowledge or experience related to the site or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the site or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business (40 CFR 312-28)?
X No ___Yes (If yes, explain below)

4) Do you have actual knowledge of a lower purchase price because contamination is known or believed to be present at the site (40 CFR 312.29)?
X No ___Yes ___Not applicable (If yes, explain below)

5) Are you aware of commonly known or reasonably ascertainable information about the site that would help the environmental professional to identify conditions indicative of releases or threatened releases (40 CFR 312.30)?
X No ___Yes (If yes, explain below)

6) Based on your knowledge and experience related to the site, are there any obvious indicators that point to the presence or likely presence of contamination at the site (40 CFR 312.31)?
X No ___Yes (If yes, explain below)

Comments or explanations:

Please return this form with the signed authorization to proceed.

Proposal No. PND177017

5801 Oakport Street

5801 Oakport Street

Oakland, CA 94621

Inquiry Number: 5234258.9

March 27, 2018

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

03/27/18

Site Name:	**Client Name:**
5801 Oakport Street	Terracon
5801 Oakport Street	50 Goldenland Ct., #100
Oakland, CA 94621	Sacramento, CA 95834
EDR Inquiry # 5234258.9	Contact: Megan Davey

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2014	1"=500'	Flight Year: 2014	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1998	1"=500'	Flight Date: September 06, 1998	USDA
1993	1"=500'	Acquisition Date: July 10, 1993	USGS/DOQQ
1982	1"=500'	Flight Date: July 05, 1982	USDA
1974	1"=500'	Flight Date: October 14, 1974	USGS
1968	1"=500'	Flight Date: April 22, 1968	USGS
1963	1"=500'	Flight Date: June 24, 1963	USGS
1958	1"=500'	Flight Date: July 25, 1958	USGS
1946	1"=500'	Flight Date: July 26, 1946	USGS
1939	1"=500'	Flight Date: August 02, 1939	USDA

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Aerial Photograph

2014

0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon	2014 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown	50 Goldenland Ct., #100	5601 AND 5801 OAKPORT STREET	C
Checked By:	File Name:	Sacramento, CA 95834	OAKLAND, ALAMEDA COUNTY, CALIFORNIA	
Approved By:	Date: 2014			

Aerial Photograph

2010

0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon	2010 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown	50 Goldenland Ct., #100	5601 AND 5801 OAKPORT STREET	C
Checked By:	File Name:	Sacramento, CA 95834	OAKLAND, ALAMEDA COUNTY, CALIFORNIA	
Approved By:	Date: 2010			

Aerial Photograph

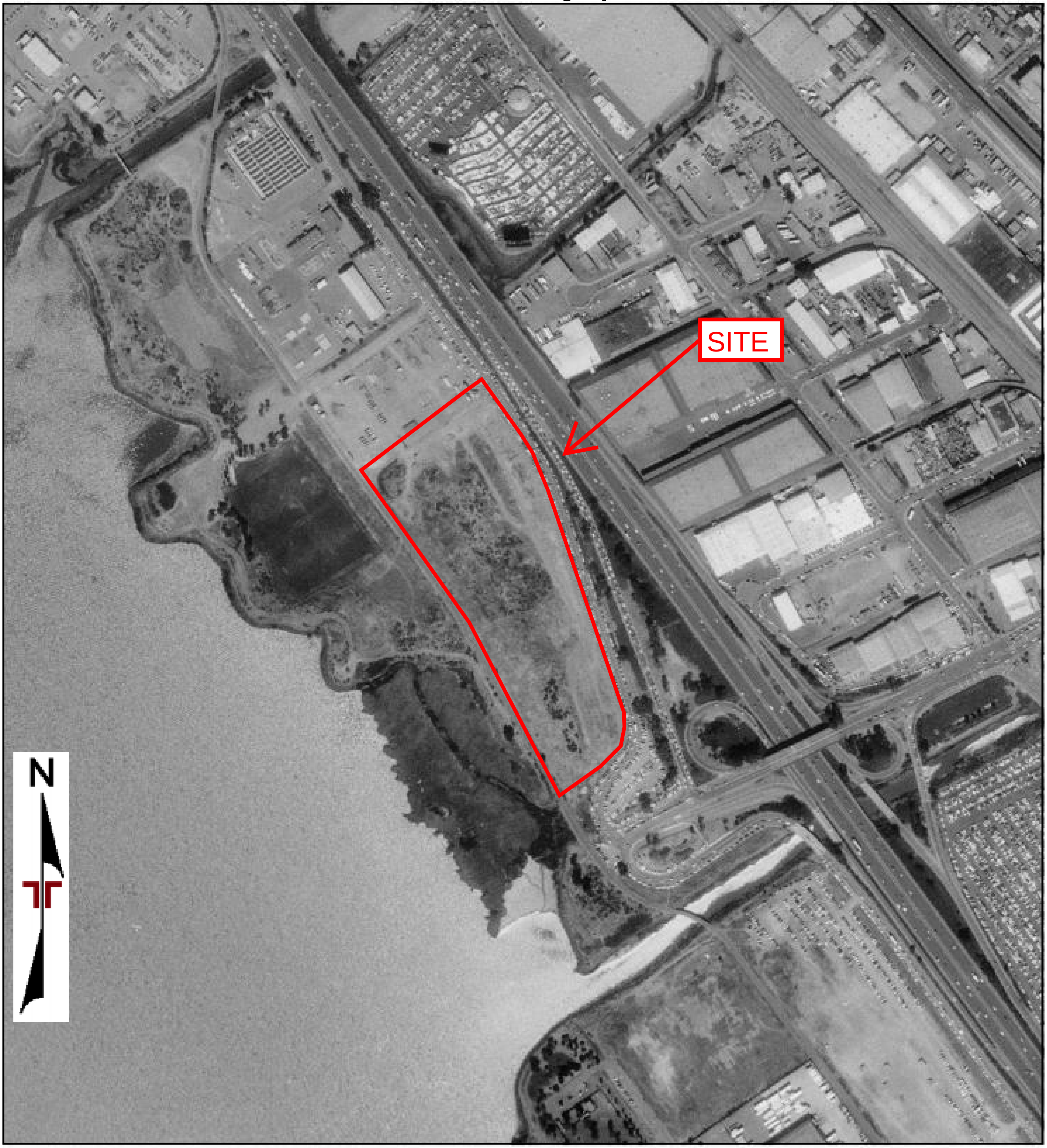
2005

0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon 50 Goldenland Ct., #100 Sacramento, CA 95834	2005 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown		5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	C
Checked By:	File Name:			
Approved By:	Date: 2005			

Aerial Photograph

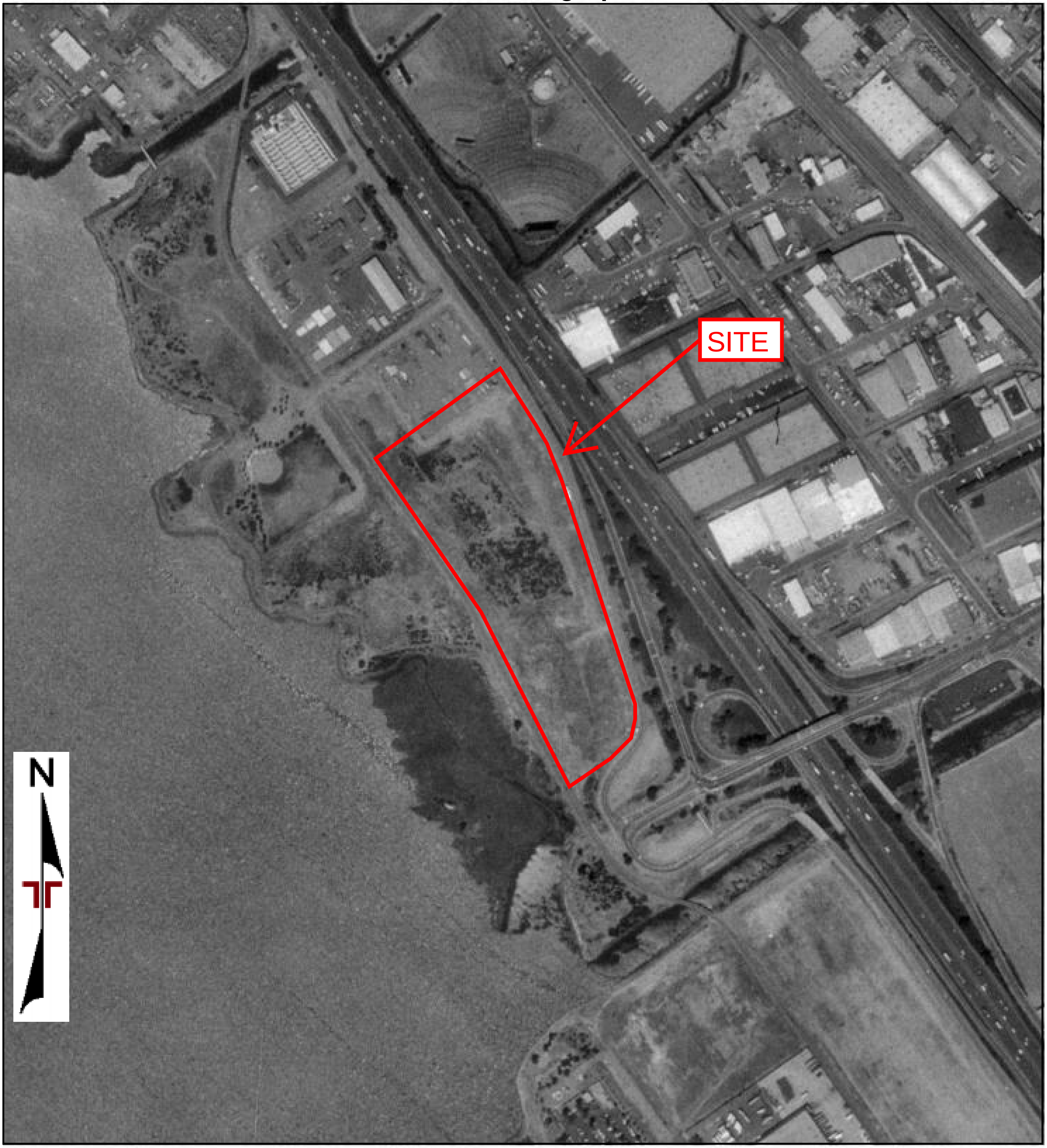
1998



0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon	1998 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown	50 Goldenland Ct., #100	**OAKPORT VACANT LAND**	C
Checked By:	File Name:	Sacramento, CA 95834	5601 AND 5801 OAKPORT STREET	
Approved By:	Date: 1998		OAKLAND, ALAMEDA COUNTY, CALIFORNIA	

Aerial Photograph 1993



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Project Manager	Project No: ND177017	Terracon 50 Goldenland Ct., #100 Sacramento, CA 95834	1993 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown		5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	C
Checked By:	File Name:			
Approved By:	Date: 1993			

EDR

Aerial Photograph

1982

0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon 50 Goldenland Ct., #100 Sacramento, CA 95834	1982 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown		5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	C
Checked By:	File Name:			
Approved By:	Date: 1982			

Aerial Photograph

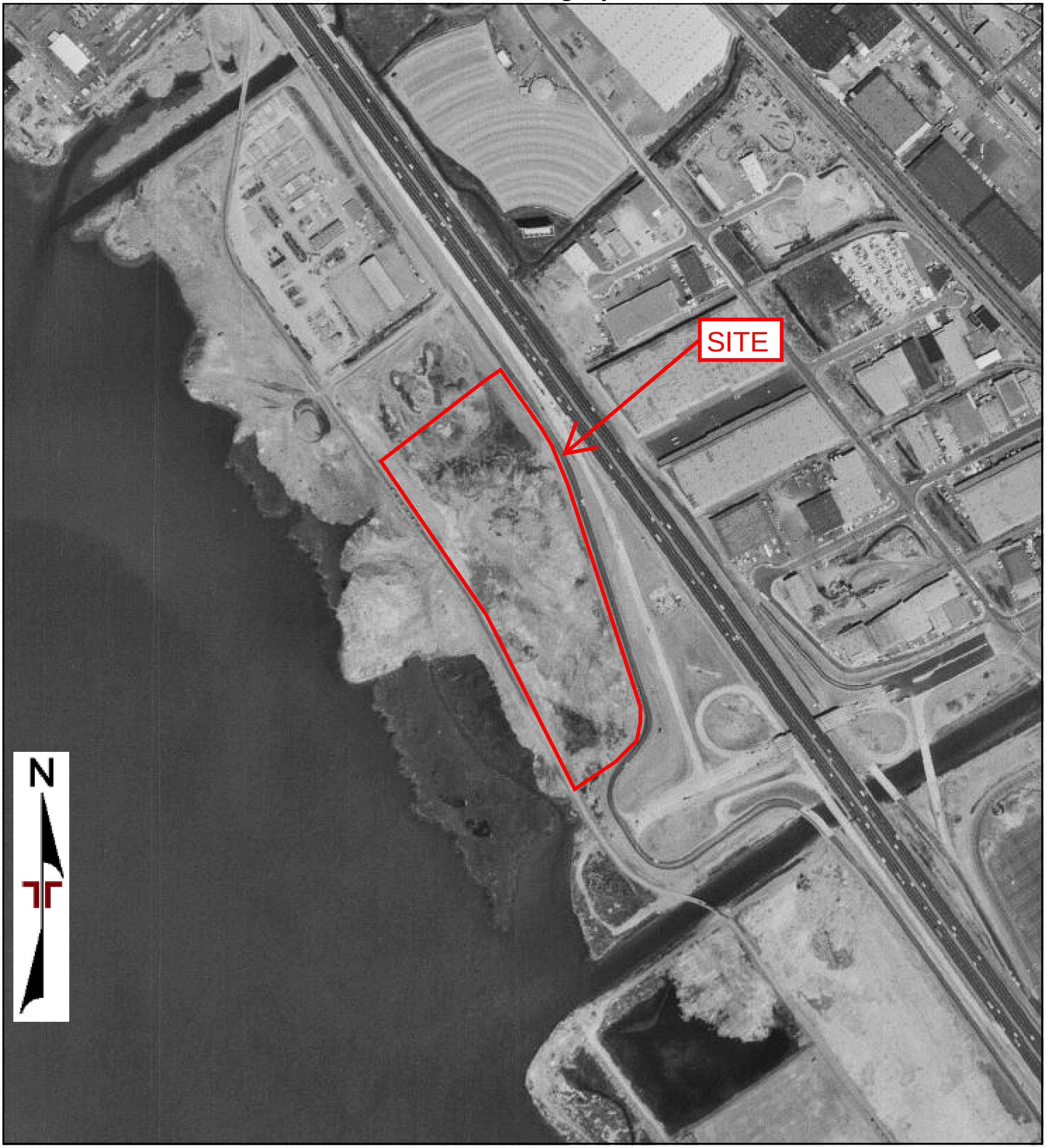
1974

0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon 50 Goldenland Ct., #100 Sacramento, CA 95834	1974 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown		5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	C
Checked By:	File Name:			
Approved By:	Date: 1974			

Aerial Photograph

1968

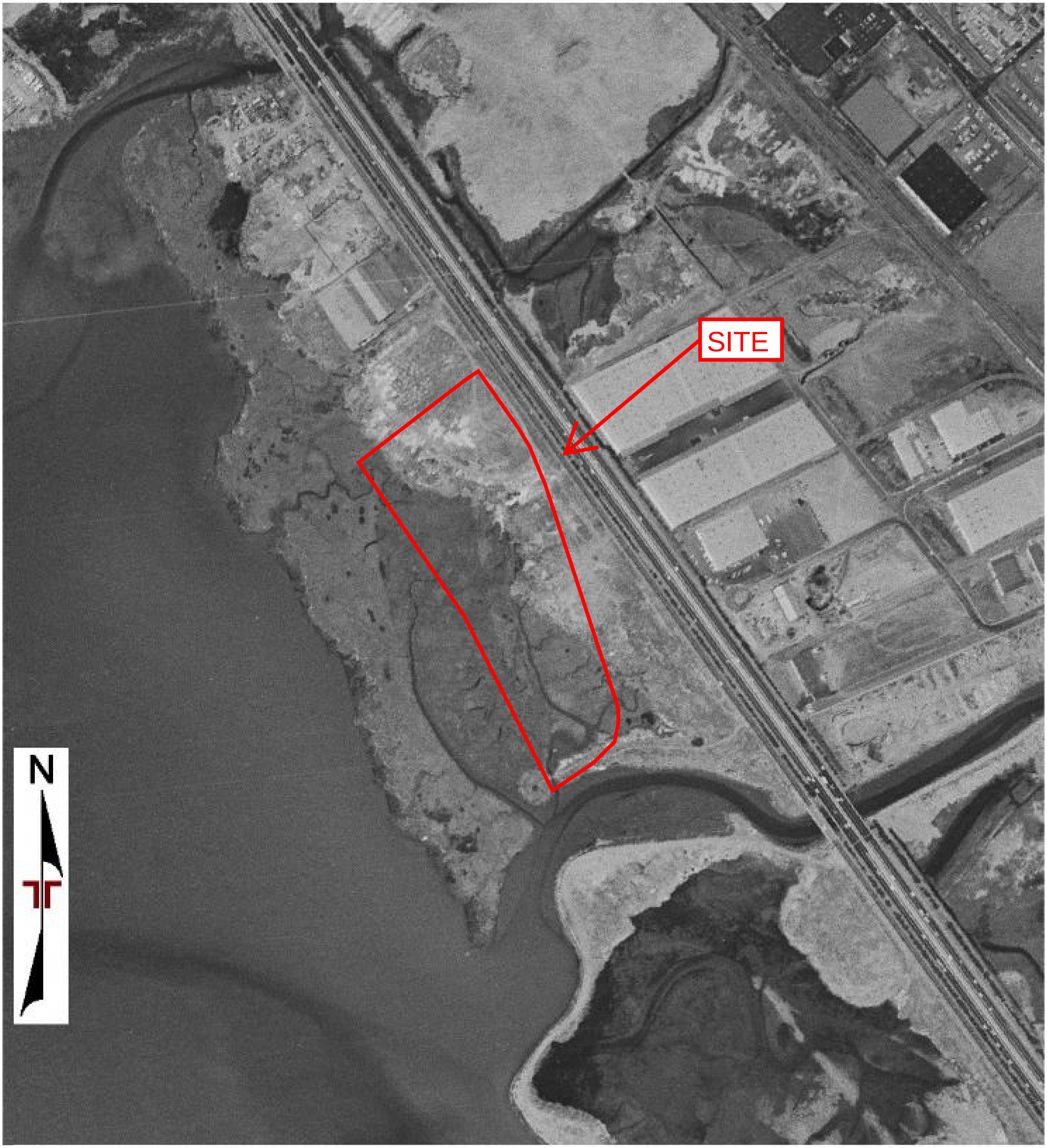


0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon 50 Goldenland Ct., #100 Sacramento, CA 95834	1968 AERIAL PHOTOGRAPH	Appendix
Drawn By:	Scale: As Shown		5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	C
Checked By:	File Name:			
Approved By:	Date: 1968			

			1963 AERIAL PHOTOGRAPH	
		Terracon	5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	
	1963			

EDR



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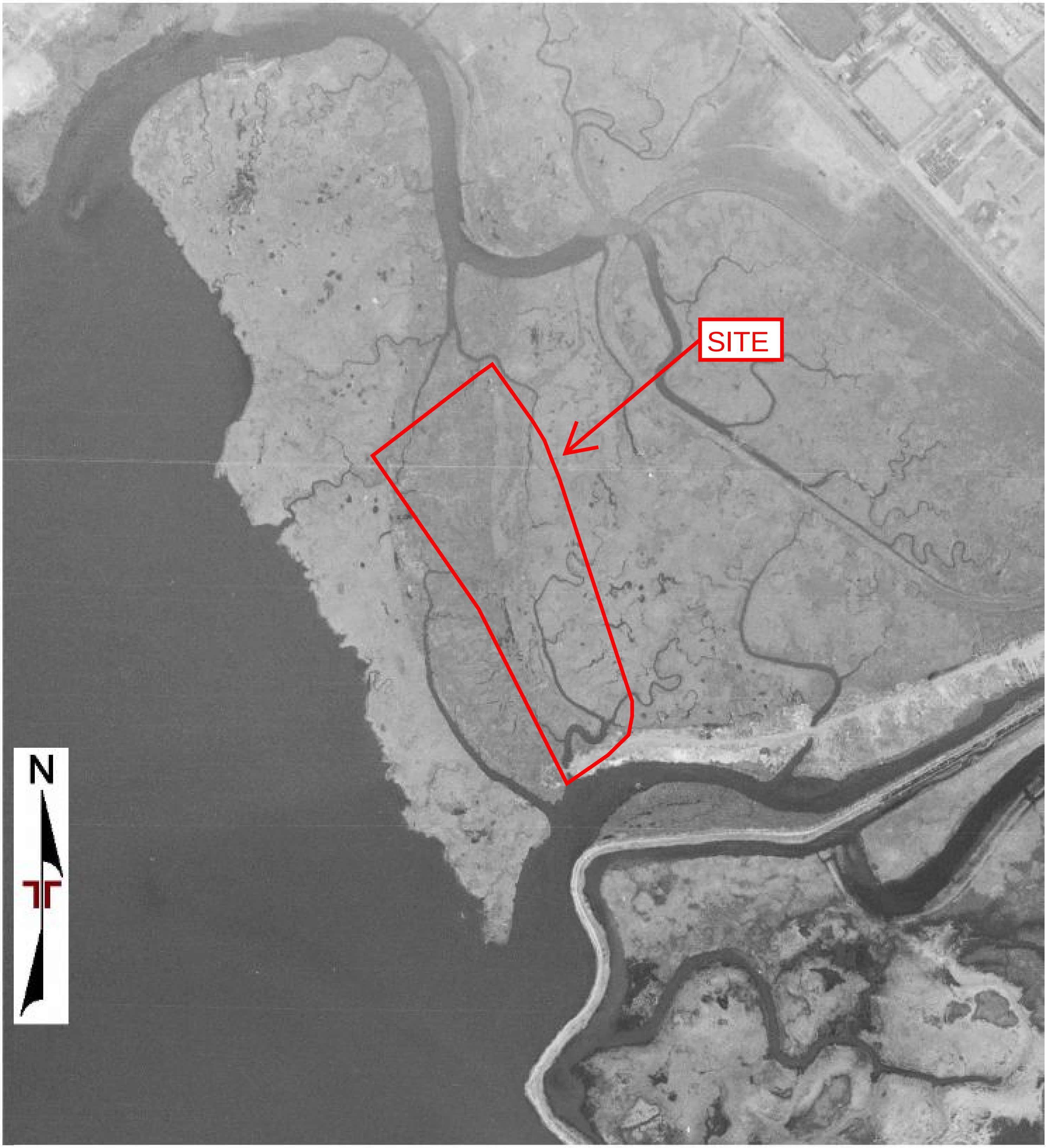
	1958			

EDR

1946

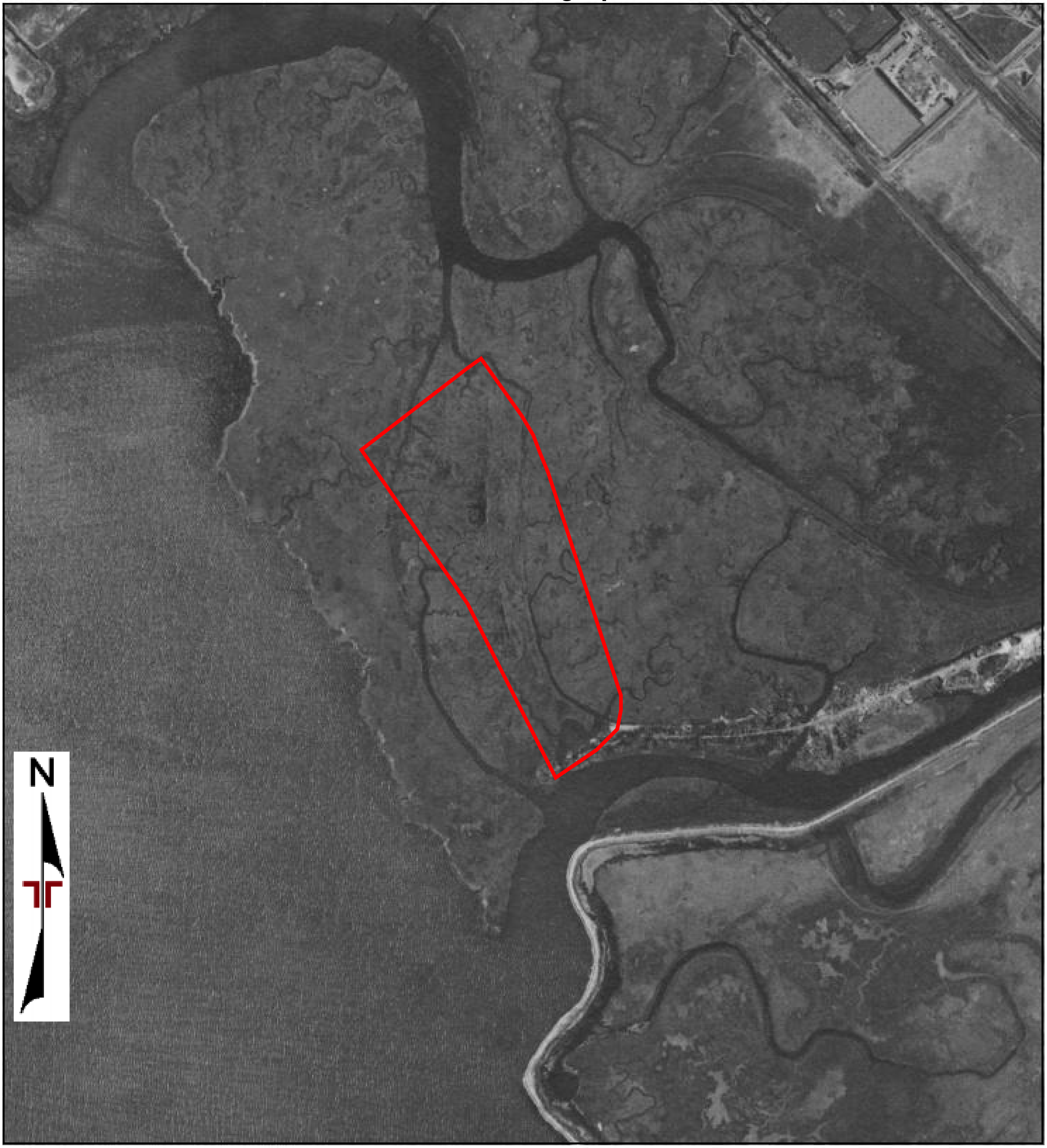


Terracon

		1946 AERIAL PHOTOGRAPH
		5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA
	1946	

Aerial Photograph

1939



0 Feet 500 1000 2000

Project Manager	Project No: ND177017	Terracon 50 Goldenland Ct., #100 Sacramento, CA 95834	1939 AERIAL PHOTOGRAPH 5601 AND 5801 OAKPORT STREET OAKLAND, ALAMEDA COUNTY, CALIFORNIA	Appendix C
Drawn By:	Scale: As Shown			
Checked By:	File Name:			
Approved By:	Date: 1939			

Appendix O

Phase II Environmental Site Investigation of a 14-acre Portion of the Property Located at 5801 Oakport Street in Oakland, California

Terraphase Engineering Inc., February 1, 2019

February 1, 2019

Mr. Benito Delgado-Olson
SupplyBank.org, Executive Director
7730 Pardee Lane
Oakland, CA 94621

sent via email to *Benito@supplybank.org*

Subject: Summary of Phase II Environmental Site Investigation of a 14-acre Portion of the Property Located at 5801 Oakport Street in Oakland, California

Dear Mr. Delgado-Olson:

Terraphase Engineering Inc. (Terraphase) has prepared this report detailing the results of our Phase II Environmental Site Investigation for the 14-acre portion of the properties located at 5801 and 5601 Oakport Street in Oakland, California which is planned for inclusion in the development project proposed by SupplyBank.org ("the Site"). This letter report includes a brief background of the Site, an overview of scope of the work, presentation of results, and conclusions developed.

1.0 Background

The Site consists of approximately 14 acres of vacant land, including an asphalt-paved area on the northeastern portion. The northern portion of the Site is currently used by the East Bay Municipal Utilities District (EBMUD) for backfill and pipe storage. The Site is located within an industrial area and former underground storage tank (UST) sites have been identified in the vicinity. In the Phase I Environmental Site Assessment (Phase I ESA), TerraCon Consultants, Inc. identified that the Site received fill from unknown locations in the late 1950s or early 1960s to fill in the previous undeveloped marshlands.

The TerraCon Phase I ESA identified the following recognized environmental concerns (RECs):

- Artificial fill brought on-site in the late 1950s or early 1960s from unknown sources.
- Undocumented soil and construction debris stockpiles located throughout the Site.
- Slurry disposal area located on the northern border of the Site.
- Trichloroethene (TCE) in Groundwater – In 1999, EBMUD conducted a groundwater storage pilot test, which included the installation of 13 groundwater monitoring wells at the Site. As part of this study, elevated concentrations of TCE were detected in two wells screened in the middle aquifer zone (260 feet to 350 feet below ground surface). Three of these 13 groundwater monitoring wells still remain on-site.

Although not specifically identified in the Phase I ESA, the Former Echco Sales Co. (Echco), an active remediation site under the oversight of the San Francisco Bay Regional Water Quality Control Board

(RWQCB), is located at 6161 Coliseum Way, Oakland, California, approximately 800 feet east of the Site. The Echco property is associated with tetrachloroethene (PCE) discharges which have impacted soil, and shallow and intermediate groundwater zones. Current documentation available on the RWQCB publicly available database indicate that additional investigation is planned to more completely define the extent of contaminants associated with former operations at the Echco property. Chlorinated volatile organic compounds (VOCs) have been detected on the Echco property at concentrations up to four orders of magnitude higher than current Environmental Screening Levels (ESLs) established by the RWQCB for commercial properties.

2.0 Soil and Groundwater Sampling Activities

On December 6, 2018, Terraphase collected soil and groundwater samples at the Site to better understand subsurface conditions. A total of seven soil borings were advanced using a hand auger (Figure 1). A total of 14 soil samples were collected and submitted for laboratory analysis, with two samples collected at discrete depths from each soil boring [1 foot and 3 feet below ground surface (bgs)]. Deeper soil samples (5 feet bgs) were collected from four of the borings and submitted to the laboratory but placed on hold for contingent analyses if needed. Grab groundwater samples were also collected from four of the seven soil borings.

2.1 Pre-Field Work

Terraphase performed the following pre-field activities in support of the Investigation:

- *Health and Safety Plan (HASP)*: Terraphase prepared a site-specific HASP to include the field activities included in the investigation.

- *Underground Service Alert and Private Utility Location:* Terraphase conducted a pre-marking of the Site for utility clearance purposes. Following the markout, Terraphase notified Underground Service Alert of Northern California (USA) more than 48-hours prior to drilling and sampling activities. In addition, Terraphase accompanied a private utility locator (Subdynamic) to the Site to pre-scan each drilling location.

- *Permitting:* Terraphase obtained a boring permit from the Alameda County Public Works Agency (Attachment 1).

2.2 Sampling Methods

2.2.1 Soil Logging and Soil Sampling

Soil borings were advanced with a 3.25-inch diameter hand auger and the soil was placed on visqueen sheeting adjacent to the borehole. Boring locations from which a groundwater sample was also collected were drilled to a depth just below the first encountered groundwater level. Boring locations are shown on Figure 1.

Soil encountered in each borehole was logged using the Unified Soil Classification System (USCS) as a guide, and for relative moisture content, odor, and other observable characteristics, under the direction of a California Registered Professional Geologist using the visual-manual procedures of ASTM Standard D2488-09a for guidance.

Soil samples were collected from the borings at depths of 1 foot and 3 feet bgs at each sample point, and from 5 feet bgs in the event that groundwater was not encountered at that depth (SB-1, SB-2, SB-3, SB-7). Soil samples were collected from each of the borings and placed in EPA-approved containers provided by ESC Lab Sciences, including TerraCore samplers for samples undergoing VOC analysis. All samples were labeled, logged onto chain-of-custody (COC) forms, and placed in chilled coolers to be collected by a laboratory courier under COC protocols. Samples collected at 5 feet bgs were placed on hold with the laboratory.

The 1 foot and 3 feet bgs samples were analyzed for metals (USEPA Method 6010), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons in the diesel range (TPH-d), total petroleum hydrocarbons in the gasoline range (TPH-g), total petroleum hydrocarbons in the motor oil range (TPH-mo), asbestos, and volatile organic compounds (VOCs; USEPA Method 8260).

2.2.2 Grab Groundwater Sampling

Borings were advanced through near-surface unsaturated materials, into the shallowest water (encountered at approximately 5 feet bgs), to a total depth of approximately 5.5 feet bgs. Temporary wells were constructed in each boring using pre-cleaned PVC casing. Grab groundwater samples were collected from four of the seven soil borings (Figure 1). A grab sample was collected from each temporary casing using tubing and an peristaltic pump provided by the drillers. Groundwater samples were properly labeled, placed in EPA-approved containers provided by ESC Laboratory, logged onto COC forms and placed in chilled coolers to be collected by a courier under chain-of-custody protocols. Groundwater samples were analyzed for metals (USEPA Method 6010), TPH-g (USEPA Method 8260), and VOCs (USEPA Method 8260).

2.3 Completion Activities

All drill cuttings and equipment decontamination rinse water were stored onsite in sealed drums pending analysis and disposal. Upon completion of all sampling activities, the borings were backfilled to ground surface using neat cement grout, under the supervision of the Alameda County Public Works Agency inspector.

2.4 Results

2.4.1 Soil Analytical Results

Analytical results from the soil samples are presented in Table 1A (compared to generic health-based screening levels) and Table 1B (compared to waste characterization criteria). The data were compared to the following generic health-based screening levels and waste characterization criteria:

- RWQCB Commercial/Industrial Shallow Soil Exposure Environmental Screening Levels (ESLs)[1];
- RWQCB Construction Worker Soil ESLs[2];

[1] https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html.
[2] https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html.

- Department of Toxic Substances Control (DTSC) Recommended Screening Levels for Commercial/Industrial Soil (DTSC-SLs)[3]; and
- California and Federal hazardous waste toxicity criteria [(Soluble Threshold Limit Concentration (STLC), Total Threshold Limit Concentration (TTLC), and Toxicity Characteristic Leaching Procedure (TCLP)]. [4]

2.4.1.1 Human Health Risk-Based Screening Evaluation

Soil data were compared against generic human health risk-based screening levels that are relevant to the exposure scenarios anticipated at the Site based up current and reasonably anticipated future land use. The presence of concentrations higher than screening levels, does not necessarily mean that an unacceptable risk exists (or could exist in the future). Conservative risk-based screening levels are used help guide site investigations by segregating characterization data that indicate a higher potential for health significance from those that indicate a low potential. Generally, at sites where chemical concentrations are equal to or below relevant screening levels, no further action or study is warranted. In the end, determinations regarding the need for risk management are based upon the results of risk assessments that account for and quantify potential risks associated with receptor exposure to site-related chemicals.

As shown on Table 1A, arsenic was detected above the screening levels in each of the fourteen soil samples collected. Soil in California commonly contains naturally occurring arsenic at concentrations significantly higher than the conservative generic risk-based screening levels. To better reflect the background conditions for arsenic specifically, a regional background concentration of 11 milligrams per kilogram (mg/kg) was selected as the most applicable comparison criteria.[5] The maximum concentration of arsenic in soil at the Site was 8.7 mg/kg. This concentration is below the regional background concentration. As a result, site-related arsenic concentrations in soil would not pose an unacceptable risk to receptors at the Site.

As shown on Table 1A, nickel was detected above the ESL of 86 milligrams per kilogram (mg/kg) for construction worker exposure to soil in SB-1-3.0 (100 mg/kg). Construction worker exposure would involve contact with soil across the Site over their exposure period. Assuming that all of the nickel is site-related, a conservative estimate of the nickel soil concentration to which potential future construction workers could be exposed to is 62 mg/kg[6]. This concentration is below the conservative screening level of 86 mg/kg. Therefore, construction worker exposure to soil would not be expected to result in unacceptable risk.

Lead was also detected in SB-1-3.0 above the DTSC-SL, Commercial/Industrial ESL, and Construction Worker Soil ESL (320 mg/kg, 320 mg/kg, and 160 mg/kg, respectively) at a concentration of 380 mg/kg.

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[3] https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-Tables-June-2018.xlsx.
[4] California Title 22, Section 66261.24.
[5] Duverge, Dylan Jacques. 2011. “Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region” December. Available online at https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/ESL/2011_Arsenic_Background_Duverge.pdf
[6] Upper-confidence limit (UCL) on the mean calculated using ProUCL v. 5.1 and all soil sampling results.

Given the proximity of the Site to Interstate 880, lead is suspected to be aerially deposited from the operation of motor vehicles with leaded gasoline and not site-related. Assuming that all of the lead is site-related, a conservative estimate of the lead soil concentration to which potential future commercial/industrial workers could be exposed to is 305 mg/kg[7]. This concentration is below the conservative screening level of 320 mg/kg for commercial/industrial workers. Therefore, commercial/industrial worker exposure to lead in soil would not be expected to result in unacceptable risk. Similarly, a conservative estimate of the lead soil concentration to which potential future construction workers could be exposed to is 120 mg/kg[8]. This concentration is below the conservative screening level of 190 mg/kg for construction workers. Therefore, construction worker exposure to lead in soil would not be expected to result in an unacceptable risk.

Although low concentrations of PCBs, TPH-d, TPH-mo, and VOCs in soil were detected, none of the concentrations observed were greater than conservative generic screening levels. TPH-g and asbestos were not detected in the soil samples above the laboratory reporting limits.

2.4.1.2 Waste Criteria Screening

As shown on Table 1B, concentrations of chromium (total) in eight of the 14 samples exceeded the 10 times the STLC (50 mg/kg) screening criterion. Concentrations of total lead in seven of the 14 samples exceeded the 10 times the STLC (50 mg/kg) screening criterion and in one sample exceeded the 20 times the TCLP concentration (100 mg/kg) screening criterion. Concentrations of total mercury in one of the 14 samples exceeded the 10 times the STLC (2 mg/kg) screening criterion.

2.4.2 Groundwater Analytical Results

Analytical results from the groundwater samples are presented on Table 2. Groundwater results were compared to the following generic conservative screening levels:

- RWQCB Groundwater Odor Nuisance Non-Drinking Water ESLs[9];
- RWQCB Groundwater Gross Contamination ESLs[10];
- RWQCB Commercial/Industrial Groundwater Vapor Intrusion Human Health Risk Levels for Shallow Groundwater[11]; and
- The California State Water Resources Control Board, Division of Drinking Water's Maximum Contaminant Levels (MCLs).[12]

The Site is located within the Santa Clara Valley Groundwater Basin in the East Bay Plain (RWQCB 2007). Drinking water within the Site area is provided a municipal source (East Bay Municipal Utilities District).

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[7] Upper-confidence limit (UCL) on the mean calculated using ProUCL v. 5.1 and the maximum soil concentration from each sampling location.
[8] Upper-confidence limit (UCL) on the mean calculated using ProUCL v. 5.1 and all soil sampling results.
[9] https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html.
[10] https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html.
[11] https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html.
[12] https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/mclreview/mcls_dlrs_phgs.xls

Given the municipal drinking water source and the proximity to the bay, groundwater is not an anticipated source of drinking water.[13] The primary purpose of the groundwater evaluation was to assess the potential for vapor intrusion from shallow groundwater given the presence of chlorinated VOC cleanup sites in the Site vicinity.

As shown on Table 2, chlorinated VOCs were not detected above reporting limits. Based on comparison of the groundwater data to vapor intrusion screening levels, the groundwater would not pose an unacceptable vapor intrusion risk to receptors at the Site.

Arsenic was detected at a concentration of 0.016 micrograms per liter (ug/L) in one temporary well, above the MCL of 0.01 ug/L. Dichloromethane was detected in each of the four groundwater samples at concentrations of 17 and 18 ug/L, above the MCL of 5 ug/L. TPH-mo and TPH-d detected in each of the four groundwater samples above the MCLs of 410 ug/L and 200 ug/L, respectively.[14] The MCLs are used as a screening level when setting cleanup goals for groundwater designated for use as a domestic or municipal supply. As discussed above, the shallow aquifer in this area would not be expected to be a source of drinking water, and therefore, the exceedance of the MCLs is not considered to be significant.

Other metals and TPH-g were not detected above laboratory reporting limits in the samples for which these constituents were analyzed.

3.0 Conclusions

Terraphase conducted a site investigation consisting of installation of soil borings and temporary groundwater wells, collection of soil and grab groundwater samples, laboratory analysis of collected samples, and evaluation of analytical data. This investigation was performed to evaluate the environmental condition of the Site, specifically:

- Evaluation of fill materials in the upper five feet which may remain onsite (commercial/industrial user exposure), excavated (construction worker exposure) and off-hauled during re-development (waste characterization).
- Evaluation of potential for vapor intrusion based on the proximity of the Site to active chlorinated VOC cleanup sites.

Soil sample analytical data were compared to generic health-based screening levels and waste characterization criteria. Based on comparison to generic health-based screening levels, soil would not pose an unacceptable risk to receptors at the Site. Based on the concentrations of chromium, lead, and

[13] The Alameda County Health Department Case Closure Summary for the Columbo Bakery site (580 Julie Ann Way, Oakland, California) located approximately 400 feet upgradient indicates that total dissolved solids (TDS) were detected at a concentration of 43,000 parts per million in the shallow groundwater at the Site. Per State Water Resources Control Board Resolution No. 88-63 (Sources of Drinking Water Policy), groundwater containing TDS exceeding 3,000 milligrams per liter (3,000 ppm) is not considered to be suitable for municipal or domestic water supply. As such, the shallow groundwater at the Site would not be considered to be a source of drinking water.
[14] The RWQCB does not identify TPH-mo ESLs due to negligible solubility. Instead, the RWQCB recommends comparison to the hydrocarbon oxidation products ESLs.

mercury detected above the hazardous waste screening criteria, Terraphase recommends further evaluation of site soil if redevelopment will result in excavation and off-side disposal.

Groundwater sample analytical data were compared to generic health-based screening levels. Groundwater samples included detections of arsenic, dichloromethane, TPH-d, and TPH-mo above MCLs. MCLs are screening levels specific to drinking water. Groundwater at the Site is not considered to be a suitable source of groundwater, and therefore, exceedances of the MCLs are not considered to be significant. Based on comparison of the groundwater data to vapor intrusion screening levels, the groundwater would not pose an unacceptable vapor intrusion risk to receptors at the Site.

4.0 Closing

If you have any questions, please don't hesitate to contact us at (510) 645-1850. We appreciate the opportunity to work with you on this assignment.

Sincerely,

For Terraphase Engineering Inc.

William Carson, PE
President/Principal Engineer

Alice Hale Price, PE
Senior Associate Engineer

Tables

1 Soil Analytical Results Summary
- A Soil Analytical Results Summary – Compared to Health-Based Screening Levels
- B Soil Analytical Results Summary – Compared to Hazardous Waste Screening Criteria

2 Groundwater Analytical Results Summary

Figures

1 Site Layout and Sample Locations

Attachments

1 Boring Permit
2 Laboratory Analytical Reports

References

California Department of Toxic Substances Control, Human and Ecological Risk Office (HERO). 2018. Human Health Risk Assessment (HHRA) Note Number: 3, DTSC Modified Screening Levels (DTSC-SLs). June.

California State Water Resources Control Board. 1988. Resolution No. 88-63: Sources of Drinking Water Policy.

Duvergé, Dylan Jacques. 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region. December. https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/ESL/2011_Arsenic_Background_Duverge.pdf

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2007. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). January 18.

______. 2019. Environmental Screening Levels. January.

United States Environmental Protection Agency. 2018. Regional Screening Levels. November.

Table 1A

Soil Analytical Results Summary – Compared to Health-Based Screening Levels

Summary of Phase II Environmental Site Investigation

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	Location	Units	DTSC-SLs Commercial/ Industrial Soil	USEPA RSLs Commercial/ Industrial Soil	SFRWQCB ESLs Commercial/ Industrial Shallow Soil - Cancer Risk	SFRWQCB ESLs Commercial/ Industrial Shallow Soil - Non-Cancer Risk	SFRWQCB ESLs Construction Worker Soil -Cancer Risk	SFRWQCB ESLs Construction Worker Soil - Non-Cancer Risk	SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7	
	Sample Depth (ft)								0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3
	Field ID								SB-1-1.0	SB-1-3.0	SB-2-1.0	SB-2-3.0	SB-3-1.0	SB-3-3.0	SB-4-1.0	SB-4-3.0	SB-5-1.0	SB-5-3.0	SB-6-1.0	SB-6-3.0	SB-7-1.0	SB-7-3.0
	Sample Date								12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018
	SDG								305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654
Metals	Antimony	mg/kg		47		164		50	<1.9	<2.0	<1.8	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9
	Arsenic[1]	mg/kg	0.36	3	0.31	3.63	2	0.98	5.2	8.7	4.9	6.9	7.7	5.2	2.9	4.7	5.7	5.1	5.3	1.8	4.9	6.3
	Barium	mg/kg		22000		217000		3000	170	400	200	110	280	140	54	150	140	60	85	30	93	110
	Beryllium	mg/kg	210	230	6900	232	180	27	0.43	0.92	0.45	0.38	0.49	0.46	0.31	0.5	0.35	0.56	0.36	0.29	0.34	0.45
	Cadmium	mg/kg		98	4000	1150	110	51	0.49	4.9	0.42	<0.25	0.47	0.45	0.41	0.29	0.53	0.42	0.34	0.36	0.75	0.49
	Chromium (III+VI)	mg/kg							50	46	39	53	63	42	34	50	36	64	43	53	50	61
	Cobalt	mg/kg		35	1900	347	49	28	11	22	10	6.6	11	9.4	6	11	8.9	7.9	11	12	12	7.5
	Copper	mg/kg		4700		46700		14000	56	180	28	21	22	17	37	22	36	20	55	38	51	35
	Lead	mg/kg	320	800	380	320	2700	160	95	380	73	16	40	8.4	66	21	54	16	12	14	58	66
	Mercury	mg/kg	4.4	4.6		187		44	<0.018	1.2	0.097	0.054	0.097	0.065	0.29	0.13	0.18	0.13	0.27	0.13	2.2	0.044
	Molybdenum	mg/kg		580		5840		1800	0.36	2.3	0.44	0.65	0.26	0.37	<0.25	<0.24	<0.26	<0.26	<0.27	<0.25	<0.24	0.89
	Nickel	mg/kg	3100	2200	64000	11100	1700	86	57	100	49	29	77	66	27	62	42	53	44	38	37	50
	Selenium	mg/kg		580		5840		1700	<1.9	<2.0	<1.8	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9
	Silver	mg/kg	1500	580		5840		1800	<0.24	0.31	<0.23	<0.25	<0.25	<0.26	<0.25	<0.24	<0.26	<0.26	<0.27	<0.25	<0.24	<0.24
	Thallium	mg/kg		1.2		11.7		3.5	<0.49	<0.56	<0.46	<0.50	<0.51	<0.52	<0.49	<0.48	<0.52	<0.52	<0.54	<0.50	<0.48	<0.48
	Vanadium	mg/kg	1000	580		5830		470	44	37	37	43	38	34	28	42	39	50	56	69	57	51
	Zinc	mg/kg		35000		350000		110000	150	710	98	46	100	45	76	60	82	71	53	44	130	110
PCBs	Aroclor 1016	mg/kg		5.1					<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1221	mg/kg		0.83					<0.027	-	<0.027	-	<0.024	-	<0.026	-	<0.068	-	<0.067	-	<0.024	-
	Aroclor 1232	mg/kg		0.72					<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1242	mg/kg		0.95					<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1248	mg/kg		0.95					<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1254	mg/kg		0.97					<0.014	-	<0.013	-	<0.012	-	0.068	-	<0.034	-	<0.033	-	0.033	-
	Aroclor 1260	mg/kg		0.99					<0.014	-	<0.013	-	<0.012	-	0.24	-	<0.034	-	<0.033	-	0.026	-
	Total PCBs	mg/kg		0.94	0.94		5.5		0	-	0	-	0	-	0.308	-	0	-	0	-	0.059	-
TPH	TPH as Diesel	mg/kg				1220		1100	29Y	100Y	22Y	3.9Y	3.6Y	1.2Y	11Y	7.7Y	44Y	9.6Y	77Y	41Y	21Y	11Y
	TPH as Gasoline	mg/kg				2000		1800	-	<0.21	-	<0.14	-	<0.21	-	<0.14	-	<0.20	-	<0.15	-	<0.17
	TPH as Motor Oil	mg/kg				180000		54000	350	720	240	16	37	9	160	100	660	120	1100	340	130	68
VOCs	1,1,1,2-tetrachloroethane	mg/kg	8.8	8.8	8.9	35000	190	11000	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1,1-trichloroethane	mg/kg	7200	3600		7270		7200	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1,2,2-tetrachloroethane	mg/kg	2.7	2.7	2.7	23400	49	7100	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1,2-trichloroethane	mg/kg		0.63	5.1	6.35	110	6.3	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1-dichloroethane	mg/kg	16	16	16	234000	370	71000	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1-dichloroethene	mg/kg		100		353		350	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1-dichloropropene	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,3-trichlorobenzene	mg/kg	300	93					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,3-trichloropropane	mg/kg	0.021	0.11	0.11	20.7	0.83	20	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,4-trichlorobenzene	mg/kg		26	110	262	850	240	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,4-trimethylbenzene	mg/kg		180					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dibromo-3-chloropropane	mg/kg		0.064	0.059	25.6	1.1	20	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dibromoethane	mg/kg	0.16	0.16	0.16	30.4	3.3	30	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dichlorobenzene	mg/kg		930		9420		7800	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dichloroethane	mg/kg		2	2.1	139	45	130	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dichloropropane	mg/kg		6.6	4.4	66	99	66	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,3,5-trimethylbenzene	mg/kg		150					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,3-dichlorobenzene	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,3-dichloropropane	mg/kg	2200	2300					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,4-dichlorobenzene	mg/kg		11	12	25500	280	15000	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	2,2-dichloropropane	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	2-chlorotoluene	mg/kg	2500	2300					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	2-hexanone	mg/kg		130					-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
	4-chlorotoluene	mg/kg	2300	2300					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	4-Methyl-2-pentanone	mg/kg		14000		141000		140000	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
	Acetone	mg/kg		67000		672000		270000	-	0.028	-	0.019	-	0.03	-	<0.017	-	<0.021	-	0.032	-	<0.015
	Benzene	mg/kg	1.4	5.1	1.4	46.6	33	45	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Bromobenzene	mg/kg		180					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Bromochloromethane	mg/kg		63					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Bromodichloromethane	mg/kg	1.3	1.3	1.3	23400	28	7100	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Bromoform	mg/kg	86	86	80	23400	1200	7100	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Bromomethane	mg/kg		3		30.3		29	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
	Carbon disulfide	mg/kg		350					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Carbon tetrachloride	mg/kg	0.43	2.9	0.44	253	10	220	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Chlorobenzene	mg/kg		130		1320		1200	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Chlorodibromomethane	mg/kg	4.1	39	39	23400	290	7100	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	Chloroethane	mg/kg		5700		58600		59000	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074

Table 1A

Soil Analytical Results Summary – Compared to Health-Based Screening Levels

Summary of Phase II Environmental Site Investigation

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Location	Units	DTSC-SLs Commercial/ Industrial Soil	USEPA RSLs Commercial/ Industrial Soil	SFRWQCB ESLs Commercial/ Industrial Shallow Soil - Cancer Risk	SFRWQCB ESLs Commercial/ Industrial Shallow Soil - Non-Cancer Risk	SFRWQCB ESLs Construction Worker Soil -Cancer Risk	SFRWQCB ESLs Construction Worker Soil - Non-Cancer Risk	SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7	
Sample Depth (ft)								0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3
Field ID								SB-1-1.0	SB-1-3.0	SB-2-1.0	SB-2-3.0	SB-3-1.0	SB-3-3.0	SB-4-1.0	SB-4-3.0	SB-5-1.0	SB-5-3.0	SB-6-1.0	SB-6-3.0	SB-7-1.0	SB-7-3.0
Sample Date								12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018
SDG								305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654
Chloroform	mg/kg		1.4	1.4	1040	34	860	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Chloromethane	mg/kg		46		475		470	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
cis-1,2-dichloroethene	mg/kg	84	230		84.9		78	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
cis-1,3-dichloropropene	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Dibromomethane	mg/kg		9.9					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Dichlorodifluoromethane	mg/kg		37					-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Dichloromethane	mg/kg	24	320	25	2520	490	1400	-	<0.027	-	<0.014	-	<0.021	-	<0.017	-	<0.021	-	<0.017	-	<0.015
Ethylbenzene	mg/kg		25	26	20800	540	15000	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Freon 113	mg/kg		2800					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Hexachlorobutadiene	mg/kg	5.3	5.3	5.3	1170	100	350	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Isopropylbenzene	mg/kg		990					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Methyl Ethyl Ketone	mg/kg		19000		196000		120000	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Methyl Tertiary Butyl Ether	mg/kg		210	210	65600	4100	65000	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Naphthalene	mg/kg		17	17	585	400	500	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
n-butylbenzene	mg/kg	18000	5800					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
n-propylbenzene	mg/kg		2400					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
p-isopropyltoluene	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
sec-butylbenzene	mg/kg	12000	12000					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Styrene	mg/kg		3500		32500		25000	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
tert-Butylbenzene	mg/kg	12000	12000					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Tetrachloroethene	mg/kg	2.7	39	2.7	395	33	350	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Toluene	mg/kg	5300	4700		5330		4700	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
trans-1,2-dichloroethene	mg/kg	600	2300		604		570	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
trans-1,3-dichloropropene	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Trichloroethene	mg/kg		1.9	6.1	18.9	130	18	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Trichlorofluoromethane	mg/kg	5400	35000					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Vinyl acetate	mg/kg		380					-	<0.068	-	<0.036	-	<0.054	-	<0.041	-	<0.052	-	<0.043	-	<0.037
Vinyl chloride	mg/kg	0.15	1.7	0.15	376	3.4	300	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Xylene (m & p)	mg/kg							-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Xylene (o)	mg/kg		280					-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037

Notes:
Detected concentrations are bold-faced
mg/kg= milligrams per kilogram
- = Not analyzed
< = analyte not detected above laboratory reporting limit
J = estimated below laboratory reporting limit
[1] To better reflect the background conditions for arsenic specifically, a regional background concentration of 11 milligrams per kilogram (mg/kg) was selected as the most applicable comparison criteria (Duverge 2011).

Citations:
DTSC SLs = California Department of Toxic Substances Control, Human and Ecological Risk Office (HERO). 2018. Human Health Risk Assessment (HHRA) Note Number: 3, DTSC Modified Screening Levels (DTSC-SLs). June.
SFRWQCB ESLs = San Francisco Bay Regional Water Quality Control Board (RWQCB). 2019. Environmental Screening Levels. January 24.
USEPA RSLs = United States Environmental Protection Agency. 2018. Regional Screening Levels. November. (TR=1E-06, HQ=0.1)

Table 1B

Soil Analytical Results Summary – Compared to Hazardous Waste Screening Criteria

Summary of Phase II Environmental Site Investigation

SupplyBank.Org

	Location	Units	STLCx10	TCLPx20	TTLC	SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7	
	Sample Depth (ft)					0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3
	Field ID					SB-1-1.0	SB-1-3.0	SB-2-1.0	SB-2-3.0	SB-3-1.0	SB-3-3.0	SB-4-1.0	SB-4-3.0	SB-5-1.0	SB-5-3.0	SB-6-1.0	SB-6-3.0	SB-7-1.0	SB-7-3.0
	Sample Date					12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018
	SDG					305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654
Metals	Antimony	mg/kg	150		500	<1.9	<2.0	<1.8	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9
	Arsenic	mg/kg	50	100	500	5.2	8.7	4.9	6.9	7.7	5.2	2.9	4.7	5.7	5.1	5.3	1.8	4.9	6.3
	Barium	mg/kg	1000	2000	10000	170	400	200	110	280	140	54	150	140	60	85	30	93	110
	Beryllium	mg/kg	7.5		75	0.43	0.92	0.45	0.38	0.49	0.46	0.31	0.5	0.35	0.56	0.36	0.29	0.34	0.45
	Cadmium	mg/kg	10	20	100	0.49	4.9	0.42	<0.25	0.47	0.45	0.41	0.29	0.53	0.42	0.34	0.36	0.75	0.49
	Chromium (III+VI)	mg/kg	50	100	2500	50	46	39	53	63	42	34	50	36	64	43	53	50	61
	Cobalt	mg/kg	800		8000	11	22	10	6.6	11	9.4	6	11	8.9	7.9	11	12	12	7.5
	Copper	mg/kg	250		2500	56	180	28	21	22	17	37	22	36	20	55	38	51	35
	Lead	mg/kg	50	100	1000	95	380	73	16	40	8.4	66	21	54	16	12	14	58	66
	Mercury	mg/kg	2	4	20	<0.018	1.2	0.097	0.054	0.097	0.065	0.29	0.13	0.18	0.13	0.27	0.13	2.2	0.044
	Molybdenum	mg/kg	3500		3500	0.36	2.3	0.44	0.65	0.26	0.37	<0.25	<0.24	<0.26	<0.26	<0.27	<0.25	<0.24	0.89
	Nickel	mg/kg	200		2000	57	100	49	29	77	66	27	62	42	53	44	38	37	50
	Selenium	mg/kg	10	20	100	<1.9	<2.0	<1.8	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9
	Silver	mg/kg	50	100	500	<0.24	0.31	<0.23	<0.25	<0.25	<0.26	<0.25	<0.24	<0.26	<0.26	<0.27	<0.25	<0.24	<0.24
	Thallium	mg/kg	70		700	<0.49	<0.56	<0.46	<0.50	<0.51	<0.52	<0.49	<0.48	<0.52	<0.52	<0.54	<0.50	<0.48	<0.48
	Vanadium	mg/kg	240		2400	44	37	37	43	38	34	28	42	39	50	56	69	57	51
	Zinc	mg/kg	2500		5000	150	710	98	46	100	45	76	60	82	71	53	44	130	110
PCBs	Aroclor 1016	mg/kg				<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1221	mg/kg				<0.027	-	<0.027	-	<0.024	-	<0.026	-	<0.068	-	<0.067	-	<0.024	-
	Aroclor 1232	mg/kg				<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1242	mg/kg				<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1248	mg/kg				<0.014	-	<0.013	-	<0.012	-	<0.013	-	<0.034	-	<0.033	-	<0.012	-
	Aroclor 1254	mg/kg				<0.014	-	<0.013	-	<0.012	-	0.068	-	<0.034	-	<0.033	-	0.033	-
	Aroclor 1260	mg/kg				<0.014	-	<0.013	-	<0.012	-	0.24	-	<0.034	-	<0.033	-	0.026	-
	Total PCBs	mg/kg	50		50	<0.027		<0.027		<0.024		0.31		<0.068		<0.067		0.059	
TPH	TPH as Diesel	mg/kg				29Y	100Y	22Y	3.9Y	3.6Y	1.2Y	11Y	7.7Y	44Y	9.6Y	77Y	41Y	21Y	11Y
	TPH as Gasoline	mg/kg				-	<0.21	-	<0.14	-	<0.21	-	<0.14	-	<0.20	-	<0.15	-	<0.17
	TPH as Motor Oil	mg/kg				350	720	240	16	37	9	160	100	660	120	1100	340	130	68
VOCs	1,1,1,2-tetrachloroethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1,1-trichloroethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1,2,2-tetrachloroethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1,2-trichloroethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1-dichloroethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1-dichloroethene	mg/kg		14		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,1-dichloropropene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,3-trichlorobenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,3-trichloropropane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,4-trichlorobenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2,4-trimethylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dibromo-3-chloropropane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dibromoethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dichlorobenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dichloroethane	mg/kg		10		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,2-dichloropropane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,3,5-trimethylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,3-dichlorobenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,3-dichloropropane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	1,4-dichlorobenzene	mg/kg		150		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	2,2-dichloropropane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	2-chlorotoluene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	2-hexanone	mg/kg				-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
	4-chlorotoluene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
	4-Methyl-2-pentanone	mg/kg				-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
	Acetone	mg/kg				-	0.028	-	0.019	-	0.03	-	<0.017	-	<0.021	-	0.032	-	<0.015
	Benzene	mg/kg		10		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037

Table 1B

Soil Analytical Results Summary – Compared to Hazardous Waste Screening Criteria

Summary of Phase II Environmental Site Investigation

SupplyBank.Org

Location	Units	STLCx10	TCLPx20	TTLC	SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7	
Sample Depth (ft)					0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3	0.5-1	2.5-3
Field ID					SB-1-1.0	SB-1-3.0	SB-2-1.0	SB-2-3.0	SB-3-1.0	SB-3-3.0	SB-4-1.0	SB-4-3.0	SB-5-1.0	SB-5-3.0	SB-6-1.0	SB-6-3.0	SB-7-1.0	SB-7-3.0
Sample Date					12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018	12/6/2018
SDG					305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654	305654
Bromobenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Bromochloromethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Bromodichloromethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Bromoform	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Bromomethane	mg/kg				-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Carbon disulfide	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Carbon tetrachloride	mg/kg		10		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Chlorobenzene	mg/kg		2000		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Chlorodibromomethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Chloroethane	mg/kg				-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Chloroform	mg/kg		120		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Chloromethane	mg/kg				-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
cis-1,2-dichloroethene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
cis-1,3-dichloropropene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Dibromomethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Dichlorodifluoromethane	mg/kg				-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Dichloromethane	mg/kg				-	<0.027	-	<0.014	-	<0.021	-	<0.017	-	<0.021	-	<0.017	-	<0.015
Ethylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Freon 113	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Hexachlorobutadiene	mg/kg		10		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Isopropylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Methyl Ethyl Ketone	mg/kg		4000		-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Methyl Tertiary Butyl Ether	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Naphthalene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
n-butylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
n-propylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
p-isopropyltoluene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
sec-butylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Styrene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
tert-Butylbenzene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Tetrachloroethene	mg/kg		14		-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Toluene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
trans-1,2-dichloroethene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
trans-1,3-dichloropropene	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Trichloroethene	mg/kg	2040	10	2040	-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Trichlorofluoromethane	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Vinyl acetate	mg/kg				-	<0.068	-	<0.036	-	<0.054	-	<0.041	-	<0.052	-	<0.043	-	<0.037
Vinyl chloride	mg/kg		4	10	-	<0.014	-	<0.0071	-	<0.011	-	<0.0083	-	<0.01	-	<0.0086	-	<0.0074
Xylene (m & p)	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037
Xylene (o)	mg/kg				-	<0.0068	-	<0.0036	-	<0.0054	-	<0.0041	-	<0.0052	-	<0.0043	-	<0.0037

Notes:
Detected concentrations are **bold-faced**
mg/kg= milligrams per kilogram
\- = Not analyzed
< = analyte not detected above laboratory reporting limit
J = estimated below laboratory reporting limit
TCLP = Toxicity Characteristic Leaching Procedure
STLC = Soluble Threshold Limit Concentration
TTLC = Total Threshold Limit Concentration

Table 2
Groundwater Analytical Results Summary
Summary of Phase II Environmental Site Investigation
SupplyBank.Org

	Location	Units	SFRWQCB Groundwater Gross Contamination ESLs	Groundwater Human Health MCL	Groundwater Vapor Intrusion Risk ESL - Commercial Industrial - Cancer	Groundwater Vapor Intrusion Risk ESL - Commercial Industrial - Non-Cancer	Groundwater Non-Drinking Water Resource Nuisance/Odor ESL	SB-2	SB-4	SB-5	SB-7
	Sample Date							12/6/2018	12/6/2018	12/6/2018	12/6/2018
	Field ID							SB-2-GW	SB-4-GW	SB-5-GW	SB-7-GW
	SDG							305638	305638	305638	305638
Metals	Antimony (Filtered)	mg/L	50	0.006				<0.01	<0.01	<0.01	<0.01
	Arsenic (Filtered)	mg/L	50	0.01				<0.01	<0.01	**0.016**	<0.01
	Barium (Filtered)	mg/L	50	1				**0.053**	**0.2**	**0.049**	**0.053**
	Beryllium (Filtered)	mg/L	50	0.004				<0.002	<0.002	<0.002	<0.002
	Cadmium (Filtered)	mg/L	50	0.005				<0.005	<0.005	<0.005	<0.005
	Chromium (III+VI) (Filtered)	mg/L	50	0.05				**0.0054**	<0.005	<0.005	<0.005
	Cobalt (Filtered)	mg/L	50	0.006				<0.005	<0.005	<0.005	<0.005
	Copper (Filtered)	mg/L	50	1				<0.005	**0.011**	**0.016**	**0.0072**
	Lead (Filtered)	mg/L	50	0.015				<0.005	<0.005	<0.005	<0.005
	Mercury (Filtered)	mg/L	0.03	0.002		0.00038		<0.0002	<0.0002	<0.0002	<0.0002
	Molybdenum (Filtered)	mg/L	50	0.1				<0.005	<0.005	**0.011**	**0.011**
	Nickel (Filtered)	mg/L	50	0.1				<0.005	**0.0059**	**0.0085**	**0.006**
	Selenium (Filtered)	mg/L	50	0.05				<0.01	<0.01	<0.01	<0.01
	Silver (Filtered)	mg/L	50	0.1				<0.005	<0.005	<0.005	<0.005
	Thallium (Filtered)	mg/L	50	0.002				<0.01	<0.01	<0.01	<0.01
	Vanadium (Filtered)	mg/L	50					<0.005	<0.005	**0.034**	**0.0059**
	Zinc (Filtered)	mg/L	50	5				<0.02	<0.02	**0.091**	<0.02
TPH	TPH as Diesel	µg/L	2500	200			5000	**360**	**310**	**200**	**200**
	TPH as Gasoline	µg/L	50000	760			5000	<50	<50	<50	<50
	TPH as Motor Oil[1]	µg/L	50000	410			5000	**1300**	**630**	**550**	**520**
VOCs	1,1,1,2-tetrachloroethane	µg/L	50000	0.57	17			<0.5	<0.5	<0.5	<0.5
	1,1,1-trichloroethane	µg/L	50000	200		6300	500000	<0.5	<0.5	<0.5	<0.5
	1,1,2,2-tetrachloroethane	µg/L	50000	1	14		5000	<0.5	<0.5	<0.5	<0.5
	1,1,2-trichloroethane	µg/L	50000	5	23	26		<0.5	<0.5	<0.5	<0.5
	1,1-dichloroethane	µg/L	50000	5	33			<0.5	<0.5	<0.5	<0.5
	1,1-dichloroethene	µg/L	50000	6		280	15000	<0.5	<0.5	<0.5	<0.5
	1,1-dichloropropene	µg/L						<0.5	<0.5	<0.5	<0.5
	1,2,3-trichlorobenzene	µg/L						<0.5	<0.5	<0.5	<0.5
	1,2,3-trichloropropane	µg/L	50000	0.005		94		<0.5	<0.5	<0.5	<0.5
	1,2,4-trichlorobenzene	µg/L	25000	5		150	30000	<0.5	<0.5	<0.5	<0.5
	1,2,4-trimethylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
	1,2-dibromo-3-chloropropane	µg/L	50000	0.2	0.34	150	100	<0.5	<0.5	<0.5	<0.5
	1,2-dibromoethane	µg/L	50000	0.05	0.76	130		<0.5	<0.5	<0.5	<0.5
	1,2-dichlorobenzene	µg/L	50000	100		11000	100	<0.5	<0.5	<0.5	<0.5
	1,2-dichloroethane	µg/L	50000	0.5	9.8	640	200000	<0.5	<0.5	<0.5	<0.5
	1,2-dichloropropane	µg/L	50000	5	10	150	100	<0.5	<0.5	<0.5	<0.5
	1,3,5-trimethylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
	1,4-Dichloro-2-butene	µg/L						<5	<5	<5	<5
	1,3-dichlorobenzene	µg/L	50000	600				<0.5	<0.5	<0.5	<0.5
	1,3-dichloropropane	µg/L						<0.5	<0.5	<0.5	<0.5

Table 2
Groundwater Analytical Results Summary
Summary of Phase II Environmental Site Investigation
SupplyBank.Org

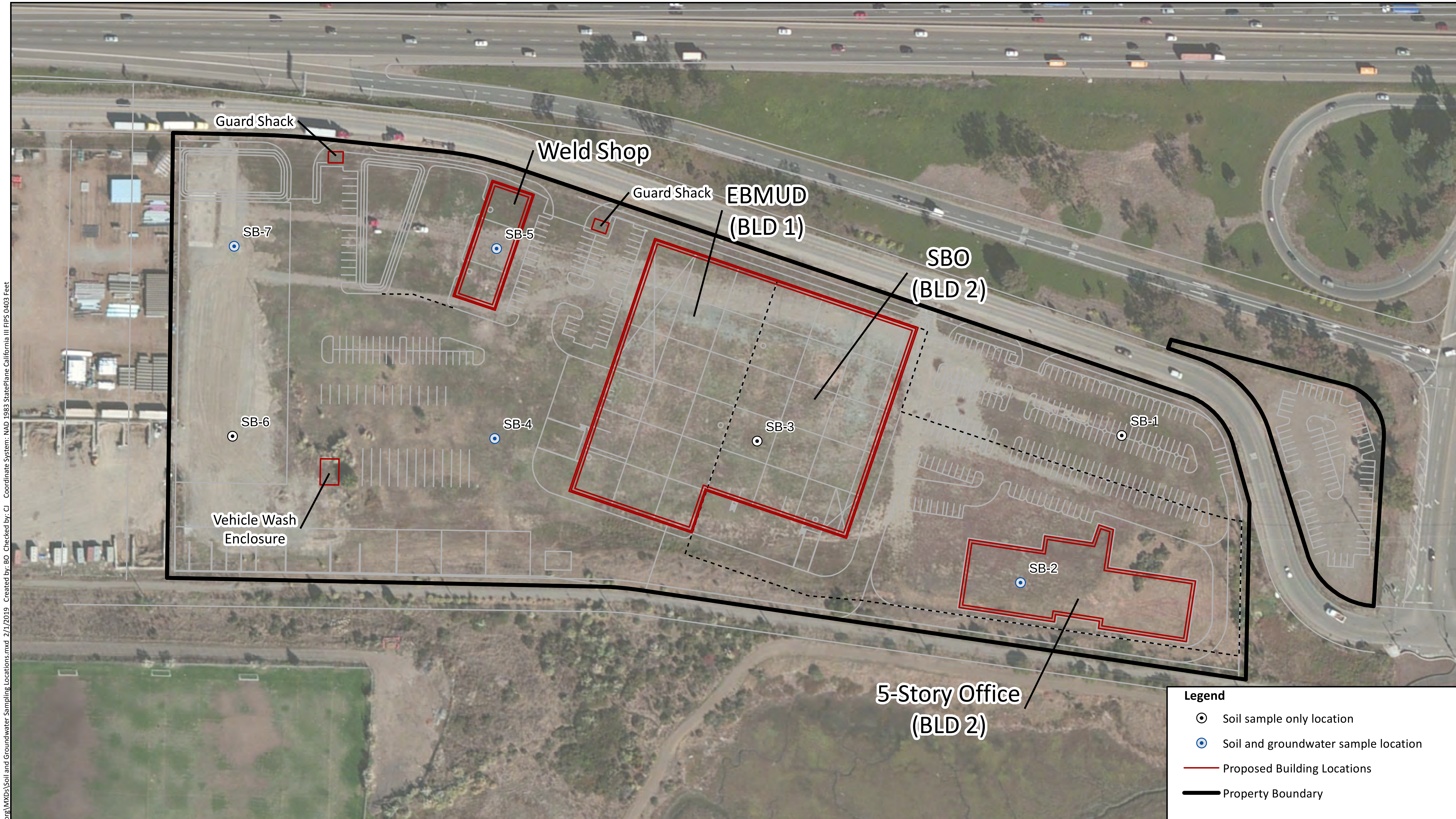
Location	Units	SFRWQCB Groundwater Gross Contamination ESLs	Groundwater Human Health MCL	Groundwater Vapor Intrusion Risk ESL - Commercial Industrial - Cancer	Groundwater Vapor Intrusion Risk ESL - Commercial Industrial - Non-Cancer	Groundwater Non-Drinking Water Resource Nuisance/Odor ESL	SB-2	SB-4	SB-5	SB-7
Sample Date							12/6/2018	12/6/2018	12/6/2018	12/6/2018
Field ID							SB-2-GW	SB-4-GW	SB-5-GW	SB-7-GW
SDG							305638	305638	305638	305638
1,4-dichlorobenzene	µg/L	41000	5	11	35000	110	<0.5	<0.5	<0.5	<0.5
2,2-dichloropropane	µg/L						<0.5	<0.5	<0.5	<0.5
2-chlorotoluene	µg/L						<0.5	<0.5	<0.5	<0.5
4-chlorotoluene	µg/L						<0.5	<0.5	<0.5	<0.5
4-Methyl-2-pentanone	µg/L	50000	120		2300000	13000	<5	<5	<5	<5
Acetone	µg/L	50000	14000		97000000	200000	<10	**18**	**18**	**15**
Allyl chloride	mg/L						<0.0005	<0.0005	<0.0005	<0.0005
Benzene	µg/L	50000	1	1.8	57	20000	<0.5	<0.5	<0.5	<0.5
Bromobenzene	µg/L						<1	<1	<1	<1
Bromochloromethane	µg/L						<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/L	50000	80	3.8			<0.5	<0.5	<0.5	<0.5
Bromoform	µg/L	50000	80	510		5100	<0.5	<0.5	<0.5	<0.5
Bromomethane	µg/L	50000	7.5		73		<1	<1	<1	<1
Carbon tetrachloride	µg/L	50000	0.5	0.27	160	5200	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	µg/L	50000	70		1700	500	<0.5	<0.5	<0.5	<0.5
Chlorodibromomethane	µg/L	50000	80				<0.5	<0.5	<0.5	<0.5
Chloroethane	µg/L	50000	21000		97000	160	<0.5	<0.5	<0.5	<0.5
Chloroform	µg/L	50000	80	3.6	2900	24000	<0.5	<0.5	<0.5	<0.5
Chloromethane	µg/L	50000	190		1100		<0.5	<0.5	<0.5	<0.5
cis-1,2-dichloroethene	µg/L	50000	6		210		<0.5	<0.5	<0.5	<0.5
cis-1,3-dichloropropene	µg/L						<0.5	<0.5	<0.5	<0.5
cis-1,4-Dichloro-2-butene	µg/L						<5	<5	<5	<5
Dibromomethane	µg/L						<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	µg/L						<0.5	<0.5	<0.5	<0.5
Dichloromethane	µg/L	50000	5	94	13000	91000	**18**	**17**	**18**	**18**
Ethylbenzene	µg/L	50000	30	15	14000	300	<0.5	<0.5	<0.5	<0.5
Freon 113	µg/L						<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	µg/L	1600	0.14	1.3		60	<1	<1	<1	<1
Isopropylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
Methyl Ethyl Ketone	µg/L	50000	5600		9500000	84000	<5	**9.2**	<5	<5
Methyl Tertiary Butyl Ether	µg/L	50000	5	2000	550000	1800	<0.5	<0.5	<0.5	<0.5
Naphthalene	µg/L	16000	0.17	20	730	210	<0.5	<0.5	<0.5	<0.5
n-butylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
n-propylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
p-isopropyltoluene	µg/L						<0.5	<0.5	<0.5	<0.5
sec-butylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
Styrene	µg/L	50000	10		36000	110	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	µg/L						<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	µg/L	50000	5	2.8	240	3000	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	50000	40		4900	400	<0.5	<0.5	<0.5	<0.5

Table 2
Groundwater Analytical Results Summary
Summary of Phase II Environmental Site Investigation
SupplyBank.Org

	Location	Units	SFRWQCB Groundwater Gross Contamination ESLs	Groundwater Human Health MCL	Groundwater Vapor Intrusion Risk ESL - Commercial Industrial - Cancer	Groundwater Vapor Intrusion Risk ESL - Commercial Industrial - Non-Cancer	Groundwater Non-Drinking Water Resource Nuisance/Odor ESL	SB-2	SB-4	SB-5	SB-7
	Sample Date							12/6/2018	12/6/2018	12/6/2018	12/6/2018
	Field ID							SB-2-GW	SB-4-GW	SB-5-GW	SB-7-GW
	SDG							305638	305638	305638	305638
	trans-1,2-dichloroethene	µg/L	50000	10		920	2600	<0.5	<0.5	<0.5	<0.5
	trans-1,3-dichloropropene	µg/L						<0.5	<0.5	<0.5	<0.5
	Trichloroethene	µg/L	50000	5	7.5	22	100000	<0.5	<0.5	<0.5	<0.5
	Trichlorofluoromethane	µg/L						<0.5	<0.5	<0.5	<0.5
	Vinyl chloride	µg/L	50000	0.5	0.14	400	34000	<0.5	<0.5	<0.5	<0.5
	Xylene (m & p)	µg/L						<0.5	<0.5	<0.5	<0.5
	Xylene (o)	µg/L						<0.5	<0.5	<0.5	<0.5
	Xylene Total	µg/L	50000	20		1600	5300	<0.5	<0.5	<0.5	<0.5

Notes:
Detected concentrations are **bold-faced**
MCL = Maximum Contaminant Level
µg/L= micrograms per Liter
mg/L= milligrams per Liter
< = analyte not detected above laboratory reporting limit
[1] The RWQCB does not identify TPH-mo ESLs due to negligible solubility. Instead, the RWQCB recommends comparison to the hydrocarbon oxidation products ESLs.

Citations:
SFRWQCB ESLs = San Francisco Bay Regional Water Quality Control Board (RWQCB). 2019. Environmental Screening Levels. January 24.



Notes: Aerial imagery source: DigitalGlobe 8/2018

0 125 250 Feet

1 inch = 125 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: SupplyBank.org

PROJECT: Phase II Investigation 5801 Oakport St, Oakland, CA

PROJECT NUMBER: 0285.001.002

Soil and Groundwater Sampling Locations

FIGURE 1

File: K:\GIS\Prj\0285 - SupplyBank.org\MXDs\Soil and Groundwater Sampling Locations.mxd 2/1/2019 Created by: BO Checked by: CJ Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Alameda County Public Works Agency - Water Resources Well Permit

Public Works Agency
Alameda County

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 11/26/2018 By jamesy

Permit Numbers: W2018-1037
Permits Valid from 12/07/2018 to 12/07/2018

Application Id: 1541805227456
City of Project Site: Oakland
Site Location: 5801 Oakport St, Oakland, CA 94621, USA
Project Start Date: 11/29/2018
Completion Date: 11/29/2018
Assigned Inspector: Contact Eneyew Amberber at (510) 670-5759 or eneyew@acpwa.org
Extension Start Date: 12/07/2018
Extension End Date: 12/07/2018
Extension Count: 1
Extended By: eneyew2

Applicant: Terraphase Engineering, Inc. - Ethan Levy
1404 Franklin Street, Suite 600, Oakland, CA 94612
Phone: 510-427-0040

Property Owner: -- SupplyBank.org
7730 Pardee Lane, Oakland, CA 94621
Phone: --

Client: -- SupplyBank.org
7730 Pardee Lane, Oakland, CA 94621
Phone: --

Contact: Chris Jones
Phone: 907-290-8855 x48
Cell: --

Receipt Number: WR2018-0650
Payer Name : Terra Phase

Total Due: $265.00
Total Amount Paid: $265.00
Paid By: MC
PAID IN FULL

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 7 Boreholes
Driller: Confluence Environmental - Lic #: 913194 - Method: Hand

Work Total: $265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2018-1037	11/26/2018	02/27/2019	7	4.00 in.	7.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

Alameda County Public Works Agency - Water Resources Well Permit

6. Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site. Submission dates are set by a Regional Water Board or by a regulatory agency. Once a report/data is successfully uploaded, as required, you have met the reporting requirement (i.e. the compliance measure for electronic submittals is the actual upload itself). The upload date should be on or prior to the regulatory due date.

7. NOTE:
Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

8. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

9. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

ENTHALPY

ANALYTICAL

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305654
ANALYTICAL REPORT

Terraphase Engineering 1404 Franklin Street Oakland, CA 94612	Project : 0285.001.002 Location : SupplyBank Level : II

Sample ID	Lab ID
SB-1-1.0	305654-001
SB-1-3.0	305654-002
SB-1-5.0	305654-003
SB-2-1.0	305654-004
SB-2-3.0	305654-005
SB-2-5.0	305654-006
SB-3-1.0	305654-007
SB-3-3.0	305654-008
SB-3-5.0	305654-009
SB-4-1.0	305654-010
SB-4-3.0	305654-011
SB-5-1.0	305654-012
SB-5-3.0	305654-013
SB-6-1.0	305654-014
SB-6-3.0	305654-015
SB-7-1.0	305654-016
SB-7-3.0	305654-017
SB-7-5.0	305654-018
SB-6-5.0	305654-019

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar   Date: 12/21/2018

Tracy Babjar
Project Manager
tracy.babjar@enthalpy.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**305654**
Client:	**Terraphase Engineering**
Project:	**0285.001.002**
Location:	**SupplyBank**
Request Date:	**12/07/18**
Samples Received:	**12/06/18**

This data package contains sample and QC results for fourteen soil samples, requested for the above referenced project on 12/07/18. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
Enthalpy Analytical (Orange) in Orange, CA performed the analysis (not NELAP certified). Please see the Enthalpy Analytical (Orange) case narrative. High response was observed for gasoline C7-C12 in the CCV analyzed 12/20/18 16:23; affected data was qualified with "b". High response was observed for gasoline C7-C12 in the CCV analyzed 12/20/18 23:55; affected data was qualified with "b". High response was observed for gasoline C7-C12 in the CCV analyzed 12/21/18 07:26; affected data was qualified with "b".

TPH-Extractables by GC (EPA 8015B):
Matrix spikes QC957812,QC957813 (batch 266035) were not reported because the parent sample required a dilution that would have diluted out the spikes. Many samples were diluted due to the dark and viscous nature of the sample extracts. No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
Enthalpy Analytical (Orange) in Orange, CA performed the analysis (not NELAP certified). Please see the Enthalpy Analytical (Orange) case narrative. Matrix spikes were not performed for this analysis in batch 266305 because of clock limitations; 5030 rushes were added to a 5035 batch. SB-1-3.0 (lab # 305654-002) was not diluted; the low sample weight is due to 5035 packaging.

PCBs (EPA 8082):
All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. A number of samples were diluted due to the color of the sample extracts. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A):
Low recoveries were observed for lead, antimony, and zinc in the MS/MSD of SB-1-1.0 (lab # 305654-001); the BS/BSD were within limits, and the associated RPDs were within limits. High recovery was observed for copper in the MSD of SB-1-1.0 (lab # 305654-001); the BS/BSD were within limits, and the associated RPD was within limits. No other analytical problems were encountered.

CASE NARRATIVE

Laboratory number:	**305654**
Client:	**Terraphase Engineering**
Project:	**0285.001.002**
Location:	**SupplyBank**
Request Date:	**12/07/18**
Samples Received:	**12/06/18**

Asbestos PLM (EPA 600/R-93-116):
Forensic Analytical in Hayward, CA performed the analysis (not NELAP certified). Please see the Forensic Analytical case narrative.

CHAIN OF CUSTODY

ENTHALPY ANALYTICAL
Formerly Curtis & Tompkins Labs
2323 Fifth Street
Berkeley, CA 94710
Phone (510) 486-0900
Fax (510) 486-0532

Page 1 of 2

C&T LOGIN # 305654

Chain of Custody #

Project No: 0285-001.002
Project Name: Supply Bank
Project P. O. No:
EDD Format: Report Level ☒ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☒ Standard

Sampler: Ethan L
Report To: Alice.Hale.Price@terraphase.com
Company: Terraphase Eng Inc
Telephone: 510 645-1850
Email: Alice Hale Price

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	HCl	H2SO4	HNO3	NaOH	None	Asbestos	TPHd/mo	PCBs	Metals T22	TPHg	VOCs	HOLD
1	SB-1-1.0	12/6/18	1035		X	2						X	X	X	X			
2	SB-1-3.0	↓	1100		X	7							X		X	X	X	
3	SB-1-5.0	↓	1110		X	7												X
4	SB-2-1.0	↓	1245		X	2						X	X	X	X			
5	SB-2-3.0	↓	1250		X	7							X		X	X	X	
6	SB-2-5.0	↓	1305		X	7												X
7	SB-3-1.0	↓	840		X	2						X	X	X	X			
8	SB-3-3.0	↓	842		X	7							X		X	X	X	
9	SB-3-5.0	↓	910		X	7												X
10	SB-4-1.0	↓	1120		X	2						X	X	X	X			
11	SB-4-3.0	↓	1135		X	7							X		X	X	X	
12	SB-5-1.0	↓	955		X	2						X	X	X	X			
13	SB-5-3.0	↓	1005		X	7							X		X	X	X	

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
Ethan Ly	12/6/18	17:30	[signature]	12/6/18	17:30

CHAIN OF CUSTODY

ENTHALPY ANALYTICAL
Formerly Curtis & Tompkins Labs
2323 Fifth Street
Berkeley, CA 94710
Phone (510) 486-0900
Fax (510) 486-0532

Page 2 of 2

C&T LOGIN # 355654

Chain of Custody #

Project No: 0285.001.002
Sampler: Ethan L
Project Name: SupplyBank
Report To: Alice.Hale.Price@terraphase.com
Project P. O. No:
Company: Terraphase Eng Inc
EDD Format: Report Level ☒ II ☐ III ☐ IV
Telephone: 510 645 1850
Turnaround Time: ☐ RUSH ☒ Standard
Email: Alice.Hale.Price@terraphase.com

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	CHEMICAL PRESERVATIVE HCl	H2SO4	HNO3	NaOH	None	ANALYTICAL REQUEST Asbestos	TPH d/mo	PCBs	Metals T22	TPHg	VOCs	HOLD
14	SB-6-1.0	12/6/18	1410		X	2						X	X	X	X			
15	SB-6-3.0	↓	1430		X	7							X		X	X	X	
16	SB-7-1.0	↓	1335		X	2						X	X	X	X			
17	SB-7-3.0	↓	1340		X	7							X		X	X	X	
18	SB-7-5.0	↓	1355		X	7												X

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	12/6/18	17:30	[signature]	12/6/18	17:30

SAMPLE RECEIPT CHECKLIST

ENTHALPY ANALYTICAL

Section 1: Login # 305654   Client: Terraphase
Date Received: 12/6/18   Project: ____

Section 2: Samples received in a cooler? ☒ Yes, how many? 2   ☐ No (skip Section 3 below)
If no cooler Sample Temp (°C): ____   using IR Gun # ☐ A, or ☐ B
☐ Samples received on ice directly from the field. Cooling process had begun
If in cooler: Date Opened 12/6/18 By (print) AC (sign) AC
Shipping info (if applicable) ____
Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package
☐ Date: ____ How many ____ ☐ Signature, ☐ Initials, ☐ None
Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**
Packing in cooler: (if other, describe) ____
☒ Bubble Wrap, ☐ Foam blocks, ☐ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels
☐ Samples received on ice directly from the field. Cooling process had begun
Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None   Temperature blank(s) included? ☐ Yes, ☒ No
Temperature measured using ☐ Thermometer ID: ____, or IR Gun # ☒ A ☐ B
Cooler Temp (°C): #1: 1.6, #2: 4.0, #3: ____, #4: ____, #5: ____, #6: ____, #7: ____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	—		
Were Method 5035 sampling containers present?	—		
If YES, what time were they transferred to freezer? 12/6/18 12:39			
Did all bottles arrive unbroken/unopened?	X		
Are there any missing / extra samples?	X		
Are samples in the appropriate containers for indicated tests?	X		
Are sample labels present, in good condition and complete?	✓		
Does the container count match the COC?		X	
Do the sample labels agree with custody papers?	DQ ~~X~~	X	
Was sufficient amount of sample sent for tests requested?	X		
Did you change the hold time in LIMS for unpreserved VOAs?			X
Did you change the hold time in LIMS for preserved terracores?	X		
Are bubbles > 6mm absent in VOA samples?			X
Was the client contacted concerning this sample delivery?		X	
If YES, who was called? ____ By ____ Date: ____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			X
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# ____, pH strip lot# ____, pH strip lot# ____
Preservative added:
☐ H2SO4 lot# ____ added to samples ____ on/at ____
☐ HCL lot# ____ added to samples ____ on/at ____
☐ HNO3 lot# ____ added to samples ____ on/at ____
☐ NaOH lot# ____ added to samples ____ on/at ____

Section 6:
Explanations/Comments: — Sample 9 container count does not match COC, missing 6 containers.
— Lab received sample "SB-6-5.0" with 7 containers, not listed on COC

Date Logged In 12/7/18 **By (print)** AC **(sign)** AC
Date Labeled 12/7/18 **By (print)** DQ **(sign)** DQ

ENTHALPY ANALYTICAL

Detections Summary for 305654

Results for any subcontracted analyses are not included in this summary.

Client : Terraphase Engineering
Project : 0285.001.002
Location : SupplyBank

Client Sample ID : SB-1-1.0 Laboratory Sample ID : 305654-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	29	Y	10	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Motor Oil C24-C36	350		50	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Arsenic	5.2		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	170		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.43		0.097	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.49		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	50		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	11		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	56		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	95		0.97	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Molybdenum	0.36		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	57		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	44		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	150		0.97	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-1-3.0 Laboratory Sample ID : 305654-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	100	Y	10	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Motor Oil C24-C36	720		50	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Acetone	28		27	ug/Kg	As Recd	1.354	EPA 8260B	EPA 5035
Arsenic	8.7		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	400		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.92		0.11	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	4.9		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	46		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	22		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	180		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	380		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	1.2		0.16	mg/Kg	As Recd	10.00	EPA 7471A	METHOD
Molybdenum	2.3		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	100		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Silver	0.31		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	37		0.28	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	710		110	mg/Kg	As Recd	100.0	EPA 6010B	EPA 3050B

ENTHALPY ANALYTICAL

Client Sample ID : SB-2-1.0 Laboratory Sample ID : 305654-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	22	Y	10	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Motor Oil C24-C36	240		50	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Arsenic	4.9		1.4	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	200		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.45		0.092	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.42		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	39		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	10		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	28		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	73		0.92	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.097		0.015	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Molybdenum	0.44		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	49		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	37		0.23	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	98		0.92	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-2-3.0 Laboratory Sample ID : 305654-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	3.9	Y	1.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	16		5.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550C
Acetone	19		14	ug/Kg	As Recd	0.7123	EPA 8260B	EPA 5035
Arsenic	6.9		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	110		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.38		0.099	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	53		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	6.6		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	21		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	16		0.99	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.054		0.017	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Molybdenum	0.65		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	29		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	43		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	46		0.99	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

ENTHALPY ANALYTICAL

Client Sample ID : SB-3-1.0 Laboratory Sample ID : 305654-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	3.6	Y	1.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	37		5.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550C
Arsenic	7.7		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	280		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.49		0.10	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.47		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	63		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	11		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	22		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	40		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.097		0.018	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Molybdenum	0.26		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	77		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	38		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	100		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-3-3.0 Laboratory Sample ID : 305654-008

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1.2	Y	1.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	9.0		5.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550C
Acetone	30		21	ug/Kg	As Recd	1.073	EPA 8260B	EPA 5035
Arsenic	5.2		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	140		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.46		0.10	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.45		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	42		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	9.4		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	17		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	8.4		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.065		0.016	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Molybdenum	0.37		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	66		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	34		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	45		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

ENTHALPY ANALYTICAL

Client Sample ID : SB-4-1.0 Laboratory Sample ID : 305654-010

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	11	Y	5.0	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	160		25	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Aroclor-1254	68		13	ug/Kg	As Recd	2.000	EPA 8082	EPA 3546
Aroclor-1260	240		13	ug/Kg	As Recd	2.000	EPA 8082	EPA 3546
Arsenic	2.9		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	54		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.31		0.098	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.41		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	34		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	6.0		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	37		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	66		0.98	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.29		0.017	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	27		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	28		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	76		0.98	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-4-3.0 Laboratory Sample ID : 305654-011

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	7.7	Y	5.0	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	100		25	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Arsenic	4.7		1.4	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	150		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.50		0.095	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.29		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	50		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	11		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	22		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	21		0.95	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.13		0.018	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	62		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	42		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	60		0.95	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

ENTHALPY ANALYTICAL

Client Sample ID : SB-5-1.0 Laboratory Sample ID : 305654-012

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	44	Y	20	mg/Kg	As Recd	20.00	EPA 8015B	EPA 3550C
Motor Oil C24-C36	660		100	mg/Kg	As Recd	20.00	EPA 8015B	EPA 3550C
Arsenic	5.7		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	140		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.35		0.10	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.53		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	36		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	8.9		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	36		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	54		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.18		0.017	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	42		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	39		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	82		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-5-3.0 Laboratory Sample ID : 305654-013

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	9.6	Y	5.0	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	120		25	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Arsenic	5.1		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	60		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.56		0.10	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.42		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	64		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	7.9		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	20		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	16		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.13		0.016	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	53		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	50		0.26	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	71		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-6-1.0 Laboratory Sample ID : 305654-014

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	77	Y	10	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Motor Oil C24-C36	1,100		50	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550C
Arsenic	5.3		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	85		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.36		0.11	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.34		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	43		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	11		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	55		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	12		1.0	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.27		0.017	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	44		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	56		0.27	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	53		1.1	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-6-3.0 Laboratory Sample ID : 305654-015

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	41	Y	5.0	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	340		25	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Acetone	32		17	ug/Kg	As Recd	0.8576	EPA 8260B	EPA 5035
Arsenic	1.8		1.5	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	30		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.29		0.099	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.36		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	53		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	12		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	38		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	14		0.99	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.13		0.018	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	38		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	69		0.25	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	44		0.99	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-7-1.0 Laboratory Sample ID : 305654-016

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	21	Y	5.0	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	130		25	mg/Kg	As Recd	5.000	EPA 8015B	EPA 3550C
Aroclor-1254	33		12	ug/Kg	As Recd	1.000	EPA 8082	EPA 3546
Aroclor-1260	26		12	ug/Kg	As Recd	1.000	EPA 8082	EPA 3546
Arsenic	4.9		1.4	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	93		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.34		0.096	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.75		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	50		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	12		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	51		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	58		0.96	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	2.2		0.16	mg/Kg	As Recd	10.00	EPA 7471A	METHOD
Nickel	37		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	57		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	130		0.96	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : SB-7-3.0 Laboratory Sample ID : 305654-017

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	11	Y	2.0	mg/Kg	As Recd	2.000	EPA 8015B	EPA 3550C
Motor Oil C24-C36	68		10	mg/Kg	As Recd	2.000	EPA 8015B	EPA 3550C
Arsenic	6.3		1.4	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	110		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.45		0.095	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.49		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	61		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	7.5		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	35		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	66		0.95	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.044		0.017	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Molybdenum	0.89		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	50		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	51		0.24	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	110		0.95	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Y = Sample exhibits chromatographic pattern which does not resemble standard

Gasoline by GC/FID (5035 Prep)

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	266327
Units:	mg/Kg	Sampled:	12/06/18
Basis:	as received	Received:	12/06/18
Diln Fac:	1.000	Analyzed:	12/20/18

Field ID: SB-1-3.0 Lab ID: 305654-002
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.21

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	118	64-134

Field ID: SB-2-3.0 Lab ID: 305654-005
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.14

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	123	64-134

Field ID: SB-3-3.0 Lab ID: 305654-008
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.21

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	119	64-134

Field ID: SB-4-3.0 Lab ID: 305654-011
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.14

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	122	64-134

Field ID: SB-5-3.0 Lab ID: 305654-013
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	123	64-134

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Gasoline by GC/FID (5035 Prep)

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	266327
Units:	mg/Kg	Sampled:	12/06/18
Basis:	as received	Received:	12/06/18
Diln Fac:	1.000	Analyzed:	12/20/18

Field ID: SB-6-3.0 Lab ID: 305654-015
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.15

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	121	64-134

Field ID: SB-7-3.0 Lab ID: 305654-017
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.17

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	121	64-134

Type: BLANK Lab ID: QC959013

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	64-134

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	266327
Units:	mg/Kg	Analyzed:	12/20/18
Diln Fac:	1.000		

Type: BS   Lab ID: QC959014

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.085	109	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	89	64-134

Type: BSD   Lab ID: QC959015

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1.000	1.080 b	108	80-120	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	88	64-134

b= See narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0285.001.002	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	305927-001	Batch#:	266327
Matrix:	Soil	Sampled:	12/18/18
Units:	mg/Kg	Received:	12/18/18
Basis:	as received	Analyzed:	12/21/18

Type: MS Lab ID: QC959031

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<0.2952	10.87	11.66 b	107	46-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	120	64-134

Type: MSD Lab ID: QC959032

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.31	10.52 b	102	46-120	5	33

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	116	64-134

b= See narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3550C
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18
Basis:	as received	Prepared:	12/10/18
Batch#:	266035	Analyzed:	12/11/18

Field ID: SB-1-1.0 Lab ID: 305654-001
Type: SAMPLE Diln Fac: 10.00

Analyte	Result	RL
Diesel C10-C24	29 Y	10
Motor Oil C24-C36	350	50

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-1-3.0 Lab ID: 305654-002
Type: SAMPLE Diln Fac: 10.00

Analyte	Result	RL
Diesel C10-C24	100 Y	10
Motor Oil C24-C36	720	50

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-2-1.0 Lab ID: 305654-004
Type: SAMPLE Diln Fac: 10.00

Analyte	Result	RL
Diesel C10-C24	22 Y	10
Motor Oil C24-C36	240	50

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-2-3.0 Lab ID: 305654-005
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
Diesel C10-C24	3.9 Y	1.0
Motor Oil C24-C36	16	5.0

Surrogate	%REC	Limits
o-Terphenyl	110	59-130

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3550C
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18
Basis:	as received	Prepared:	12/10/18
Batch#:	266035	Analyzed:	12/11/18

Field ID: SB-3-1.0 Lab ID: 305654-007
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
Diesel C10-C24	3.6 Y	1.0
Motor Oil C24-C36	37	5.0

Surrogate	%REC	Limits
o-Terphenyl	101	59-130

Field ID: SB-3-3.0 Lab ID: 305654-008
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
Diesel C10-C24	1.2 Y	1.0
Motor Oil C24-C36	9.0	5.0

Surrogate	%REC	Limits
o-Terphenyl	91	59-130

Field ID: SB-4-1.0 Lab ID: 305654-010
Type: SAMPLE Diln Fac: 5.000

Analyte	Result	RL
Diesel C10-C24	11 Y	5.0
Motor Oil C24-C36	160	25

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-4-3.0 Lab ID: 305654-011
Type: SAMPLE Diln Fac: 5.000

Analyte	Result	RL
Diesel C10-C24	7.7 Y	5.0
Motor Oil C24-C36	100	25

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3550C
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18
Basis:	as received	Prepared:	12/10/18
Batch#:	266035	Analyzed:	12/11/18

Field ID: SB-5-1.0 Lab ID: 305654-012
Type: SAMPLE Diln Fac: 20.00

Analyte	Result	RL
Diesel C10-C24	44 Y	20
Motor Oil C24-C36	660	100

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-5-3.0 Lab ID: 305654-013
Type: SAMPLE Diln Fac: 5.000

Analyte	Result	RL
Diesel C10-C24	9.6 Y	5.0
Motor Oil C24-C36	120	25

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-6-1.0 Lab ID: 305654-014
Type: SAMPLE Diln Fac: 10.00

Analyte	Result	RL
Diesel C10-C24	77 Y	10
Motor Oil C24-C36	1,100	50

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-6-3.0 Lab ID: 305654-015
Type: SAMPLE Diln Fac: 5.000

Analyte	Result	RL
Diesel C10-C24	41 Y	5.0
Motor Oil C24-C36	340	25

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3550C
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18
Basis:	as received	Prepared:	12/10/18
Batch#:	266035	Analyzed:	12/11/18

Field ID: SB-7-1.0 Lab ID: 305654-016
Type: SAMPLE Diln Fac: 5.000

Analyte	Result	RL
Diesel C10-C24	21 Y	5.0
Motor Oil C24-C36	130	25

Surrogate	%REC	Limits
o-Terphenyl	DO	59-130

Field ID: SB-7-3.0 Lab ID: 305654-017
Type: SAMPLE Diln Fac: 2.000

Analyte	Result	RL
Diesel C10-C24	11 Y	2.0
Motor Oil C24-C36	68	10

Surrogate	%REC	Limits
o-Terphenyl	97	59-130

Type: BLANK Diln Fac: 1.000
Lab ID: QC957810

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	101	59-130

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

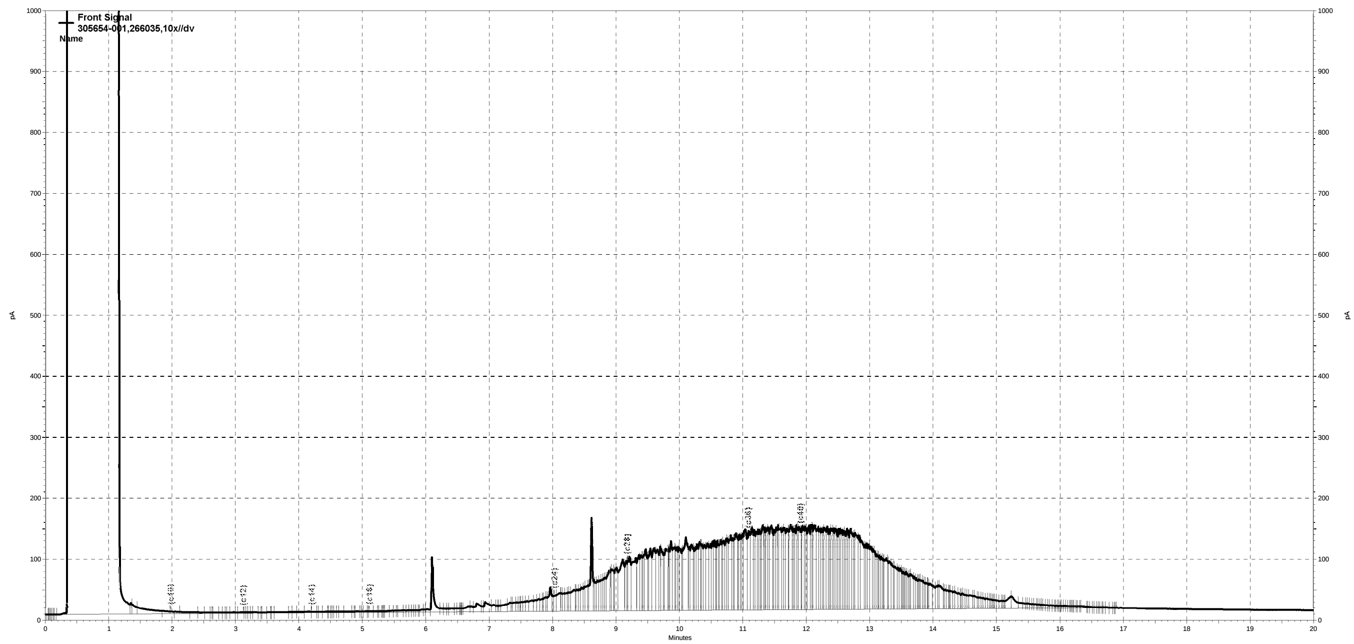
Batch QC Report

Total Extractable Hydrocarbons

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3550C
Project#:	0285.001.002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC957811	Batch#:	266035
Matrix:	Soil	Prepared:	12/10/18
Units:	mg/Kg	Analyzed:	12/11/18

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	50.00	55.26	111	56-137

Surrogate	%REC	Limits
o-Terphenyl	107	59-130



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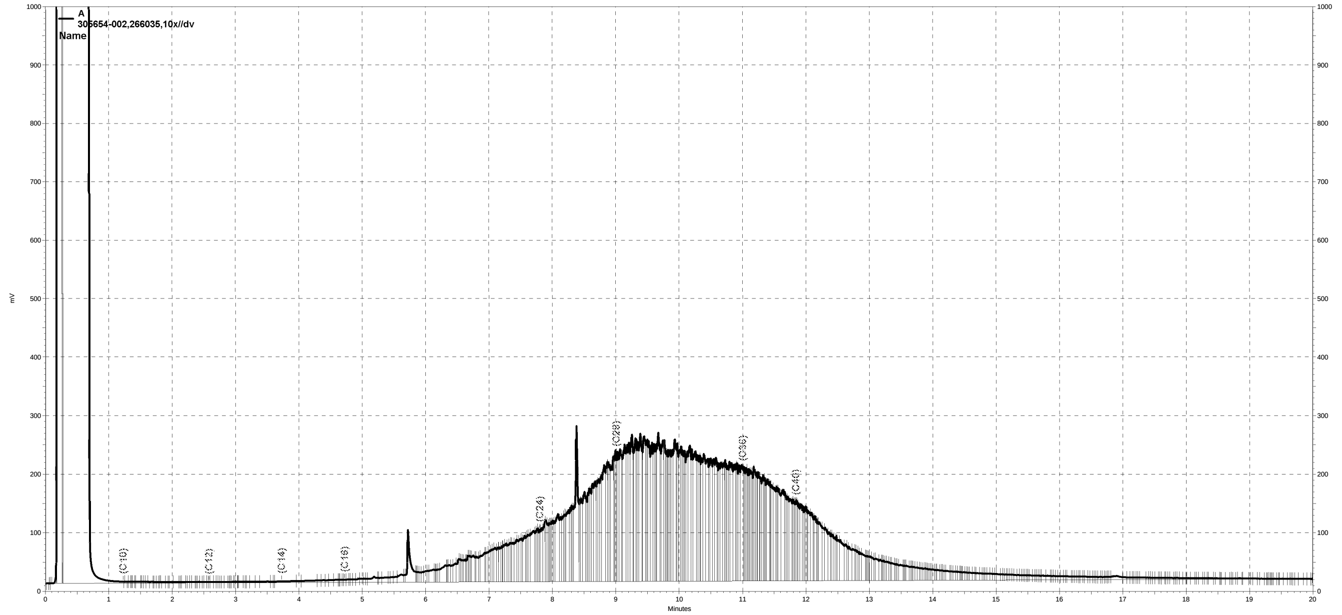

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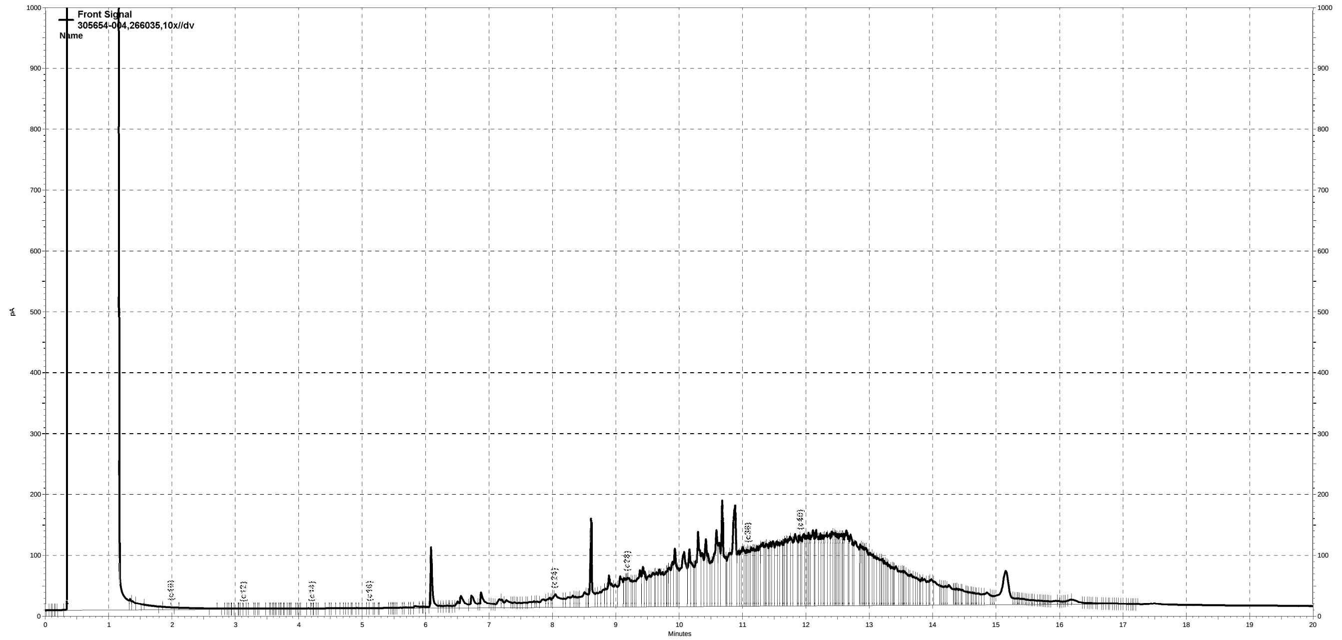

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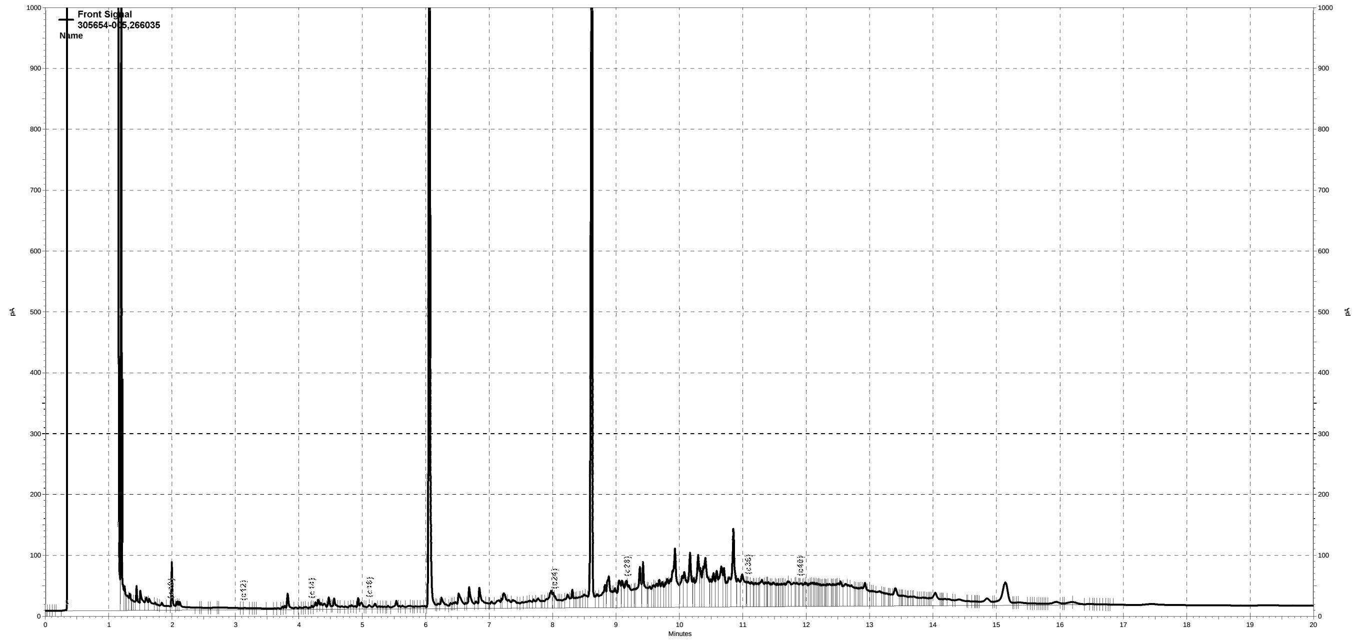

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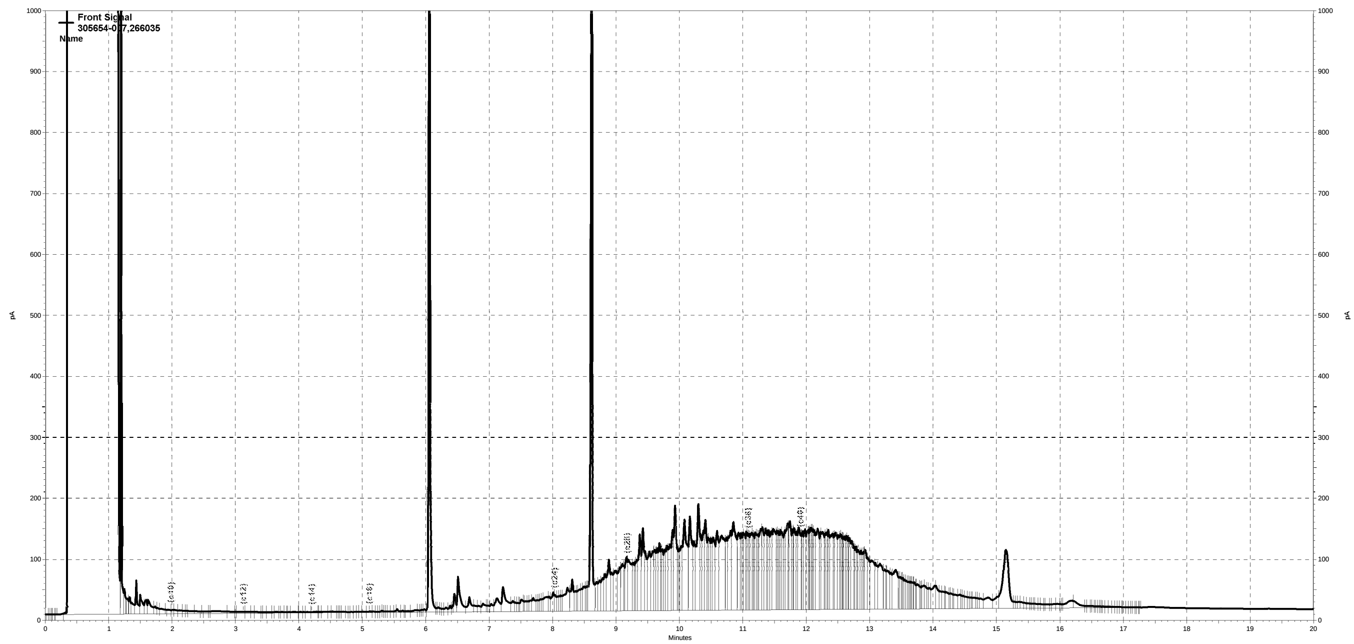

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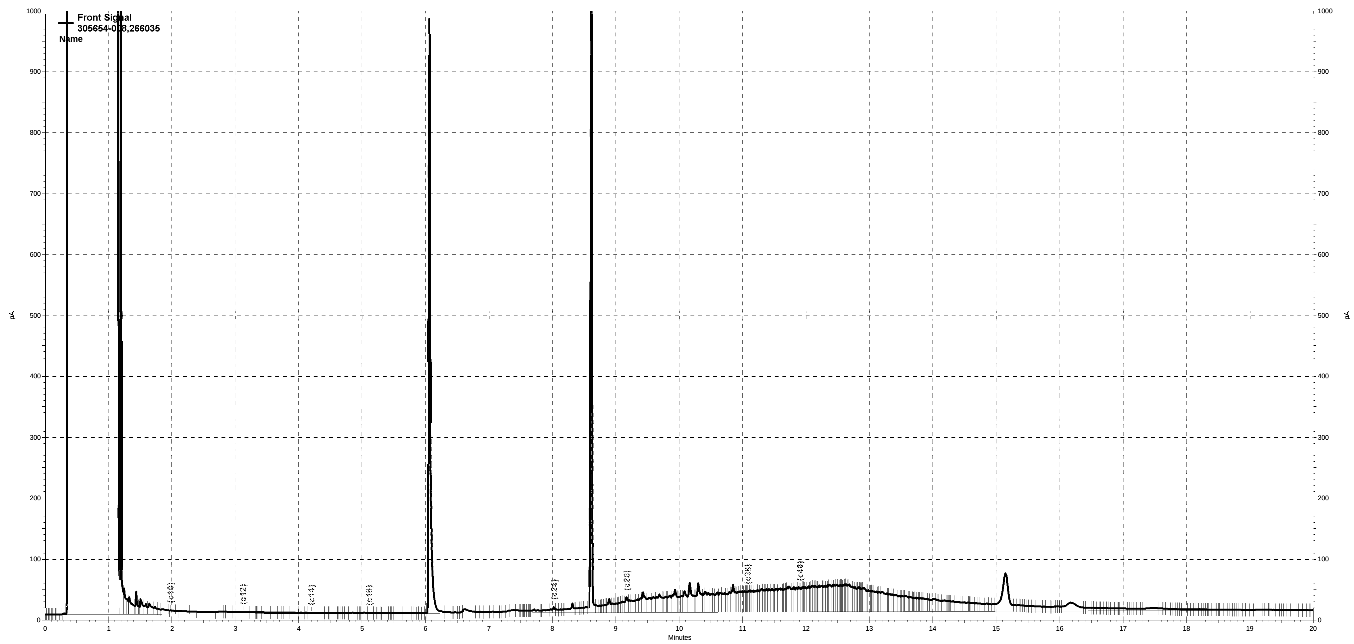

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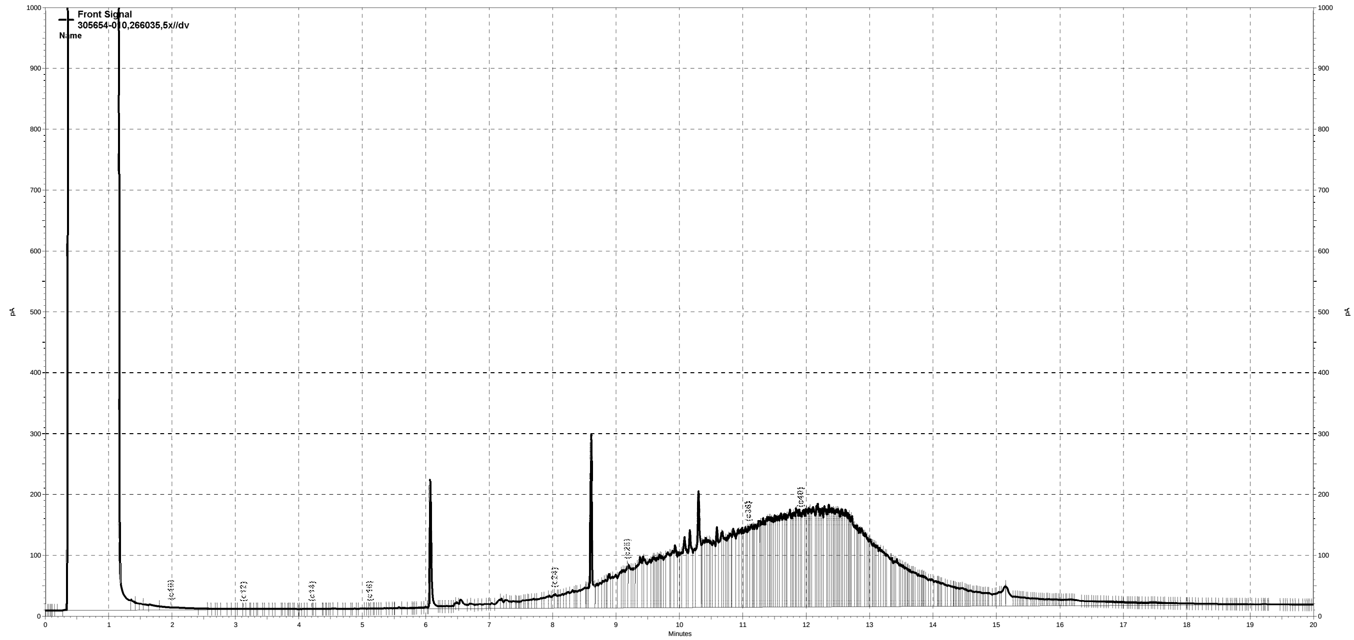

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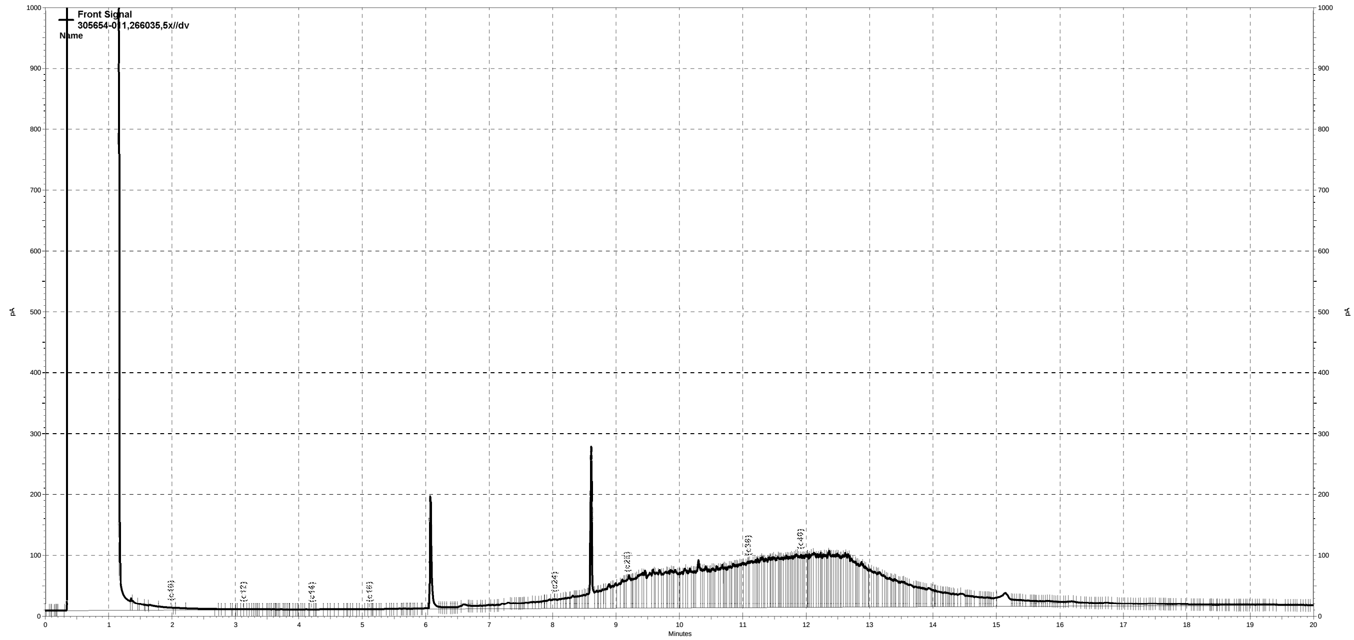

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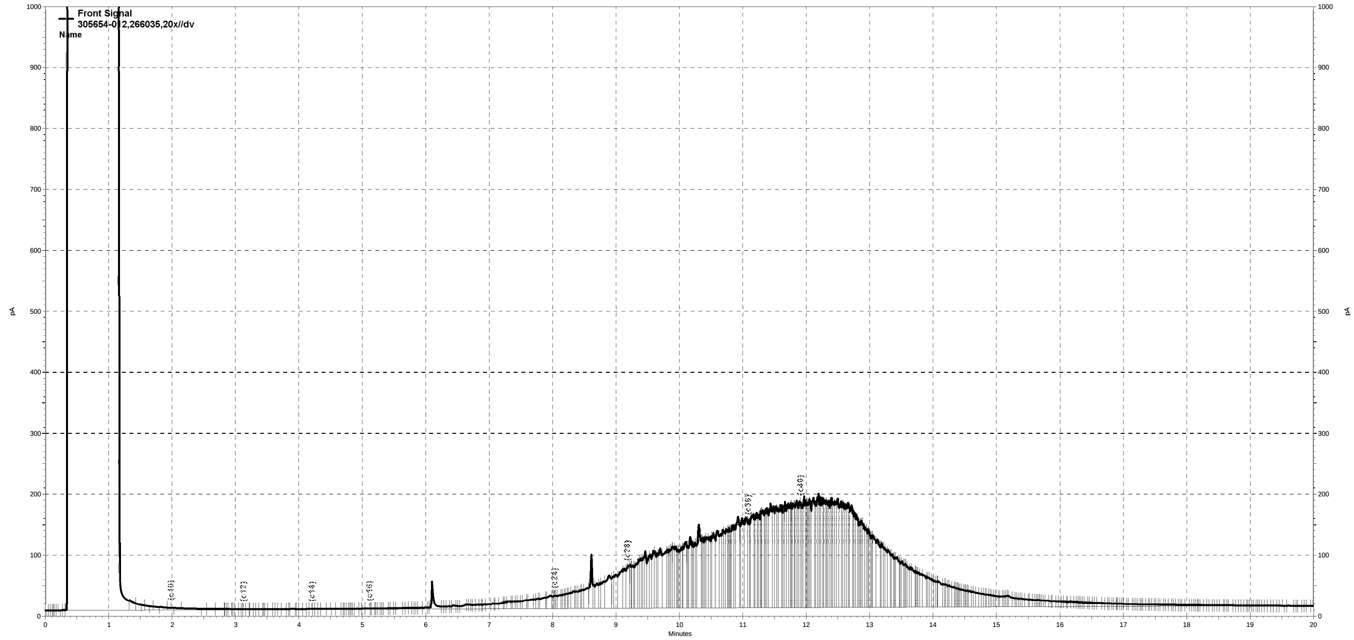

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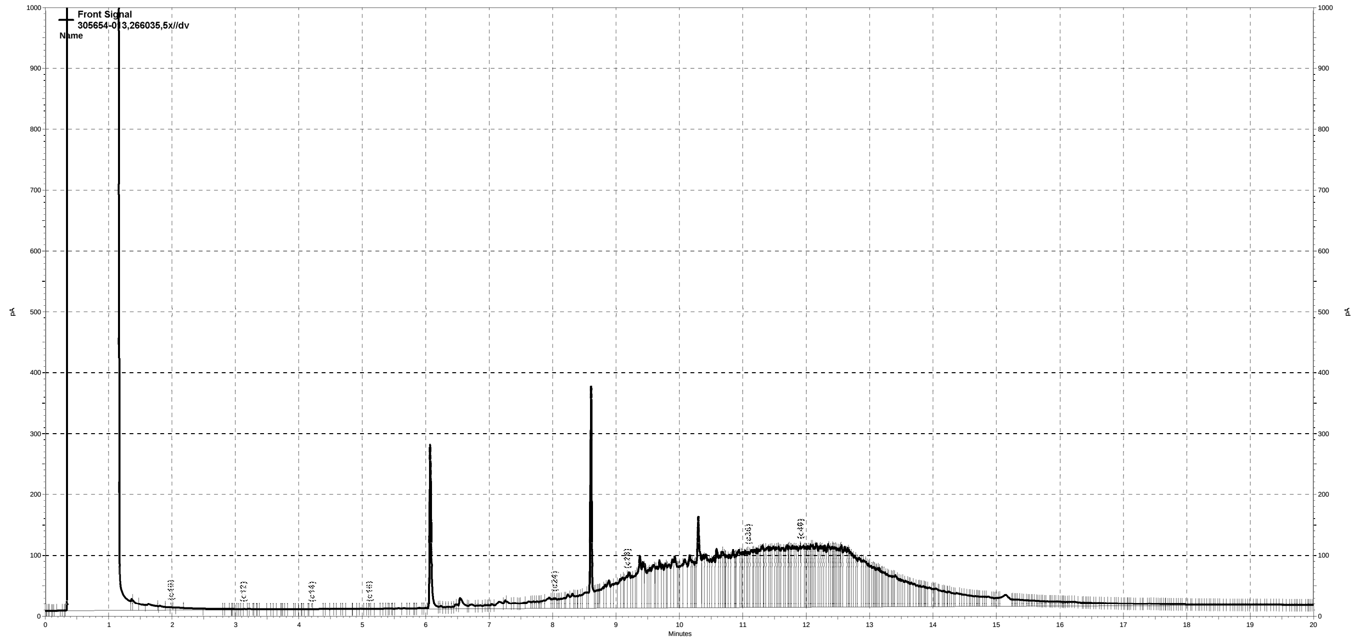

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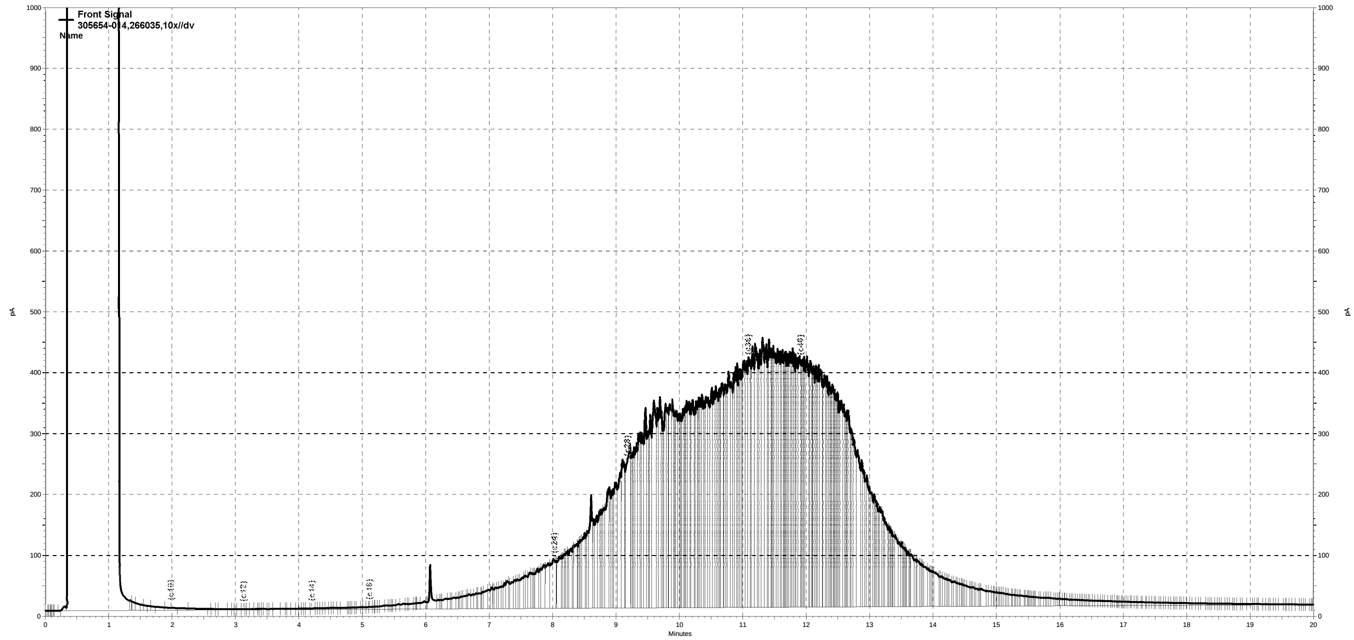

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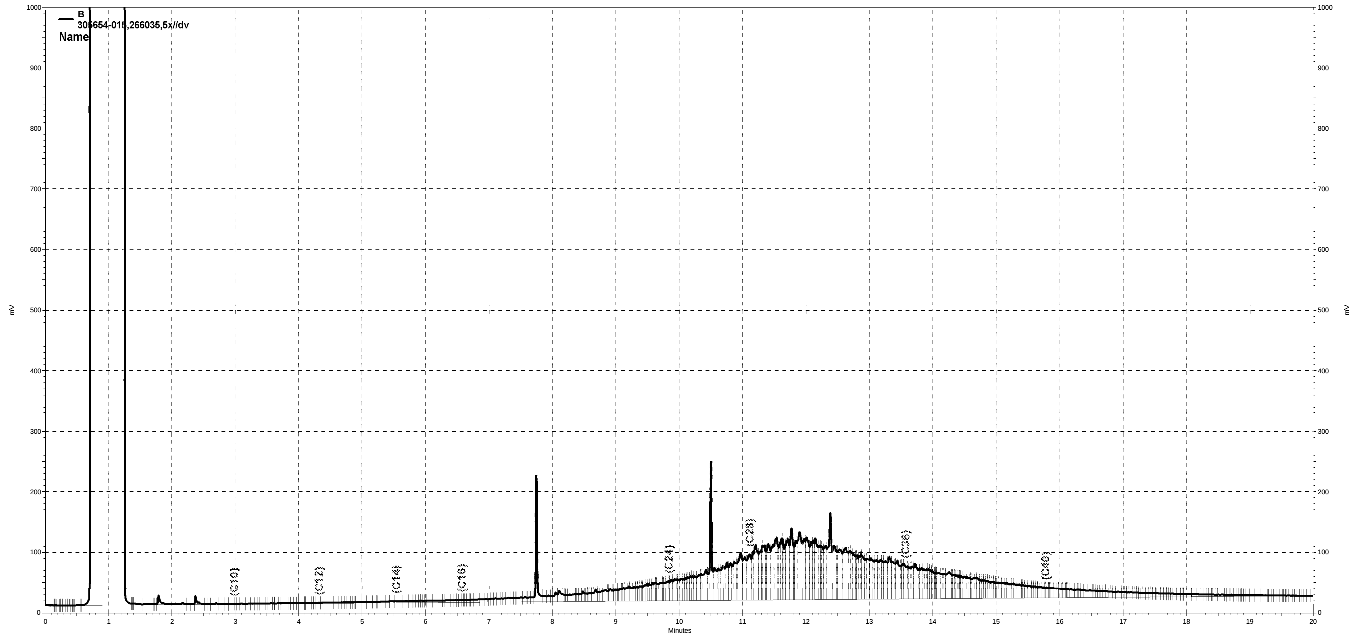

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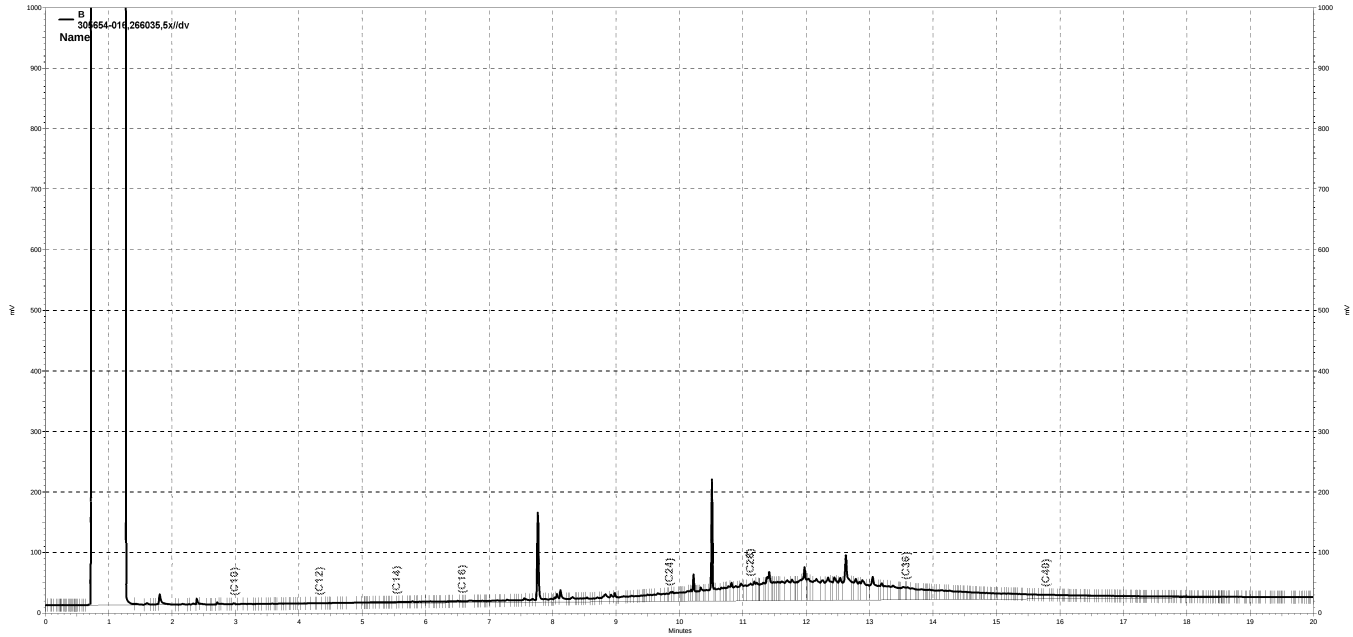

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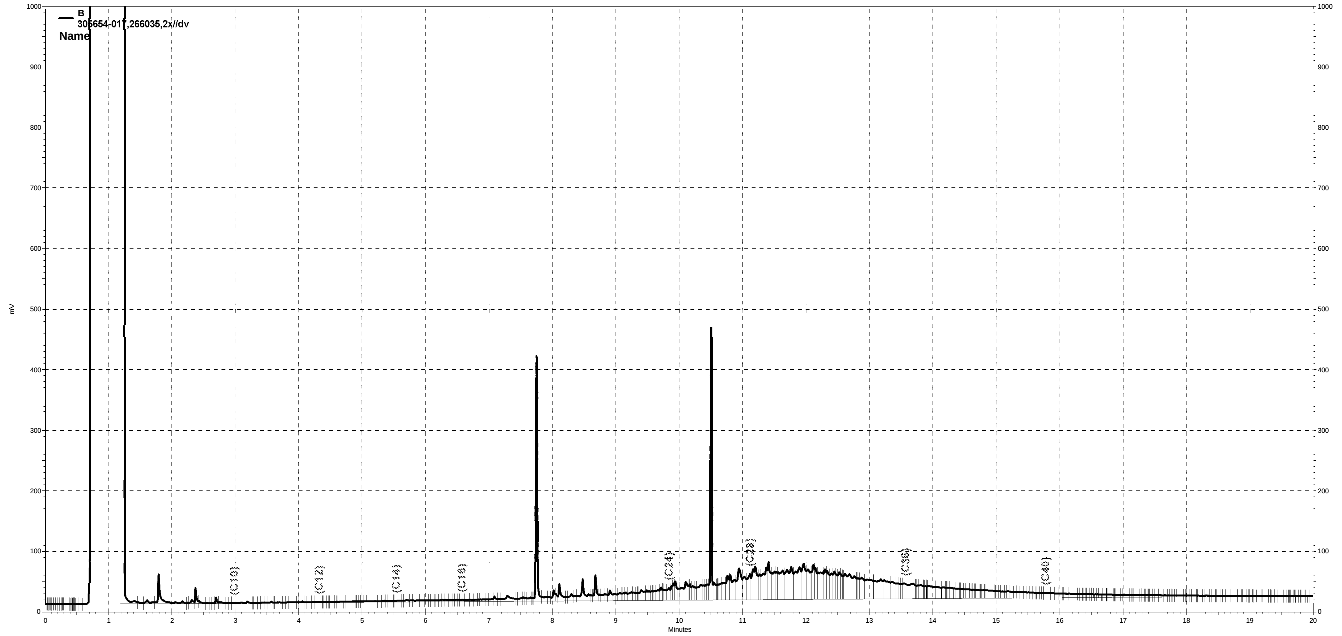

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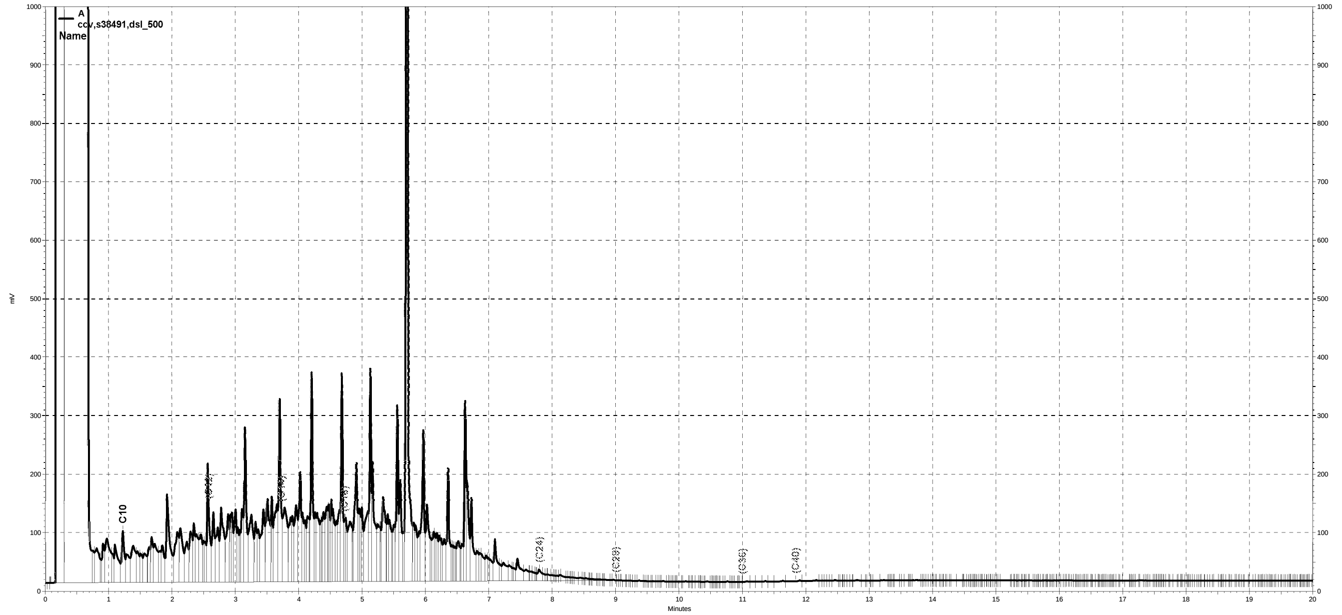

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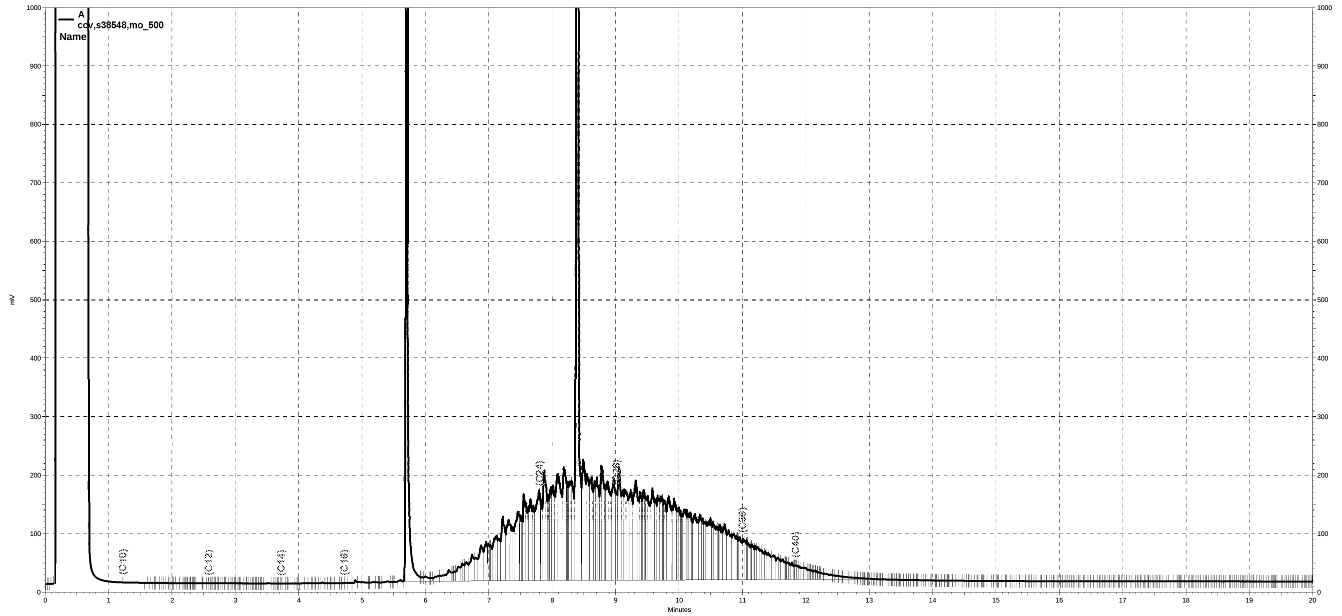

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ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-1-3.0	Diln Fac:	1.354
Lab ID:	305654-002	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/19/18

Analyte	Result	RL
Freon 12	ND	14
Chloromethane	ND	14
Vinyl Chloride	ND	14
Bromomethane	ND	14
Chloroethane	ND	14
Trichlorofluoromethane	ND	6.8
Acetone	28	27
Freon 113	ND	6.8
1,1-Dichloroethene	ND	6.8
Methylene Chloride	ND	27
Carbon Disulfide	ND	6.8
MTBE	ND	6.8
trans-1,2-Dichloroethene	ND	6.8
Vinyl Acetate	ND	68
1,1-Dichloroethane	ND	6.8
2-Butanone	ND	14
cis-1,2-Dichloroethene	ND	6.8
2,2-Dichloropropane	ND	6.8
Chloroform	ND	6.8
Bromochloromethane	ND	6.8
1,1,1-Trichloroethane	ND	6.8
1,1-Dichloropropene	ND	6.8
Carbon Tetrachloride	ND	6.8
1,2-Dichloroethane	ND	6.8
Benzene	ND	6.8
Trichloroethene	ND	6.8
1,2-Dichloropropane	ND	6.8
Bromodichloromethane	ND	6.8
Dibromomethane	ND	6.8
4-Methyl-2-Pentanone	ND	14
cis-1,3-Dichloropropene	ND	6.8
Toluene	ND	6.8
trans-1,3-Dichloropropene	ND	6.8
1,1,2-Trichloroethane	ND	6.8
2-Hexanone	ND	14
1,3-Dichloropropane	ND	6.8
Tetrachloroethene	ND	6.8

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-1-3.0	Diln Fac:	1.354
Lab ID:	305654-002	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/19/18

Analyte	Result	RL
Dibromochloromethane	ND	6.8
1,2-Dibromoethane	ND	6.8
Chlorobenzene	ND	6.8
1,1,1,2-Tetrachloroethane	ND	6.8
Ethylbenzene	ND	6.8
m,p-Xylenes	ND	6.8
o-Xylene	ND	6.8
Styrene	ND	6.8
Bromoform	ND	6.8
Isopropylbenzene	ND	6.8
1,1,2,2-Tetrachloroethane	ND	6.8
1,2,3-Trichloropropane	ND	6.8
Propylbenzene	ND	6.8
Bromobenzene	ND	6.8
1,3,5-Trimethylbenzene	ND	6.8
2-Chlorotoluene	ND	6.8
4-Chlorotoluene	ND	6.8
tert-Butylbenzene	ND	6.8
1,2,4-Trimethylbenzene	ND	6.8
sec-Butylbenzene	ND	6.8
para-Isopropyl Toluene	ND	6.8
1,3-Dichlorobenzene	ND	6.8
1,4-Dichlorobenzene	ND	6.8
n-Butylbenzene	ND	6.8
1,2-Dichlorobenzene	ND	6.8
1,2-Dibromo-3-Chloropropane	ND	6.8
1,2,4-Trichlorobenzene	ND	6.8
Hexachlorobutadiene	ND	6.8
Naphthalene	ND	6.8
1,2,3-Trichlorobenzene	ND	6.8

Surrogate	%REC	Limits
Dibromofluoromethane	105	79-127
1,2-Dichloroethane-d4	110	73-139
Toluene-d8	103	80-120
Bromofluorobenzene	104	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-2-3.0	Diln Fac:	0.7123
Lab ID:	305654-005	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/19/18

Analyte	Result	RL
Freon 12	ND	7.1
Chloromethane	ND	7.1
Vinyl Chloride	ND	7.1
Bromomethane	ND	7.1
Chloroethane	ND	7.1
Trichlorofluoromethane	ND	3.6
Acetone	19	14
Freon 113	ND	3.6
1,1-Dichloroethene	ND	3.6
Methylene Chloride	ND	14
Carbon Disulfide	ND	3.6
MTBE	ND	3.6
trans-1,2-Dichloroethene	ND	3.6
Vinyl Acetate	ND	36
1,1-Dichloroethane	ND	3.6
2-Butanone	ND	7.1
cis-1,2-Dichloroethene	ND	3.6
2,2-Dichloropropane	ND	3.6
Chloroform	ND	3.6
Bromochloromethane	ND	3.6
1,1,1-Trichloroethane	ND	3.6
1,1-Dichloropropene	ND	3.6
Carbon Tetrachloride	ND	3.6
1,2-Dichloroethane	ND	3.6
Benzene	ND	3.6
Trichloroethene	ND	3.6
1,2-Dichloropropane	ND	3.6
Bromodichloromethane	ND	3.6
Dibromomethane	ND	3.6
4-Methyl-2-Pentanone	ND	7.1
cis-1,3-Dichloropropene	ND	3.6
Toluene	ND	3.6
trans-1,3-Dichloropropene	ND	3.6
1,1,2-Trichloroethane	ND	3.6
2-Hexanone	ND	7.1
1,3-Dichloropropane	ND	3.6
Tetrachloroethene	ND	3.6

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-2-3.0	Diln Fac:	0.7123
Lab ID:	305654-005	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/19/18

Analyte	Result	RL
Dibromochloromethane	ND	3.6
1,2-Dibromoethane	ND	3.6
Chlorobenzene	ND	3.6
1,1,1,2-Tetrachloroethane	ND	3.6
Ethylbenzene	ND	3.6
m,p-Xylenes	ND	3.6
o-Xylene	ND	3.6
Styrene	ND	3.6
Bromoform	ND	3.6
Isopropylbenzene	ND	3.6
1,1,2,2-Tetrachloroethane	ND	3.6
1,2,3-Trichloropropane	ND	3.6
Propylbenzene	ND	3.6
Bromobenzene	ND	3.6
1,3,5-Trimethylbenzene	ND	3.6
2-Chlorotoluene	ND	3.6
4-Chlorotoluene	ND	3.6
tert-Butylbenzene	ND	3.6
1,2,4-Trimethylbenzene	ND	3.6
sec-Butylbenzene	ND	3.6
para-Isopropyl Toluene	ND	3.6
1,3-Dichlorobenzene	ND	3.6
1,4-Dichlorobenzene	ND	3.6
n-Butylbenzene	ND	3.6
1,2-Dichlorobenzene	ND	3.6
1,2-Dibromo-3-Chloropropane	ND	3.6
1,2,4-Trichlorobenzene	ND	3.6
Hexachlorobutadiene	ND	3.6
Naphthalene	ND	3.6
1,2,3-Trichlorobenzene	ND	3.6

Surrogate	%REC	Limits
Dibromofluoromethane	107	79-127
1,2-Dichloroethane-d4	113	73-139
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-3-3.0	Diln Fac:	1.073
Lab ID:	305654-008	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/19/18

Analyte	Result	RL
Freon 12	ND	11
Chloromethane	ND	11
Vinyl Chloride	ND	11
Bromomethane	ND	11
Chloroethane	ND	11
Trichlorofluoromethane	ND	5.4
Acetone	30	21
Freon 113	ND	5.4
1,1-Dichloroethene	ND	5.4
Methylene Chloride	ND	21
Carbon Disulfide	ND	5.4
MTBE	ND	5.4
trans-1,2-Dichloroethene	ND	5.4
Vinyl Acetate	ND	54
1,1-Dichloroethane	ND	5.4
2-Butanone	ND	11
cis-1,2-Dichloroethene	ND	5.4
2,2-Dichloropropane	ND	5.4
Chloroform	ND	5.4
Bromochloromethane	ND	5.4
1,1,1-Trichloroethane	ND	5.4
1,1-Dichloropropene	ND	5.4
Carbon Tetrachloride	ND	5.4
1,2-Dichloroethane	ND	5.4
Benzene	ND	5.4
Trichloroethene	ND	5.4
1,2-Dichloropropane	ND	5.4
Bromodichloromethane	ND	5.4
Dibromomethane	ND	5.4
4-Methyl-2-Pentanone	ND	11
cis-1,3-Dichloropropene	ND	5.4
Toluene	ND	5.4
trans-1,3-Dichloropropene	ND	5.4
1,1,2-Trichloroethane	ND	5.4
2-Hexanone	ND	11
1,3-Dichloropropane	ND	5.4
Tetrachloroethene	ND	5.4

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-3-3.0	Diln Fac:	1.073
Lab ID:	305654-008	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/19/18

Analyte	Result	RL
Dibromochloromethane	ND	5.4
1,2-Dibromoethane	ND	5.4
Chlorobenzene	ND	5.4
1,1,1,2-Tetrachloroethane	ND	5.4
Ethylbenzene	ND	5.4
m,p-Xylenes	ND	5.4
o-Xylene	ND	5.4
Styrene	ND	5.4
Bromoform	ND	5.4
Isopropylbenzene	ND	5.4
1,1,2,2-Tetrachloroethane	ND	5.4
1,2,3-Trichloropropane	ND	5.4
Propylbenzene	ND	5.4
Bromobenzene	ND	5.4
1,3,5-Trimethylbenzene	ND	5.4
2-Chlorotoluene	ND	5.4
4-Chlorotoluene	ND	5.4
tert-Butylbenzene	ND	5.4
1,2,4-Trimethylbenzene	ND	5.4
sec-Butylbenzene	ND	5.4
para-Isopropyl Toluene	ND	5.4
1,3-Dichlorobenzene	ND	5.4
1,4-Dichlorobenzene	ND	5.4
n-Butylbenzene	ND	5.4
1,2-Dichlorobenzene	ND	5.4
1,2-Dibromo-3-Chloropropane	ND	5.4
1,2,4-Trichlorobenzene	ND	5.4
Hexachlorobutadiene	ND	5.4
Naphthalene	ND	5.4
1,2,3-Trichlorobenzene	ND	5.4

Surrogate	%REC	Limits
Dibromofluoromethane	107	79-127
1,2-Dichloroethane-d4	112	73-139
Toluene-d8	101	80-120
Bromofluorobenzene	102	80-127

ND= Not Detected
RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-4-3.0	Diln Fac:	0.8278
Lab ID:	305654-011	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Freon 12	ND	8.3
Chloromethane	ND	8.3
Vinyl Chloride	ND	8.3
Bromomethane	ND	8.3
Chloroethane	ND	8.3
Trichlorofluoromethane	ND	4.1
Acetone	ND	17
Freon 113	ND	4.1
1,1-Dichloroethene	ND	4.1
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.1
MTBE	ND	4.1
trans-1,2-Dichloroethene	ND	4.1
Vinyl Acetate	ND	41
1,1-Dichloroethane	ND	4.1
2-Butanone	ND	8.3
cis-1,2-Dichloroethene	ND	4.1
2,2-Dichloropropane	ND	4.1
Chloroform	ND	4.1
Bromochloromethane	ND	4.1
1,1,1-Trichloroethane	ND	4.1
1,1-Dichloropropene	ND	4.1
Carbon Tetrachloride	ND	4.1
1,2-Dichloroethane	ND	4.1
Benzene	ND	4.1
Trichloroethene	ND	4.1
1,2-Dichloropropane	ND	4.1
Bromodichloromethane	ND	4.1
Dibromomethane	ND	4.1
4-Methyl-2-Pentanone	ND	8.3
cis-1,3-Dichloropropene	ND	4.1
Toluene	ND	4.1
trans-1,3-Dichloropropene	ND	4.1
1,1,2-Trichloroethane	ND	4.1
2-Hexanone	ND	8.3
1,3-Dichloropropane	ND	4.1
Tetrachloroethene	ND	4.1

ND= Not Detected
RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-4-3.0	Diln Fac:	0.8278
Lab ID:	305654-011	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Dibromochloromethane	ND	4.1
1,2-Dibromoethane	ND	4.1
Chlorobenzene	ND	4.1
1,1,1,2-Tetrachloroethane	ND	4.1
Ethylbenzene	ND	4.1
m,p-Xylenes	ND	4.1
o-Xylene	ND	4.1
Styrene	ND	4.1
Bromoform	ND	4.1
Isopropylbenzene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	4.1
1,2,3-Trichloropropane	ND	4.1
Propylbenzene	ND	4.1
Bromobenzene	ND	4.1
1,3,5-Trimethylbenzene	ND	4.1
2-Chlorotoluene	ND	4.1
4-Chlorotoluene	ND	4.1
tert-Butylbenzene	ND	4.1
1,2,4-Trimethylbenzene	ND	4.1
sec-Butylbenzene	ND	4.1
para-Isopropyl Toluene	ND	4.1
1,3-Dichlorobenzene	ND	4.1
1,4-Dichlorobenzene	ND	4.1
n-Butylbenzene	ND	4.1
1,2-Dichlorobenzene	ND	4.1
1,2-Dibromo-3-Chloropropane	ND	4.1
1,2,4-Trichlorobenzene	ND	4.1
Hexachlorobutadiene	ND	4.1
Naphthalene	ND	4.1
1,2,3-Trichlorobenzene	ND	4.1

Surrogate	%REC	Limits
Dibromofluoromethane	106	79-127
1,2-Dichloroethane-d4	112	73-139
Toluene-d8	103	80-120
Bromofluorobenzene	103	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-5-3.0	Diln Fac:	1.033
Lab ID:	305654-013	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.2
Acetone	ND	21
Freon 113	ND	5.2
1,1-Dichloroethene	ND	5.2
Methylene Chloride	ND	21
Carbon Disulfide	ND	5.2
MTBE	ND	5.2
trans-1,2-Dichloroethene	ND	5.2
Vinyl Acetate	ND	52
1,1-Dichloroethane	ND	5.2
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.2
2,2-Dichloropropane	ND	5.2
Chloroform	ND	5.2
Bromochloromethane	ND	5.2
1,1,1-Trichloroethane	ND	5.2
1,1-Dichloropropene	ND	5.2
Carbon Tetrachloride	ND	5.2
1,2-Dichloroethane	ND	5.2
Benzene	ND	5.2
Trichloroethene	ND	5.2
1,2-Dichloropropane	ND	5.2
Bromodichloromethane	ND	5.2
Dibromomethane	ND	5.2
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.2
Toluene	ND	5.2
trans-1,3-Dichloropropene	ND	5.2
1,1,2-Trichloroethane	ND	5.2
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.2
Tetrachloroethene	ND	5.2

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-5-3.0	Diln Fac:	1.033
Lab ID:	305654-013	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Dibromochloromethane	ND	5.2
1,2-Dibromoethane	ND	5.2
Chlorobenzene	ND	5.2
1,1,1,2-Tetrachloroethane	ND	5.2
Ethylbenzene	ND	5.2
m,p-Xylenes	ND	5.2
o-Xylene	ND	5.2
Styrene	ND	5.2
Bromoform	ND	5.2
Isopropylbenzene	ND	5.2
1,1,2,2-Tetrachloroethane	ND	5.2
1,2,3-Trichloropropane	ND	5.2
Propylbenzene	ND	5.2
Bromobenzene	ND	5.2
1,3,5-Trimethylbenzene	ND	5.2
2-Chlorotoluene	ND	5.2
4-Chlorotoluene	ND	5.2
tert-Butylbenzene	ND	5.2
1,2,4-Trimethylbenzene	ND	5.2
sec-Butylbenzene	ND	5.2
para-Isopropyl Toluene	ND	5.2
1,3-Dichlorobenzene	ND	5.2
1,4-Dichlorobenzene	ND	5.2
n-Butylbenzene	ND	5.2
1,2-Dichlorobenzene	ND	5.2
1,2-Dibromo-3-Chloropropane	ND	5.2
1,2,4-Trichlorobenzene	ND	5.2
Hexachlorobutadiene	ND	5.2
Naphthalene	ND	5.2
1,2,3-Trichlorobenzene	ND	5.2

Surrogate	%REC	Limits
Dibromofluoromethane	107	79-127
1,2-Dichloroethane-d4	113	73-139
Toluene-d8	102	80-120
Bromofluorobenzene	104	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-6-3.0	Diln Fac:	0.8576
Lab ID:	305654-015	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Freon 12	ND	8.6
Chloromethane	ND	8.6
Vinyl Chloride	ND	8.6
Bromomethane	ND	8.6
Chloroethane	ND	8.6
Trichlorofluoromethane	ND	4.3
Acetone	32	17
Freon 113	ND	4.3
1,1-Dichloroethene	ND	4.3
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.3
MTBE	ND	4.3
trans-1,2-Dichloroethene	ND	4.3
Vinyl Acetate	ND	43
1,1-Dichloroethane	ND	4.3
2-Butanone	ND	8.6
cis-1,2-Dichloroethene	ND	4.3
2,2-Dichloropropane	ND	4.3
Chloroform	ND	4.3
Bromochloromethane	ND	4.3
1,1,1-Trichloroethane	ND	4.3
1,1-Dichloropropene	ND	4.3
Carbon Tetrachloride	ND	4.3
1,2-Dichloroethane	ND	4.3
Benzene	ND	4.3
Trichloroethene	ND	4.3
1,2-Dichloropropane	ND	4.3
Bromodichloromethane	ND	4.3
Dibromomethane	ND	4.3
4-Methyl-2-Pentanone	ND	8.6
cis-1,3-Dichloropropene	ND	4.3
Toluene	ND	4.3
trans-1,3-Dichloropropene	ND	4.3
1,1,2-Trichloroethane	ND	4.3
2-Hexanone	ND	8.6
1,3-Dichloropropane	ND	4.3
Tetrachloroethene	ND	4.3

ND= Not Detected
RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-6-3.0	Diln Fac:	0.8576
Lab ID:	305654-015	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Dibromochloromethane	ND	4.3
1,2-Dibromoethane	ND	4.3
Chlorobenzene	ND	4.3
1,1,1,2-Tetrachloroethane	ND	4.3
Ethylbenzene	ND	4.3
m,p-Xylenes	ND	4.3
o-Xylene	ND	4.3
Styrene	ND	4.3
Bromoform	ND	4.3
Isopropylbenzene	ND	4.3
1,1,2,2-Tetrachloroethane	ND	4.3
1,2,3-Trichloropropane	ND	4.3
Propylbenzene	ND	4.3
Bromobenzene	ND	4.3
1,3,5-Trimethylbenzene	ND	4.3
2-Chlorotoluene	ND	4.3
4-Chlorotoluene	ND	4.3
tert-Butylbenzene	ND	4.3
1,2,4-Trimethylbenzene	ND	4.3
sec-Butylbenzene	ND	4.3
para-Isopropyl Toluene	ND	4.3
1,3-Dichlorobenzene	ND	4.3
1,4-Dichlorobenzene	ND	4.3
n-Butylbenzene	ND	4.3
1,2-Dichlorobenzene	ND	4.3
1,2-Dibromo-3-Chloropropane	ND	4.3
1,2,4-Trichlorobenzene	ND	4.3
Hexachlorobutadiene	ND	4.3
Naphthalene	ND	4.3
1,2,3-Trichlorobenzene	ND	4.3

Surrogate	%REC	Limits
Dibromofluoromethane	105	79-127
1,2-Dichloroethane-d4	113	73-139
Toluene-d8	102	80-120
Bromofluorobenzene	104	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-7-3.0	Diln Fac:	0.7386
Lab ID:	305654-017	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Freon 12	ND	7.4
Chloromethane	ND	7.4
Vinyl Chloride	ND	7.4
Bromomethane	ND	7.4
Chloroethane	ND	7.4
Trichlorofluoromethane	ND	3.7
Acetone	ND	15
Freon 113	ND	3.7
1,1-Dichloroethene	ND	3.7
Methylene Chloride	ND	15
Carbon Disulfide	ND	3.7
MTBE	ND	3.7
trans-1,2-Dichloroethene	ND	3.7
Vinyl Acetate	ND	37
1,1-Dichloroethane	ND	3.7
2-Butanone	ND	7.4
cis-1,2-Dichloroethene	ND	3.7
2,2-Dichloropropane	ND	3.7
Chloroform	ND	3.7
Bromochloromethane	ND	3.7
1,1,1-Trichloroethane	ND	3.7
1,1-Dichloropropene	ND	3.7
Carbon Tetrachloride	ND	3.7
1,2-Dichloroethane	ND	3.7
Benzene	ND	3.7
Trichloroethene	ND	3.7
1,2-Dichloropropane	ND	3.7
Bromodichloromethane	ND	3.7
Dibromomethane	ND	3.7
4-Methyl-2-Pentanone	ND	7.4
cis-1,3-Dichloropropene	ND	3.7
Toluene	ND	3.7
trans-1,3-Dichloropropene	ND	3.7
1,1,2-Trichloroethane	ND	3.7
2-Hexanone	ND	7.4
1,3-Dichloropropane	ND	3.7
Tetrachloroethene	ND	3.7

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Field ID:	SB-7-3.0	Diln Fac:	0.7386
Lab ID:	305654-017	Batch#:	266305
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received	Analyzed:	12/20/18

Analyte	Result	RL
Dibromochloromethane	ND	3.7
1,2-Dibromoethane	ND	3.7
Chlorobenzene	ND	3.7
1,1,1,2-Tetrachloroethane	ND	3.7
Ethylbenzene	ND	3.7
m,p-Xylenes	ND	3.7
o-Xylene	ND	3.7
Styrene	ND	3.7
Bromoform	ND	3.7
Isopropylbenzene	ND	3.7
1,1,2,2-Tetrachloroethane	ND	3.7
1,2,3-Trichloropropane	ND	3.7
Propylbenzene	ND	3.7
Bromobenzene	ND	3.7
1,3,5-Trimethylbenzene	ND	3.7
2-Chlorotoluene	ND	3.7
4-Chlorotoluene	ND	3.7
tert-Butylbenzene	ND	3.7
1,2,4-Trimethylbenzene	ND	3.7
sec-Butylbenzene	ND	3.7
para-Isopropyl Toluene	ND	3.7
1,3-Dichlorobenzene	ND	3.7
1,4-Dichlorobenzene	ND	3.7
n-Butylbenzene	ND	3.7
1,2-Dichlorobenzene	ND	3.7
1,2-Dibromo-3-Chloropropane	ND	3.7
1,2,4-Trichlorobenzene	ND	3.7
Hexachlorobutadiene	ND	3.7
Naphthalene	ND	3.7
1,2,3-Trichlorobenzene	ND	3.7

Surrogate	%REC	Limits
Dibromofluoromethane	107	79-127
1,2-Dichloroethane-d4	115	73-139
Toluene-d8	102	80-120
Bromofluorobenzene	105	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	266305
Units:	ug/Kg	Analyzed:	12/19/18
Diln Fac:	1.000		

Type: BS   Lab ID: QC958927

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	25.11	100	68-140
Benzene	25.00	25.27	101	74-123
Trichloroethene	25.00	24.74	99	72-125
Toluene	25.00	25.53	102	73-121
Chlorobenzene	25.00	26.22	105	76-123

Surrogate	%REC	Limits
Dibromofluoromethane	110	79-127
1,2-Dichloroethane-d4	105	73-139
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-127

Type: BSD   Lab ID: QC958928

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	24.46	98	68-140	3	25
Benzene	25.00	24.82	99	74-123	2	22
Trichloroethene	25.00	24.15	97	72-125	2	23
Toluene	25.00	24.88	100	73-121	3	22
Chlorobenzene	25.00	25.60	102	76-123	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	110	79-127
1,2-Dichloroethane-d4	105	73-139
Toluene-d8	101	80-120
Bromofluorobenzene	102	80-127

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC958929	Batch#:	266305
Matrix:	Soil	Analyzed:	12/19/18
Units:	ug/Kg		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 5035
Project#:	0285.001.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC958929	Batch#:	266305
Matrix:	Soil	Analyzed:	12/19/18
Units:	ug/Kg		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	79-127
1,2-Dichloroethane-d4	107	73-139
Toluene-d8	101	80-120
Bromofluorobenzene	109	80-127

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received		

Field ID:	SB-1-1.0	Batch#:	266036
Type:	SAMPLE	Prepared:	12/10/18
Lab ID:	305654-001	Analyzed:	12/10/18
Diln Fac:	2.000		

Analyte	Result	RL
Aroclor-1016	ND	14
Aroclor-1221	ND	27
Aroclor-1232	ND	14
Aroclor-1242	ND	14
Aroclor-1248	ND	14
Aroclor-1254	ND	14
Aroclor-1260	ND	14

Surrogate	%REC	Limits
Decachlorobiphenyl	81	37-170

Field ID:	SB-2-1.0	Batch#:	266036
Type:	SAMPLE	Prepared:	12/10/18
Lab ID:	305654-004	Analyzed:	12/11/18
Diln Fac:	2.000		

Analyte	Result	RL
Aroclor-1016	ND	13
Aroclor-1221	ND	27
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	ND	13
Aroclor-1260	ND	13

Surrogate	%REC	Limits
Decachlorobiphenyl	71	37-170

Field ID:	SB-3-1.0	Batch#:	266036
Type:	SAMPLE	Prepared:	12/10/18
Lab ID:	305654-007	Analyzed:	12/11/18
Diln Fac:	1.000		

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	69	37-170

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received		

Field ID:	SB-4-1.0	Batch#:	266036
Type:	SAMPLE	Prepared:	12/10/18
Lab ID:	305654-010	Analyzed:	12/11/18
Diln Fac:	2.000		

Analyte	Result	RL
Aroclor-1016	ND	13
Aroclor-1221	ND	26
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	68	13
Aroclor-1260	240	13

Surrogate	%REC	Limits
Decachlorobiphenyl	86	37-170

Field ID:	SB-5-1.0	Batch#:	266168
Type:	SAMPLE	Prepared:	12/14/18
Lab ID:	305654-012	Analyzed:	12/14/18
Diln Fac:	5.000		

Analyte	Result	RL
Aroclor-1016	ND	34
Aroclor-1221	ND	68
Aroclor-1232	ND	34
Aroclor-1242	ND	34
Aroclor-1248	ND	34
Aroclor-1254	ND	34
Aroclor-1260	ND	34

Surrogate	%REC	Limits
Decachlorobiphenyl	84	37-170

Field ID:	SB-6-1.0	Batch#:	266168
Type:	SAMPLE	Prepared:	12/14/18
Lab ID:	305654-014	Analyzed:	12/14/18
Diln Fac:	5.000		

Analyte	Result	RL
Aroclor-1016	ND	33
Aroclor-1221	ND	67
Aroclor-1232	ND	33
Aroclor-1242	ND	33
Aroclor-1248	ND	33
Aroclor-1254	ND	33
Aroclor-1260	ND	33

Surrogate	%REC	Limits
Decachlorobiphenyl	85	37-170

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	12/06/18
Units:	ug/Kg	Received:	12/06/18
Basis:	as received		

Field ID:	SB-7-1.0	Batch#:	266168
Type:	SAMPLE	Prepared:	12/14/18
Lab ID:	305654-016	Analyzed:	12/15/18
Diln Fac:	1.000		

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	33	12
Aroclor-1260	26	12

Surrogate	%REC	Limits
Decachlorobiphenyl	90	37-170

Type:	BLANK	Prepared:	12/10/18
Lab ID:	QC957814	Analyzed:	12/10/18
Diln Fac:	1.000	Cleanup Method:	EPA 3620B
Batch#:	266036		

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	93	37-170

Type:	BLANK	Batch#:	266168
Lab ID:	QC958376	Prepared:	12/13/18
Diln Fac:	1.000	Analyzed:	12/14/18

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	96	37-170

ND= Not Detected
RL= Reporting Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC957818	Batch#:	266036
Matrix:	Soil	Prepared:	12/10/18
Units:	ug/Kg	Analyzed:	12/10/18

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	125.0	133.1	106	59-160
Aroclor-1260	125.0	112.5	90	59-170

Surrogate	%REC	Limits
Decachlorobiphenyl	84	37-170

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Field ID:	SB-1-1.0	Batch#:	266036
MSS Lab ID:	305654-001	Sampled:	12/06/18
Matrix:	Soil	Received:	12/06/18
Units:	ug/Kg	Prepared:	12/10/18
Basis:	as received	Analyzed:	12/10/18
Diln Fac:	2.000		

Type: MS Lab ID: QC957819

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<9.038	166.1	187.0	113	73-167
Aroclor-1260	<6.584	166.1	174.3	105	57-178

Surrogate	%REC	Limits
Decachlorobiphenyl	99	37-170

Type: MSD Lab ID: QC957820

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	169.7	147.1	87	73-167	26	40
Aroclor-1260	169.7	132.5	78	57-178	29	41

Surrogate	%REC	Limits
Decachlorobiphenyl	69	37-170

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC958377	Batch#:	266168
Matrix:	Soil	Prepared:	12/14/18
Units:	ug/Kg	Analyzed:	12/14/18

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	125.0	146.1	117	59-160
Aroclor-1260	125.0	156.8	125	59-170

Surrogate	%REC	Limits
Decachlorobiphenyl	135	37-170

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3546
Project#:	0285.001.002	Analysis:	EPA 8082
Field ID:	SB-6-1.0	Batch#:	266168
MSS Lab ID:	305654-014	Sampled:	12/06/18
Matrix:	Soil	Received:	12/06/18
Units:	ug/Kg	Prepared:	12/14/18
Basis:	as received	Analyzed:	12/14/18
Diln Fac:	5.000		

Type: MS Lab ID: QC958378

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<18.21	167.4	163.6	98	73-167
Aroclor-1260	<22.84	167.4	174.9	104	57-178

Surrogate	%REC	Limits
Decachlorobiphenyl	81	37-170

Type: MSD Lab ID: QC958379

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	167.8	165.7	99	73-167	1	40
Aroclor-1260	167.8	179.9	107	57-178	3	41

Surrogate	%REC	Limits
Decachlorobiphenyl	87	37-170

RPD= Relative Percent Difference

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-1-1.0	Basis:	as received
Lab ID:	305654-001	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	1.9	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	5.2	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	170	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.43	0.097	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.49	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	50	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	11	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	56	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	95	0.97	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	ND	0.018	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	0.36	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	57	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	1.9	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.49	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	44	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	150	0.97	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-1-3.0	Basis:	as received
Lab ID:	305654-002	Sampled:	12/06/18
Matrix:	Soil	Received:	12/06/18
Units:	mg/Kg		

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	8.7	1.5	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	400	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.92	0.11	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	4.9	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	46	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	22	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	180	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	380	1.0	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	1.2	0.16	10.00	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	2.3	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	100	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	0.31	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.56	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	37	0.28	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	710	110	100.0	266074	12/11/18	12/12/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-2-1.0	Basis:	as received
Lab ID:	305654-004	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	1.8	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	4.9	1.4	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	200	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.45	0.092	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.42	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	39	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	10	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	28	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	73	0.92	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.097	0.015	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	0.44	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	49	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	1.8	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.46	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	37	0.23	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	98	0.92	266074	12/11/18	12/12/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-2-3.0	Basis:	as received
Lab ID:	305654-005	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	6.9	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	110	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.38	0.099	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	53	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	6.6	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	21	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	16	0.99	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.054	0.017	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	0.65	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	29	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.50	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	43	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	46	0.99	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-3-1.0	Basis:	as received
Lab ID:	305654-007	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	7.7	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	280	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.49	0.10	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.47	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	63	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	11	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	22	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	40	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.097	0.018	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	0.26	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	77	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.51	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	38	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	100	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-3-3.0	Basis:	as received
Lab ID:	305654-008	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	5.2	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	140	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.46	0.10	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.45	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	42	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	9.4	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	17	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	8.4	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.065	0.016	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	0.37	0.26	266074	12/11/18	12/12/18	EPA 3050B	EPA 6010B
Nickel	66	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.52	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	34	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	45	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-4-1.0	Basis:	as received
Lab ID:	305654-010	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	2.9	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	54	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.31	0.098	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.41	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	34	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	6.0	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	37	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	66	0.98	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.29	0.017	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	27	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.49	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	28	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	76	0.98	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-4-3.0	Basis:	as received
Lab ID:	305654-011	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	1.9	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	4.7	1.4	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	150	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.50	0.095	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.29	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	50	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	11	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	22	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	21	0.95	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.13	0.018	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	62	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	1.9	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.48	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	42	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	60	0.95	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-5-1.0	Basis:	as received
Lab ID:	305654-012	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	5.7	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	140	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.35	0.10	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.53	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	36	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	8.9	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	36	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	54	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.18	0.017	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	42	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.52	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	39	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	82	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-5-3.0	Basis:	as received
Lab ID:	305654-013	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	5.1	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	60	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.56	0.10	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.42	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	64	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	7.9	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	20	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	16	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.13	0.016	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	53	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.52	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	50	0.26	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	71	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-6-1.0	Basis:	as received
Lab ID:	305654-014	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	5.3	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	85	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.36	0.11	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.34	0.27	266074	12/11/18	12/12/18	EPA 3050B	EPA 6010B
Chromium	43	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	11	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	55	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	12	1.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.27	0.017	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	44	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.54	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	56	0.27	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	53	1.1	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-6-3.0	Basis:	as received
Lab ID:	305654-015	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	1.8	1.5	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	30	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.29	0.099	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.36	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	53	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	12	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	38	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	14	0.99	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.13	0.018	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	38	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.50	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	69	0.25	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	44	0.99	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-7-1.0	Basis:	as received
Lab ID:	305654-016	Sampled:	12/06/18
Matrix:	Soil	Received:	12/06/18
Units:	mg/Kg		

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	1.9	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	4.9	1.4	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	93	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.34	0.096	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.75	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	50	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	12	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	51	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	58	0.96	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	2.2	0.16	10.00	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	ND	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	37	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	1.9	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.48	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	57	0.24	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	130	0.96	1.000	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	305654	Project#:	0285.001.002
Client:	Terraphase Engineering	Location:	SupplyBank
Field ID:	SB-7-3.0	Basis:	as received
Lab ID:	305654-017	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/06/18
Units:	mg/Kg	Received:	12/06/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	1.9	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Arsenic	6.3	1.4	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Barium	110	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Beryllium	0.45	0.095	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cadmium	0.49	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Chromium	61	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Cobalt	7.5	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Copper	35	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Lead	66	0.95	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Mercury	0.044	0.017	266141	12/13/18	12/13/18	METHOD	EPA 7471A
Molybdenum	0.89	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Nickel	50	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Selenium	ND	1.9	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.48	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Vanadium	51	0.24	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B
Zinc	110	0.95	266074	12/11/18	12/11/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

20.1

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3050B
Project#:	0285.001.002	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC957971	Batch#:	266074
Matrix:	Soil	Prepared:	12/11/18
Units:	mg/Kg	Analyzed:	12/11/18

Analyte	Result	RL
Antimony	ND	1.9
Arsenic	ND	1.4
Barium	ND	0.24
Beryllium	ND	0.096
Cadmium	ND	0.24
Chromium	ND	0.24
Cobalt	ND	0.24
Copper	ND	0.24
Lead	ND	0.96
Molybdenum	ND	0.24
Nickel	ND	0.24
Selenium	ND	1.9
Silver	ND	0.24
Thallium	ND	0.48
Vanadium	ND	0.24
Zinc	ND	0.96

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3050B
Project#:	0285.001.002	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	266074
Units:	mg/Kg	Prepared:	12/11/18
Diln Fac:	1.000	Analyzed:	12/11/18

Type: BS   Lab ID: QC957972

Analyte	Spiked	Result	%REC	Limits
Antimony	45.87	45.09	98	80-120
Arsenic	45.87	49.72	108	80-120
Barium	45.87	46.60	102	80-120
Beryllium	22.94	23.27	101	80-120
Cadmium	45.87	46.35	101	80-120
Chromium	45.87	48.69	106	80-120
Cobalt	45.87	47.76	104	80-120
Copper	45.87	46.97	102	80-120
Lead	45.87	45.84	100	80-120
Molybdenum	45.87	45.47	99	80-120
Nickel	45.87	47.69	104	80-120
Selenium	45.87	49.03	107	80-120
Silver	4.587	4.218	92	80-120
Thallium	45.87	50.86	111	80-120
Vanadium	45.87	49.86	109	80-120
Zinc	45.87	48.07	105	80-120

Type: BSD   Lab ID: QC957973

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	49.50	46.88	95	80-120	4	20
Arsenic	49.50	52.67	106	80-120	2	20
Barium	49.50	49.55	100	80-120	1	20
Beryllium	24.75	24.38	98	80-120	3	20
Cadmium	49.50	48.32	98	80-120	3	20
Chromium	49.50	50.93	103	80-120	3	20
Cobalt	49.50	49.81	101	80-120	3	20
Copper	49.50	49.09	99	80-120	3	20
Lead	49.50	48.20	97	80-120	3	20
Molybdenum	49.50	47.44	96	80-120	3	20
Nickel	49.50	49.80	101	80-120	3	20
Selenium	49.50	52.08	105	80-120	2	20
Silver	4.950	4.440	90	80-120	3	20
Thallium	49.50	53.91	109	80-120	2	20
Vanadium	49.50	52.18	105	80-120	3	20
Zinc	49.50	50.65	102	80-120	2	20

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3050B
Project#:	0285.001.002	Analysis:	EPA 6010B
Field ID:	SB-1-1.0	Batch#:	266074
MSS Lab ID:	305654-001	Sampled:	12/06/18
Matrix:	Soil	Received:	12/06/18
Units:	mg/Kg	Prepared:	12/11/18
Basis:	as received	Analyzed:	12/11/18
Diln Fac:	1.000		

Type: MS Lab ID: QC957974

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.1278	50.51	14.10	28 *	75-120
Arsenic	5.202	50.51	60.78	110	80-124
Barium	174.7	50.51	228.7	107	75-125
Beryllium	0.4250	25.25	25.77	100	80-120
Cadmium	0.4854	50.51	53.39	105	80-120
Chromium	49.61	50.51	108.0	116	75-125
Cobalt	11.03	50.51	59.20	95	75-120
Copper	55.92	50.51	101.0	89	77-125
Lead	95.10	50.51	151.2	111	75-125
Molybdenum	0.3622	50.51	44.51	87	75-120
Nickel	56.59	50.51	103.9	94	75-125
Selenium	<0.2181	50.51	53.30	106	75-121
Silver	<0.04854	5.051	4.780	95	75-120
Thallium	<0.1462	50.51	49.17	97	75-120
Vanadium	43.95	50.51	98.68	108	75-125
Zinc	146.8	50.51	196.3	98	75-125

Type: MSD Lab ID: QC957975

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	52.08	14.64	28 *	75-120	1	20
Arsenic	52.08	58.95	103	80-124	6	20
Barium	52.08	221.7	90	75-125	4	20
Beryllium	26.04	25.42	96	80-120	4	20
Cadmium	52.08	52.24	99	80-120	5	20
Chromium	52.08	102.9	102	75-125	6	20
Cobalt	52.08	59.30	93	75-120	2	20
Copper	52.08	122.6	128 *	77-125	18	20
Lead	52.08	129.2	66 *	75-125	17	20
Molybdenum	52.08	43.44	83	75-120	5	20
Nickel	52.08	103.5	90	75-125	2	20
Selenium	52.08	52.11	100	75-121	5	20
Silver	5.208	4.696	90	75-120	5	20
Thallium	52.08	48.83	94	75-120	4	20
Vanadium	52.08	95.94	100	75-125	4	20
Zinc	52.08	179.6	63 *	75-125	10	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals			
Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	266141
Lab ID:	QC958264	Prepared:	12/13/18
Matrix:	Soil	Analyzed:	12/13/18
Units:	mg/Kg		

Result	RL
ND	0.017

ND= Not Detected
RL= Reporting Limit

Batch QC Report

California Title 22 Metals

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	266141
Matrix:	Soil	Prepared:	12/13/18
Units:	mg/Kg	Analyzed:	12/13/18
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC958265	0.1613	0.1472	91	80-120		
BSD	QC958266	0.1667	0.1679	101	80-120	10	20

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals

Lab #:	305654	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	266141
MSS Lab ID:	305669-001	Sampled:	12/06/18
Matrix:	Soil	Received:	12/06/18
Units:	mg/Kg	Prepared:	12/13/18
Basis:	as received	Analyzed:	12/13/18

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC958267	0.04247	0.1639	0.1983	95	80-120		
MSD	QC958268		0.1639	0.1871	88	80-120	6	20

RPD= Relative Percent Difference

Laboratory Job Number 305654

Subcontracted Products

Forensic Analytical

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Analysis

(EPA Method 40CFR, Part 763, Appendix E to Subpart E and EPA 600/R-93-116, Visual Area Estimation)

Enthalpy Analytical LLC
Tracy Babjar
2323 5th Street

Berkeley, CA 94710

Client ID: 1137
Report Number: B270242
Date Received: 12/10/18
Date Analyzed: 12/17/18
Date Printed: 12/17/18
First Reported: 12/17/18

Job ID/Site: 305654 - SupplyBank

Date(s) Collected: 12/06/2018

FALI Job ID: 1137
Total Samples Submitted: 7
Total Samples Analyzed: 7

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
SB-1-1.0	12106249						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
SB-2-1.0	12106250						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
SB-3-1.0	12106251						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
SB-4-1.0	12106252						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
SB-5-1.0	12106253						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
SB-6-1.0	12106254						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
SB-7-1.0	12106255						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

ENTHALPY

ANALYTICAL

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305638
ANALYTICAL REPORT

Terraphase Engineering 1404 Franklin Street Oakland, CA 94612	Project : 0285.001.002 Location : SupplyBank Level : II

Sample ID	Lab ID
SB-2-GW	305638-001
SB-4-GW	305638-002
SB-7-GW	305638-003
SB-5-GW	305638-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar   Date: 12/26/2018

Tracy Babjar
Project Manager
tracy.babjar@enthalpy.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**305638**
Client:	**Terraphase Engineering**
Project:	**0285.001.002**
Location:	**SupplyBank**
Request Date:	**12/06/18**
Samples Received:	**12/06/18**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 12/06/18. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
Low recoveries were observed for mercury in the MS/MSD for batch 266064; the parent sample was not a project sample, and the associated RPD was within limits. No other analytical problems were encountered.

Volatile Organics (EPA 8260):
Enthalpy Analytical (Orange) in Orange, CA performed the analysis (not NELAP certified). Please see the Enthalpy Analytical (Orange) case narrative.

(EPA 8015B):
Enthalpy Analytical (Orange) in Orange, CA performed the analysis (not NELAP certified). Please see the Enthalpy Analytical (Orange) case narrative.

CHAIN OF COUSTODY

ENTHALPY ANALYTICAL
Formerly Curtis & Tompkins Labs
2323 Fifth Street
Berkeley, CA 94710
Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 305688

Page 1 of 1

Chain of Custody # ____

Project No: 0285.001.002

Project Name: SupplyBank

Project P. O. No:

EDD Format:

Report Level ☒ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH ______ ☒ Standard

Sampler: Ethan Levy

Report To: Alice Hale Price

Company: Terraphase

Telephone: 510 645 - 1850

Email: Alice.Hale.Price@terraphase.com

Lab No.	Sample ID.	SAMPLING: Date Collected	SAMPLING: Time Collected	MATRIX: Water	MATRIX: Solid			# of Containers	CHEMICAL PRESERVATIVE: HCl	H2SO4	HNO3	NaOH	None	ANALYTICAL REQUEST: TPH d/mo/g	~~TPH~~ EL 12/6/18 Diss. Metals*	VOCs
	SB-2-GW	12/6/18	1505	X				7	X				X	X	X	X
	SB-4-GW	↓	1605	X				7	X				X	X	X	X
	SB-7-GW	↓	1545	X				7	X				X	X	X	X
	SB-5-GW	↓	1530	X				7	X				X	X	X	X

Notes:
*lab to filter

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	12/6/18	1730	[signature]	12/6/18	17:30

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305638 Client: Terraphase

Date Received: 12/6/18 Project: Supplybank

ENTHALPY ANALYTICAL

Section 2: Samples received in a cooler? ☑ Yes, how many? 2 ☐ No (**skip Section 3 below**)

If no cooler Sample Temp (°C): ________ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/6/18 By (print) AC (sign) AC

Shipping info (if applicable) ________

Are custody seals present? ☑ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: ________ How many ________ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☑ N/A

Section 3: ***Important*** **: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) ________

☑ Bubble Wrap, ☐ Foam blocks, ☐ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used : ☑ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☑ No

Temperature measured using ☐ Thermometer ID: ________, or IR Gun # ☑ A ☐ B

Cooler Temp (°C): #1: 1.6, #2: 4.0, #3: ____, #4: ____, #5: ____, #6: ____, #7: ____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	✓		
Were Method 5035 sampling containers present?		✓	
If YES, what time were they transferred to freezer? ________			
Did all bottles arrive unbroken/unopened?	✓		
Are there any missing / extra samples?		✓	
Are samples in the appropriate containers for indicated tests?	✓		
Are sample labels present, in good condition and complete?	✓		
Does the container count match the COC?	✓		
Do the sample labels agree with custody papers?	✓		
Was sufficient amount of sample sent for tests requested?	✓		
Did you change the hold time in LIMS for unpreserved VOAs?			✓
Did you change the hold time in LIMS for preserved terracores?			✓
Are bubbles > 6mm absent in VOA samples?			✓
Was the client contacted concerning this sample delivery?		✓	
If YES, who was called? ________ By ________ Date: ________			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			✓
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# ________, pH strip lot# ________, pH strip lot# ________

Preservative added:

☐ H2SO4 lot# ________ added to samples ________ on/at ________

☐ HCL lot# ________ added to samples ________ on/at ________

☐ HNO3 lot# ________ added to samples ________ on/at ________

☐ NaOH lot# ________ added to samples ________ on/at ________

Section 6:

Explanations/Comments: ________

Date Logged in 12/6/18 **By (print)** AC **(sign)** AC

Date Labeled 12-7-18 **By (print)** SH **(sign)** SH

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/06/18
Units:	ug/L	Received:	12/06/18
Diln Fac:	1.000	Prepared:	12/11/18
Batch#:	266082	Analyzed:	12/12/18

Field ID: SB-2-GW Lab ID: 305638-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	360 Y	48
Motor Oil C24-C36	1,300	290

Surrogate	%REC	Limits
o-Terphenyl	86	58-123

Field ID: SB-4-GW Lab ID: 305638-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	310 Y	48
Motor Oil C24-C36	630	290

Surrogate	%REC	Limits
o-Terphenyl	91	58-123

Field ID: SB-7-GW Lab ID: 305638-003
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	200 Y	48
Motor Oil C24-C36	520	290

Surrogate	%REC	Limits
o-Terphenyl	89	58-123

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0285.001.002	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/06/18
Units:	ug/L	Received:	12/06/18
Diln Fac:	1.000	Prepared:	12/11/18
Batch#:	266082	Analyzed:	12/12/18

Field ID: SB-5-GW   Lab ID: 305638-004
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	200 Y	48
Motor Oil C24-C36	550	290

Surrogate	%REC	Limits
o-Terphenyl	81	58-123

Type: BLANK   Lab ID: QC958003

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	106	58-123

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0285.001.002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC958004	Batch#:	266082
Matrix:	Water	Prepared:	12/11/18
Units:	ug/L	Analyzed:	12/12/18

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,273	91	56-120

Surrogate	%REC	Limits
o-Terphenyl	94	58-123

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0285.001.002	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	266082
MSS Lab ID:	305627-014	Sampled:	12/04/18
Matrix:	Water	Received:	12/05/18
Units:	ug/L	Prepared:	12/11/18
Diln Fac:	1.000	Analyzed:	12/12/18

Type: MS Lab ID: QC958005

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	38.74	2,404	2,488	102	53-124

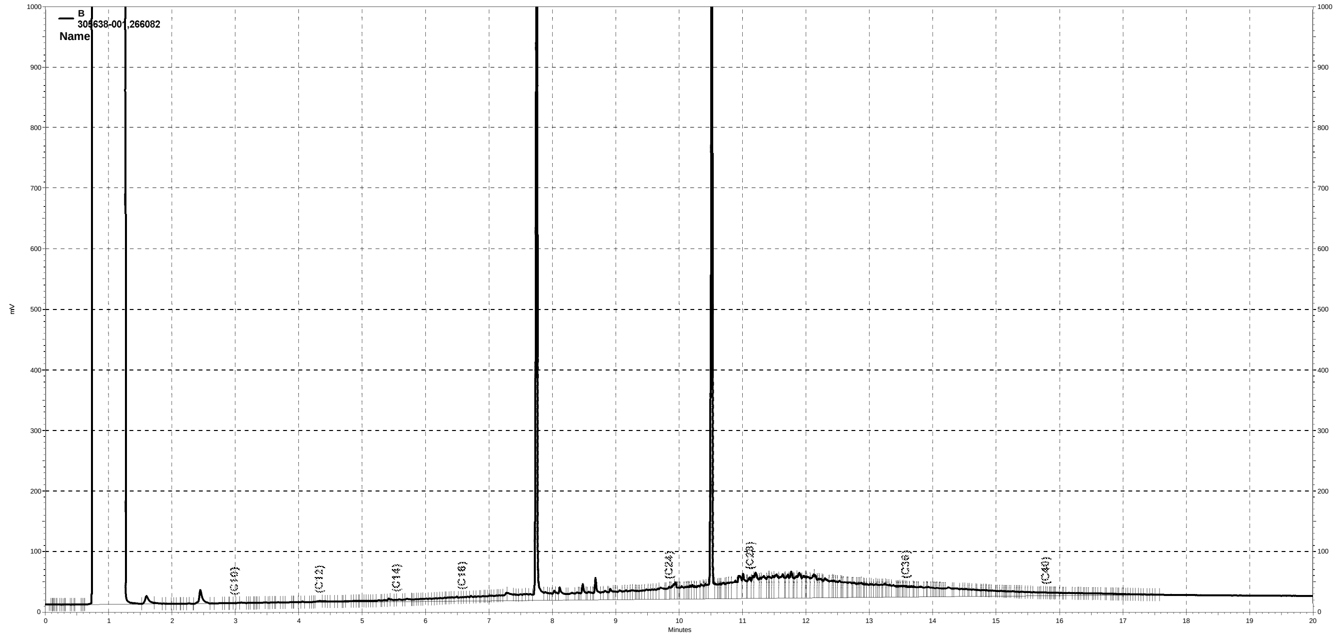
Surrogate	%REC	Limits
o-Terphenyl	102	58-123

Type: MSD Lab ID: QC958006

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,404	2,436	100	53-124	2	40

Surrogate	%REC	Limits
o-Terphenyl	101	58-123

RPD= Relative Percent Difference



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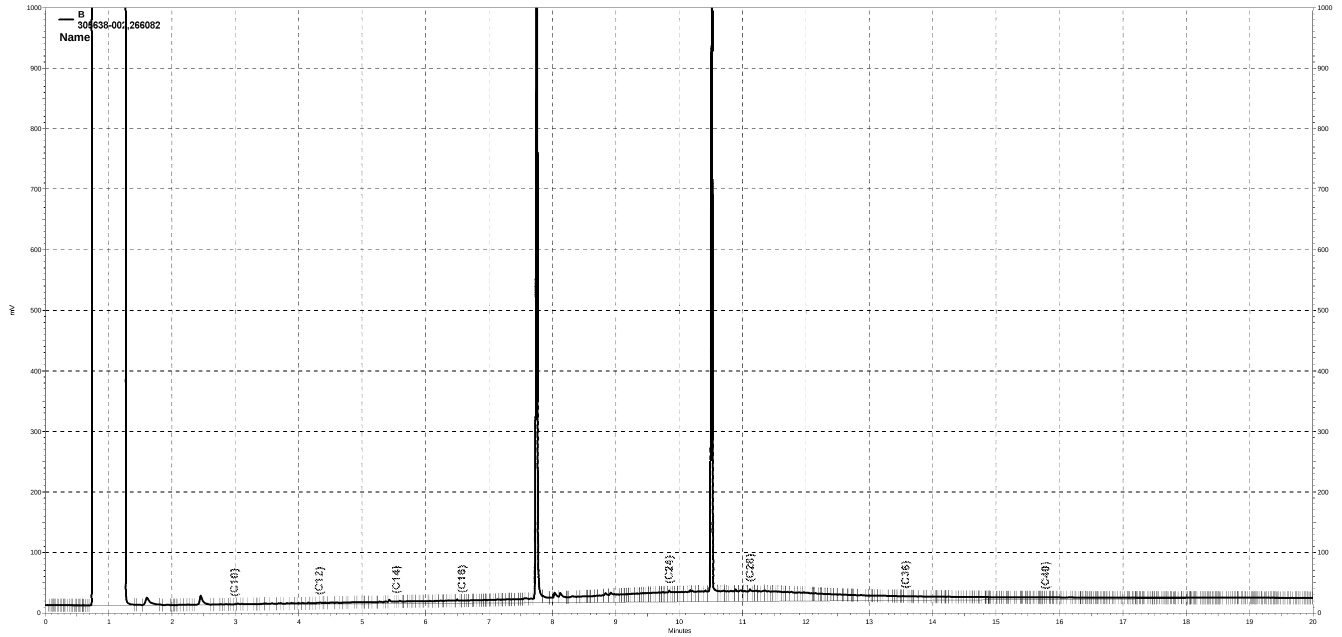

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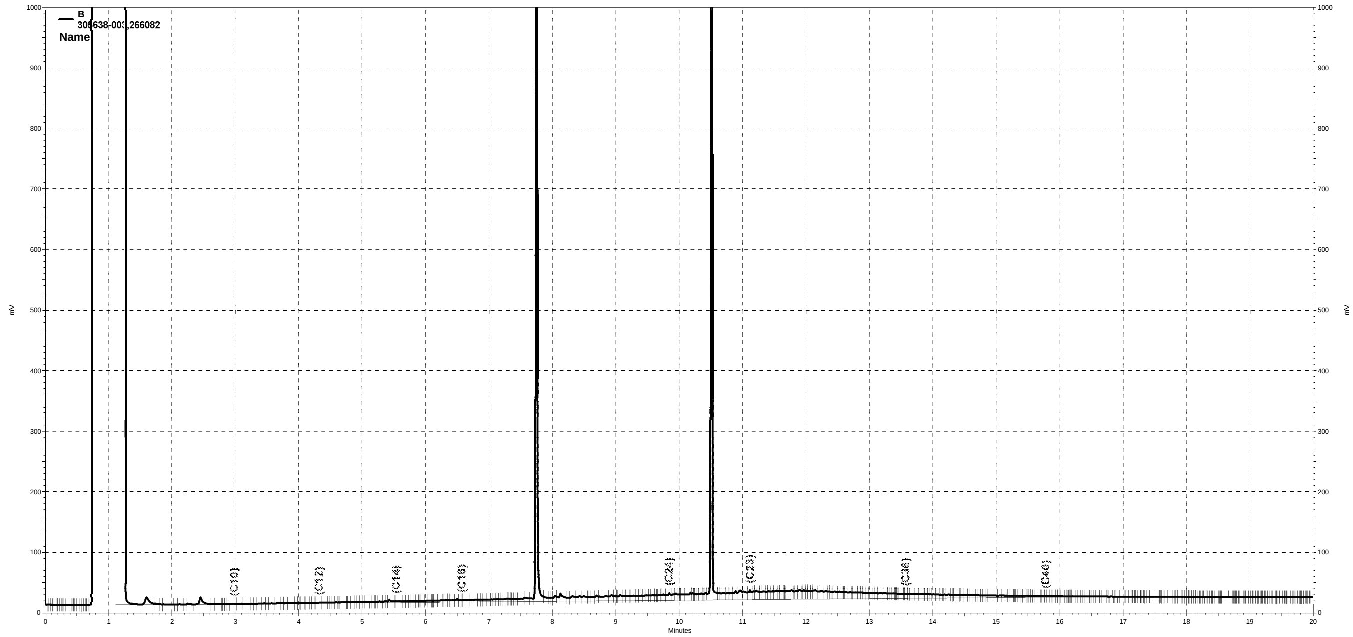

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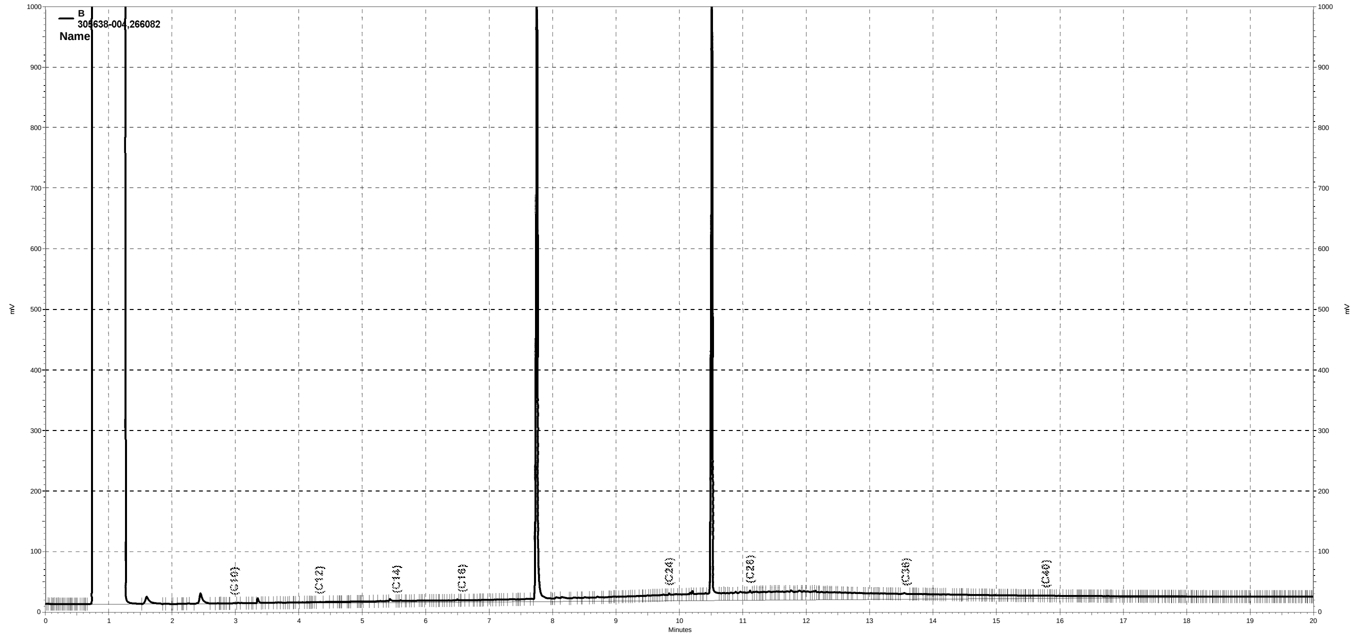

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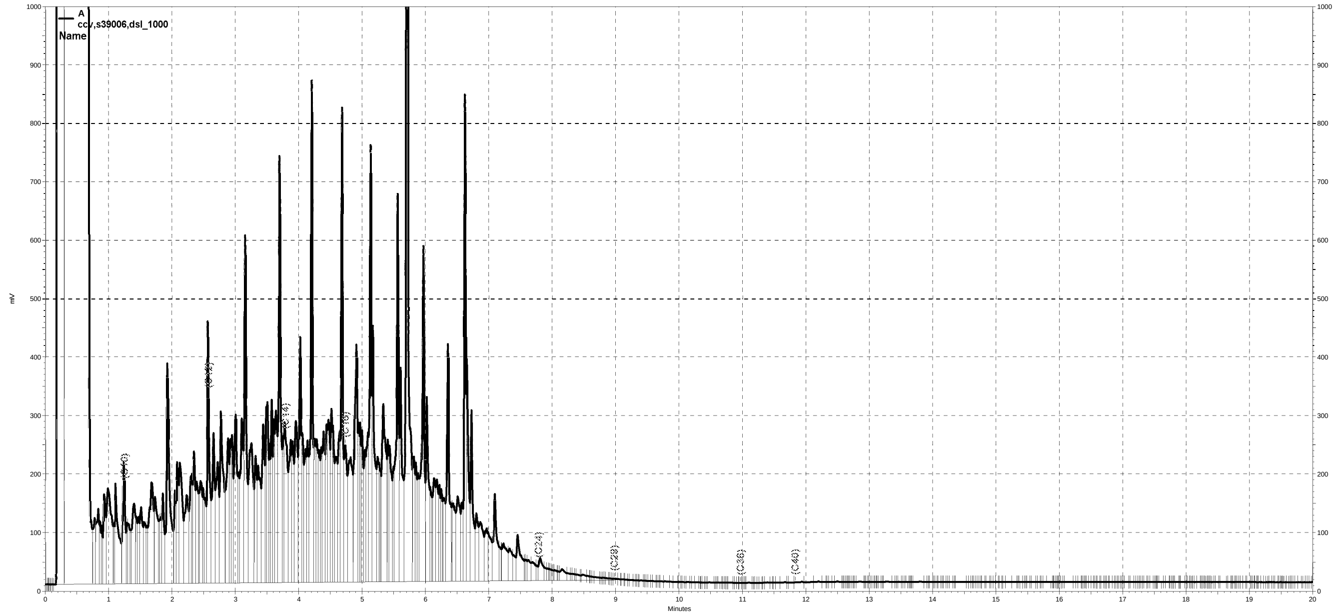

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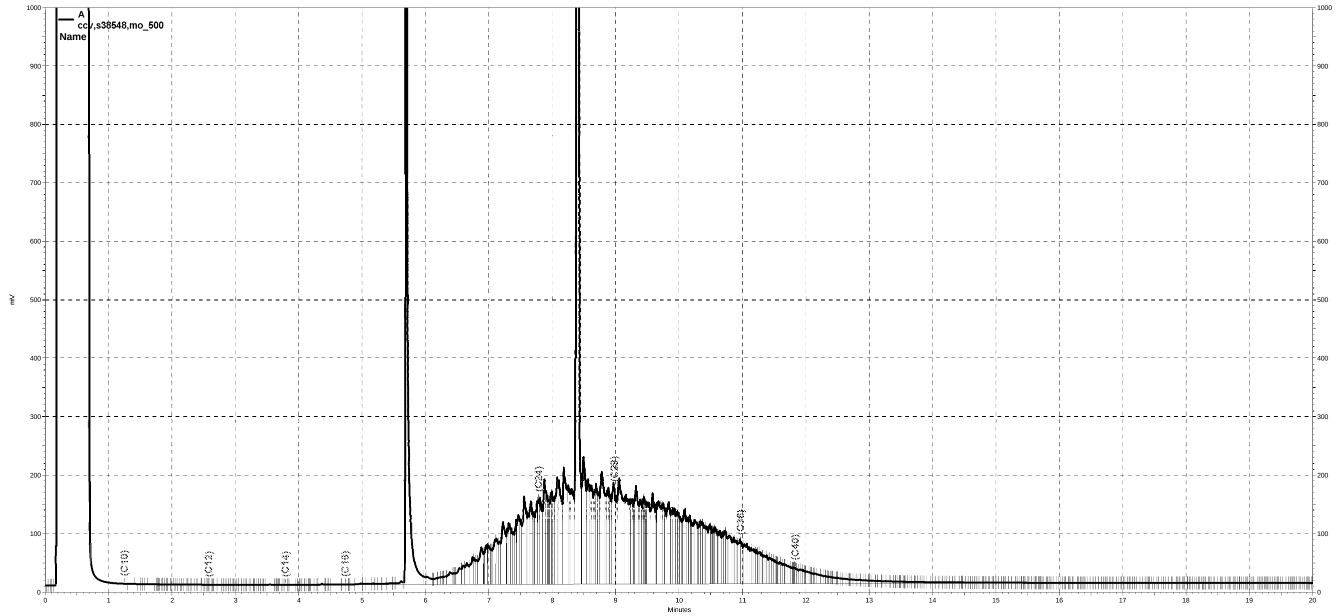

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ENTHALPY ANALYTICAL

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002		
Field ID:	SB-2-GW	Diln Fac:	1.000
Lab ID:	305638-001	Sampled:	12/06/18
Matrix:	Filtrate	Received:	12/06/18
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Arsenic	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Barium	53	5.0	266033	12/10/18	12/10/18	EPA 6010B
Beryllium	ND	2.0	266033	12/10/18	12/10/18	EPA 6010B
Cadmium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Chromium	5.4	5.0	266033	12/10/18	12/10/18	EPA 6010B
Cobalt	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Copper	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Lead	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Mercury	ND	0.20	266064	12/11/18	12/11/18	EPA 7470A
Molybdenum	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Nickel	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Selenium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Silver	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Thallium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Vanadium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Zinc	ND	20	266033	12/10/18	12/10/18	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002		
Field ID:	SB-4-GW	Diln Fac:	1.000
Lab ID:	305638-002	Sampled:	12/06/18
Matrix:	Filtrate	Received:	12/06/18
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Arsenic	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Barium	200	5.0	266033	12/10/18	12/10/18	EPA 6010B
Beryllium	ND	2.0	266033	12/10/18	12/10/18	EPA 6010B
Cadmium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Chromium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Cobalt	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Copper	11	5.0	266033	12/10/18	12/10/18	EPA 6010B
Lead	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Mercury	ND	0.20	266064	12/11/18	12/11/18	EPA 7470A
Molybdenum	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Nickel	5.9	5.0	266033	12/10/18	12/10/18	EPA 6010B
Selenium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Silver	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Thallium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Vanadium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Zinc	ND	20	266033	12/10/18	12/10/18	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002		
Field ID:	SB-7-GW	Diln Fac:	1.000
Lab ID:	305638-003	Sampled:	12/06/18
Matrix:	Filtrate	Received:	12/06/18
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Arsenic	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Barium	53	5.0	266033	12/10/18	12/10/18	EPA 6010B
Beryllium	ND	2.0	266033	12/10/18	12/10/18	EPA 6010B
Cadmium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Chromium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Cobalt	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Copper	7.2	5.0	266033	12/10/18	12/10/18	EPA 6010B
Lead	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Mercury	ND	0.20	266064	12/11/18	12/11/18	EPA 7470A
Molybdenum	11	5.0	266033	12/10/18	12/10/18	EPA 6010B
Nickel	6.0	5.0	266033	12/10/18	12/10/18	EPA 6010B
Selenium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Silver	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Thallium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Vanadium	5.9	5.0	266033	12/10/18	12/10/18	EPA 6010B
Zinc	ND	20	266033	12/10/18	12/10/18	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002		
Field ID:	SB-5-GW	Diln Fac:	1.000
Lab ID:	305638-004	Sampled:	12/06/18
Matrix:	Filtrate	Received:	12/06/18
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	266033	12/10/18	12/10/18	EPA 6010B
Arsenic	16	10	266033	12/10/18	12/10/18	EPA 6010B
Barium	49	5.0	266033	12/10/18	12/10/18	EPA 6010B
Beryllium	ND	2.0	266033	12/10/18	12/10/18	EPA 6010B
Cadmium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Chromium	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Cobalt	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Copper	16	5.0	266033	12/10/18	12/10/18	EPA 6010B
Lead	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Mercury	ND	0.20	266064	12/11/18	12/11/18	EPA 7470A
Molybdenum	11	5.0	266033	12/10/18	12/10/18	EPA 6010B
Nickel	8.5	5.0	266033	12/10/18	12/10/18	EPA 6010B
Selenium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Silver	ND	5.0	266033	12/10/18	12/10/18	EPA 6010B
Thallium	ND	10	266033	12/10/18	12/11/18	EPA 6010B
Vanadium	34	5.0	266033	12/10/18	12/10/18	EPA 6010B
Zinc	91	20	266033	12/10/18	12/10/18	EPA 6010B

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	266033
Units:	ug/L	Prepared:	12/10/18
Diln Fac:	1.000		

Type: BS   Lab ID: QC957802

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	100.0	103.1	103	80-120	12/10/18
Arsenic	100.0	107.3	107	80-120	12/10/18
Barium	100.0	103.5	103	80-120	12/10/18
Beryllium	100.0	102.4	102	80-120	12/10/18
Cadmium	100.0	104.4	104	80-120	12/10/18
Chromium	100.0	104.2	104	80-120	12/10/18
Cobalt	100.0	102.9	103	80-120	12/10/18
Copper	100.0	98.14	98	80-120	12/10/18
Lead	100.0	106.8	107	80-120	12/10/18
Molybdenum	100.0	103.4	103	80-120	12/10/18
Nickel	100.0	104.1	104	80-120	12/10/18
Selenium	100.0	108.2	108	80-120	12/11/18
Silver	100.0	100.1	100	80-120	12/10/18
Thallium	50.00	53.65	107	80-120	12/11/18
Vanadium	100.0	102.5	102	80-120	12/10/18
Zinc	100.0	110.2	110	80-120	12/10/18

Type: BSD   Lab ID: QC957803

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	101.7	102	80-120	1	20	12/10/18
Arsenic	100.0	104.6	105	80-120	3	20	12/10/18
Barium	100.0	100.8	101	80-120	3	20	12/10/18
Beryllium	100.0	98.82	99	80-120	4	20	12/10/18
Cadmium	100.0	102.3	102	80-120	2	20	12/10/18
Chromium	100.0	101.7	102	80-120	2	20	12/10/18
Cobalt	100.0	100.3	100	80-120	2	20	12/10/18
Copper	100.0	95.76	96	80-120	2	20	12/10/18
Lead	100.0	102.9	103	80-120	4	20	12/10/18
Molybdenum	100.0	100.6	101	80-120	3	20	12/10/18
Nickel	100.0	101.8	102	80-120	2	20	12/10/18
Selenium	100.0	108.6	109	80-120	0	20	12/11/18
Silver	100.0	97.72	98	80-120	2	20	12/10/18
Thallium	50.00	53.05	106	80-120	1	20	12/11/18
Vanadium	100.0	99.91	100	80-120	3	20	12/10/18
Zinc	100.0	107.6	108	80-120	2	26	12/10/18

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 6010B
Field ID:	SB-2-GW	Batch#:	266033
MSS Lab ID:	305638-001	Sampled:	12/06/18
Matrix:	Filtrate	Received:	12/06/18
Units:	ug/L	Prepared:	12/10/18
Diln Fac:	1.000		

Type: MS Lab ID: QC957804

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	<2.034	100.0	106.1	106	75-125	12/10/18
Arsenic	2.826	100.0	113.4	111	75-125	12/10/18
Barium	53.39	100.0	147.1	94	75-125	12/10/18
Beryllium	<0.2680	100.0	103.1	103	75-125	12/10/18
Cadmium	<0.3487	100.0	106.1	106	75-125	12/10/18
Chromium	5.381	100.0	110.7	105	75-125	12/10/18
Cobalt	<0.4075	100.0	103.4	103	75-125	12/10/18
Copper	3.187	100.0	103.6	100	75-125	12/10/18
Lead	<1.358	100.0	107.0	107	75-125	12/10/18
Molybdenum	3.682	100.0	109.6	106	75-125	12/10/18
Nickel	1.638	100.0	105.8	104	75-125	12/10/18
Selenium	<2.368	100.0	110.3	110	75-125	12/11/18
Silver	<0.3994	100.0	100.7	101	75-125	12/10/18
Thallium	<3.000	50.00	52.22	104	75-125	12/11/18
Vanadium	2.703	100.0	106.1	103	75-125	12/10/18
Zinc	<1.415	100.0	110.3	110	75-125	12/10/18

Type: MSD Lab ID: QC957805

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	109.5	109	75-125	3	20	12/10/18
Arsenic	100.0	116.1	113	75-125	2	20	12/10/18
Barium	100.0	148.1	95	75-125	1	20	12/10/18
Beryllium	100.0	105.6	106	75-125	2	20	12/10/18
Cadmium	100.0	107.0	107	75-125	1	20	12/10/18
Chromium	100.0	111.8	106	75-125	1	20	12/10/18
Cobalt	100.0	104.6	105	75-125	1	20	12/10/18
Copper	100.0	104.4	101	75-125	1	20	12/10/18
Lead	100.0	106.0	106	75-125	1	20	12/10/18
Molybdenum	100.0	111.7	108	75-125	2	20	12/10/18
Nickel	100.0	106.9	105	75-125	1	20	12/10/18
Selenium	100.0	113.6	114	75-125	3	20	12/11/18
Silver	100.0	102.1	102	75-125	1	20	12/10/18
Thallium	50.00	52.08	104	75-125	0	20	12/11/18
Vanadium	100.0	106.8	104	75-125	1	20	12/10/18
Zinc	100.0	110.6	111	75-125	0	20	12/10/18

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC957807	Batch#:	266033
Matrix:	Filtrate	Prepared:	12/10/18
Units:	ug/L		

Analyte	Result	RL	Analyzed
Antimony	ND	10	12/10/18
Arsenic	ND	10	12/10/18
Barium	ND	5.0	12/10/18
Beryllium	ND	2.0	12/10/18
Cadmium	ND	5.0	12/10/18
Chromium	ND	5.0	12/10/18
Cobalt	ND	5.0	12/10/18
Copper	ND	5.0	12/10/18
Lead	ND	5.0	12/10/18
Molybdenum	ND	5.0	12/10/18
Nickel	ND	5.0	12/10/18
Selenium	ND	10	12/11/18
Silver	ND	5.0	12/10/18
Thallium	ND	10	12/11/18
Vanadium	ND	5.0	12/10/18
Zinc	ND	20	12/10/18

ND= Not Detected
RL= Reporting Limit

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	266064
Matrix:	Water	Prepared:	12/11/18
Units:	ug/L	Analyzed:	12/11/18
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC957932	2.000	1.996	100	80-120		
BSD	QC957933	2.000	1.959	98	80-120	2	24

RPD= Relative Percent Difference

Batch QC Report

Dissolved California Title 22 Metals			
Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	266064
Field ID:	ZZZZZZZZZZ	Sampled:	12/07/18
MSS Lab ID:	305677-001	Received:	12/07/18
Matrix:	Water	Prepared:	12/11/18
Units:	ug/L	Analyzed:	12/11/18
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC957934	<0.04000	2.000	1.247	62 *	64-120		
MSD	QC957935		2.000	1.220	61 *	64-120	2	30

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	266064
Lab ID:	QC957936	Prepared:	12/11/18
Matrix:	Filtrate	Analyzed:	12/11/18
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	305638	Location:	SupplyBank
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0285.001.002	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	266064
Lab ID:	QC957937	Prepared:	12/11/18
Matrix:	Filtrate	Analyzed:	12/11/18
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Laboratory Job Number 305638

Subcontracted Products

Enthalpy Analytical (Orange)

Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Enthalpy - Berkeley	Lab Request:	410004
Address:	2323 Fifth Street	Report Date:	12/26/2018
	Berkeley, CA 94710	Date Received:	12/15/2018
		Client ID:	15279

Attn: Tracy Babjar

Comments: Project Number: 305638
Site: SupplyBank

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
410004-001	SB-2-GW
410004-002	SB-4-GW
410004-003	SB-7-GW
410004-004	SB-5-GW

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Lisa Nguyen, PM

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 60 days from date received.

Matrix:	Water	Client:	Enthalpy - Berkeley	Collector:	Client
Sampled:	12/06/2018 15:05	Site:			
Sample #:	**410004-001**	Client Sample #:	SB-2-GW	Sample Type:	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 8015B *NELAC*	Prep Method: EPA 5030B						QCBatchID: QC1198776		
TPH Gasoline	ND	1	16	50	ug/L		12/17/18	EW	

Surrogate	*% Recovery*	*Limits*	*Notes*
4-Bromofluorobenzene (SUR)	*113*	*60-140*	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 8260B *NELAC*	Prep Method: EPA 5030B						QCBatchID: QC1198939		
1,1,1,2-Tetrachloroethane	ND	1	0.122	0.5	ug/L		12/16/18	LZ	
1,1,1-Trichloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2,2-Tetrachloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichloroethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichlorotrifluoroethane	ND	1	0.119	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethane	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethene	ND	1	0.13	0.5	ug/L		12/16/18	LZ	
1,1-Dichloropropene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichlorobenzene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichloropropane	ND	1	0.073	0.5	ug/L		12/16/18	LZ	
1,2,4-Trichlorobenzene	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,2,4-Trimethylbenzene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,2-Dibromo-3-chloropropane	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
1,2-Dibromoethane	ND	1	0.043	0.5	ug/L		12/16/18	LZ	
1,2-Dichlorobenzene	ND	1	0.051	0.5	ug/L		12/16/18	LZ	
1,2-Dichloroethane	ND	1	0.066	0.5	ug/L		12/16/18	LZ	
1,2-Dichloropropane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,3,5-Trimethylbenzene	ND	1	0.097	0.5	ug/L		12/16/18	LZ	
1,3-Dichlorobenzene	ND	1	0.052	0.5	ug/L		12/16/18	LZ	
1,3-Dichloropropane	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,4-Dichlorobenzene	ND	1	0.12	0.5	ug/L		12/16/18	LZ	
2,2-Dichloropropane	ND	1	0.11	0.5	ug/L		12/16/18	LZ	
2-Butanone (MEK)	ND	1	0.3	5	ug/L		12/16/18	LZ	
2-Chlorotoluene	ND	1	0.079	0.5	ug/L		12/16/18	LZ	
4-Chlorotoluene	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
4-Isopropyltoluene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
4-Methyl-2-pentanone (MIBK)	ND	1	0.16	5	ug/L		12/16/18	LZ	
Acetone	ND	1	0.2	10	ug/L		12/16/18	LZ	
Allyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Benzene	ND	1	0.071	0.5	ug/L		12/16/18	LZ	
Bromobenzene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Bromochloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromodichloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromoform	ND	1	0.053	0.5	ug/L		12/16/18	LZ	
Bromomethane	ND	1	0.13	1	ug/L		12/16/18	LZ	
Carbon Tetrachloride	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chlorobenzene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Chlorodibromomethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chloroethane	ND	1	0.4	0.5	ug/L		12/16/18	LZ	
Chloroform	ND	1	0.044	0.5	ug/L		12/16/18	LZ	
Chloromethane	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,2-Dichloroethene	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,3-dichloropropene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
cis-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Dibromomethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Dichlorodifluoromethane	ND	1	0.062	0.5	ug/L		12/16/18	LZ	
Ethylbenzene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
Hexachlorobutadiene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Isopropylbenzene	ND	1	0.089	0.5	ug/L		12/16/18	LZ	

Matrix:	Water	Client:	Enthalpy - Berkeley	Collector:	Client
Sampled:	12/06/2018 15:05	Site:			
Sample #:	**410004-001**	Client Sample #:	SB-2-GW	Sample Type:	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
m and p-Xylene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
Methylene chloride	**18**	1	0.15	0.5	ug/L		12/16/18	LZ	
Methyl-t-butyl Ether (MTBE)	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
Naphthalene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
N-butylbenzene	ND	1	0.094	0.5	ug/L		12/16/18	LZ	
N-propylbenzene	ND	1	0.09	0.5	ug/L		12/16/18	LZ	
o-Xylene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Sec-butylbenzene	ND	1	0.077	0.5	ug/L		12/16/18	LZ	
Styrene	ND	1	0.088	0.5	ug/L		12/16/18	LZ	
Tert-butylbenzene	ND	1	0.092	0.5	ug/L		12/16/18	LZ	
Tetrachloroethene	ND	1	0.15	0.5	ug/L		12/16/18	LZ	
Toluene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
trans-1,2-dichloroethene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
trans-1,3-dichloropropene	ND	1	0.056	0.5	ug/L		12/16/18	LZ	
trans-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Trichloroethene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
Trichlorofluoromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Vinyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Xylenes (Total)	ND	1	0.25	0.5	ug/L		12/16/18	LZ	

Surrogate	*% Recovery*	*Limits*	*Notes*
1,2-Dichloroethane-d4 (SUR)	*98*	*70-145*	
4-Bromofluorobenzene (SUR)	*97*	*70-145*	
Dibromofluoromethane (SUR)	*102*	*70-145*	
Toluene-d8 (SUR)	*100*	*70-145*	

Matrix:	Water	**Client:**	Enthalpy - Berkeley	**Collector:**	Client
Sampled:	12/06/2018 16:05	**Site:**			
Sample #:	**410004-002**	**Client Sample #:**	SB-4-GW	**Sample Type:**	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 8015B *NELAC*	Prep Method: EPA 5030B						QCBatchID: QC1198776		
TPH Gasoline	ND	1	16	50	ug/L		12/17/18	EW	

Surrogate	*% Recovery*	*Limits*	*Notes*
4-Bromofluorobenzene (SUR)	*106*	*60-140*	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 8260B *NELAC*	Prep Method: EPA 5030B						QCBatchID: QC1198939		
1,1,1,2-Tetrachloroethane	ND	1	0.122	0.5	ug/L		12/16/18	LZ	
1,1,1-Trichloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2,2-Tetrachloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichloroethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichlorotrifluoroethane	ND	1	0.119	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethane	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethene	ND	1	0.13	0.5	ug/L		12/16/18	LZ	
1,1-Dichloropropene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichlorobenzene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichloropropane	ND	1	0.073	0.5	ug/L		12/16/18	LZ	
1,2,4-Trichlorobenzene	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,2,4-Trimethylbenzene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,2-Dibromo-3-chloropropane	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
1,2-Dibromoethane	ND	1	0.043	0.5	ug/L		12/16/18	LZ	
1,2-Dichlorobenzene	ND	1	0.051	0.5	ug/L		12/16/18	LZ	
1,2-Dichloroethane	ND	1	0.066	0.5	ug/L		12/16/18	LZ	
1,2-Dichloropropane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,3,5-Trimethylbenzene	ND	1	0.097	0.5	ug/L		12/16/18	LZ	
1,3-Dichlorobenzene	ND	1	0.052	0.5	ug/L		12/16/18	LZ	
1,3-Dichloropropane	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,4-Dichlorobenzene	ND	1	0.12	0.5	ug/L		12/16/18	LZ	
2,2-Dichloropropane	ND	1	0.11	0.5	ug/L		12/16/18	LZ	
2-Butanone (MEK)	**9.2**	1	0.3	5	ug/L		12/16/18	LZ	
2-Chlorotoluene	ND	1	0.079	0.5	ug/L		12/16/18	LZ	
4-Chlorotoluene	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
4-Isopropyltoluene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
4-Methyl-2-pentanone (MIBK)	ND	1	0.16	5	ug/L		12/16/18	LZ	
Acetone	**18**	1	0.2	10	ug/L		12/16/18	LZ	
Allyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Benzene	ND	1	0.071	0.5	ug/L		12/16/18	LZ	
Bromobenzene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Bromochloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromodichloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromoform	ND	1	0.053	0.5	ug/L		12/16/18	LZ	
Bromomethane	ND	1	0.13	1	ug/L		12/16/18	LZ	
Carbon Tetrachloride	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chlorobenzene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Chlorodibromomethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chloroethane	ND	1	0.4	0.5	ug/L		12/16/18	LZ	
Chloroform	ND	1	0.044	0.5	ug/L		12/16/18	LZ	
Chloromethane	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,2-Dichloroethene	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,3-dichloropropene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
cis-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Dibromomethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Dichlorodifluoromethane	ND	1	0.062	0.5	ug/L		12/16/18	LZ	
Ethylbenzene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
Hexachlorobutadiene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Isopropylbenzene	ND	1	0.089	0.5	ug/L		12/16/18	LZ	

Matrix:	Water	**Client:**	Enthalpy - Berkeley	**Collector:**	Client
Sampled:	12/06/2018 16:05	**Site:**			
Sample #:	**410004-002**	**Client Sample #:**	SB-4-GW	**Sample Type:**	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
m and p-Xylene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
Methylene chloride	**17**	1	0.15	0.5	ug/L		12/16/18	LZ	
Methyl-t-butyl Ether (MTBE)	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
Naphthalene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
N-butylbenzene	ND	1	0.094	0.5	ug/L		12/16/18	LZ	
N-propylbenzene	ND	1	0.09	0.5	ug/L		12/16/18	LZ	
o-Xylene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Sec-butylbenzene	ND	1	0.077	0.5	ug/L		12/16/18	LZ	
Styrene	ND	1	0.088	0.5	ug/L		12/16/18	LZ	
Tert-butylbenzene	ND	1	0.092	0.5	ug/L		12/16/18	LZ	
Tetrachloroethene	ND	1	0.15	0.5	ug/L		12/16/18	LZ	
Toluene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
trans-1,2-dichloroethene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
trans-1,3-dichloropropene	ND	1	0.056	0.5	ug/L		12/16/18	LZ	
trans-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Trichloroethene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
Trichlorofluoromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Vinyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Xylenes (Total)	ND	1	0.25	0.5	ug/L		12/16/18	LZ	

Surrogate	*% Recovery*	*Limits*	*Notes*
1,2-Dichloroethane-d4 (SUR)	*96*	*70-145*	
4-Bromofluorobenzene (SUR)	*97*	*70-145*	
Dibromofluoromethane (SUR)	*100*	*70-145*	
Toluene-d8 (SUR)	*102*	*70-145*	

Matrix: Water	Client: Enthalpy - Berkeley	Collector: Client
Sampled: 12/06/2018 15:45	Site:	
Sample #: **410004-003**	Client Sample #: SB-7-GW	Sample Type:

Method: EPA 8015B NELAC — Prep Method: EPA 5030B — QCBatchID: QC1198776

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
TPH Gasoline	ND	1	16	50	ug/L		12/17/18	EW	

Surrogate	*% Recovery*	*Limits*	*Notes*
4-Bromofluorobenzene (SUR)	*112*	*60-140*	

Method: EPA 8260B NELAC — Prep Method: EPA 5030B — QCBatchID: QC1198939

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane	ND	1	0.122	0.5	ug/L		12/16/18	LZ	
1,1,1-Trichloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2,2-Tetrachloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichloroethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichlorotrifluoroethane	ND	1	0.119	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethane	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethene	ND	1	0.13	0.5	ug/L		12/16/18	LZ	
1,1-Dichloropropene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichlorobenzene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichloropropane	ND	1	0.073	0.5	ug/L		12/16/18	LZ	
1,2,4-Trichlorobenzene	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,2,4-Trimethylbenzene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,2-Dibromo-3-chloropropane	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
1,2-Dibromoethane	ND	1	0.043	0.5	ug/L		12/16/18	LZ	
1,2-Dichlorobenzene	ND	1	0.051	0.5	ug/L		12/16/18	LZ	
1,2-Dichloroethane	ND	1	0.066	0.5	ug/L		12/16/18	LZ	
1,2-Dichloropropane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,3,5-Trimethylbenzene	ND	1	0.097	0.5	ug/L		12/16/18	LZ	
1,3-Dichlorobenzene	ND	1	0.052	0.5	ug/L		12/16/18	LZ	
1,3-Dichloropropane	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,4-Dichlorobenzene	ND	1	0.12	0.5	ug/L		12/16/18	LZ	
2,2-Dichloropropane	ND	1	0.11	0.5	ug/L		12/16/18	LZ	
2-Butanone (MEK)	ND	1	0.3	5	ug/L		12/16/18	LZ	
2-Chlorotoluene	ND	1	0.079	0.5	ug/L		12/16/18	LZ	
4-Chlorotoluene	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
4-Isopropyltoluene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
4-Methyl-2-pentanone (MIBK)	ND	1	0.16	5	ug/L		12/16/18	LZ	
Acetone	**15**	1	0.2	10	ug/L		12/16/18	LZ	
Allyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Benzene	ND	1	0.071	0.5	ug/L		12/16/18	LZ	
Bromobenzene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Bromochloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromodichloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromoform	ND	1	0.053	0.5	ug/L		12/16/18	LZ	
Bromomethane	ND	1	0.13	1	ug/L		12/16/18	LZ	
Carbon Tetrachloride	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chlorobenzene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Chlorodibromomethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chloroethane	ND	1	0.4	0.5	ug/L		12/16/18	LZ	
Chloroform	ND	1	0.044	0.5	ug/L		12/16/18	LZ	
Chloromethane	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,2-Dichloroethene	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,3-dichloropropene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
cis-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Dibromomethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Dichlorodifluoromethane	ND	1	0.062	0.5	ug/L		12/16/18	LZ	
Ethylbenzene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
Hexachlorobutadiene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Isopropylbenzene	ND	1	0.089	0.5	ug/L		12/16/18	LZ	

Matrix: Water	Client: Enthalpy - Berkeley	Collector: Client
Sampled: 12/06/2018 15:45	Site:	
Sample #: **410004-003**	Client Sample #: SB-7-GW	Sample Type:

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
m and p-Xylene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
Methylene chloride	**18**	1	0.15	0.5	ug/L		12/16/18	LZ	
Methyl-t-butyl Ether (MTBE)	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
Naphthalene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
N-butylbenzene	ND	1	0.094	0.5	ug/L		12/16/18	LZ	
N-propylbenzene	ND	1	0.09	0.5	ug/L		12/16/18	LZ	
o-Xylene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Sec-butylbenzene	ND	1	0.077	0.5	ug/L		12/16/18	LZ	
Styrene	ND	1	0.088	0.5	ug/L		12/16/18	LZ	
Tert-butylbenzene	ND	1	0.092	0.5	ug/L		12/16/18	LZ	
Tetrachloroethene	ND	1	0.15	0.5	ug/L		12/16/18	LZ	
Toluene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
trans-1,2-dichloroethene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
trans-1,3-dichloropropene	ND	1	0.056	0.5	ug/L		12/16/18	LZ	
trans-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Trichloroethene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
Trichlorofluoromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Vinyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Xylenes (Total)	ND	1	0.25	0.5	ug/L		12/16/18	LZ	

Surrogate	*% Recovery*	*Limits*	*Notes*
1,2-Dichloroethane-d4 (SUR)	*97*	*70-145*	
4-Bromofluorobenzene (SUR)	*96*	*70-145*	
Dibromofluoromethane (SUR)	*100*	*70-145*	
Toluene-d8 (SUR)	*102*	*70-145*	

Matrix:	Water	Client:	Enthalpy - Berkeley	Collector:	Client
Sampled:	12/06/2018 15:30	Site:			
Sample #:	**410004-004**	Client Sample #:	SB-5-GW	Sample Type:	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 8015B *NELAC*	Prep Method: EPA 5030B						QCBatchID:	QC1198776	
TPH Gasoline	ND	1	16	50	ug/L		12/17/18	EW	
Surrogate	*% Recovery*		*Limits*		*Notes*				
4-Bromofluorobenzene (SUR)	*107*		*60-140*						
Method: EPA 8260B *NELAC*	Prep Method: EPA 5030B						QCBatchID:	QC1198939	
1,1,1,2-Tetrachloroethane	ND	1	0.122	0.5	ug/L		12/16/18	LZ	
1,1,1-Trichloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2,2-Tetrachloroethane	ND	1	0.063	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichloroethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
1,1,2-Trichlorotrifluoroethane	ND	1	0.119	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethane	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,1-Dichloroethene	ND	1	0.13	0.5	ug/L		12/16/18	LZ	
1,1-Dichloropropene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichlorobenzene	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,2,3-Trichloropropane	ND	1	0.073	0.5	ug/L		12/16/18	LZ	
1,2,4-Trichlorobenzene	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,2,4-Trimethylbenzene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
1,2-Dibromo-3-chloropropane	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
1,2-Dibromoethane	ND	1	0.043	0.5	ug/L		12/16/18	LZ	
1,2-Dichlorobenzene	ND	1	0.051	0.5	ug/L		12/16/18	LZ	
1,2-Dichloroethane	ND	1	0.066	0.5	ug/L		12/16/18	LZ	
1,2-Dichloropropane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
1,3,5-Trimethylbenzene	ND	1	0.097	0.5	ug/L		12/16/18	LZ	
1,3-Dichlorobenzene	ND	1	0.052	0.5	ug/L		12/16/18	LZ	
1,3-Dichloropropane	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
1,4-Dichlorobenzene	ND	1	0.12	0.5	ug/L		12/16/18	LZ	
2,2-Dichloropropane	ND	1	0.11	0.5	ug/L		12/16/18	LZ	
2-Butanone (MEK)	ND	1	0.3	5	ug/L		12/16/18	LZ	
2-Chlorotoluene	ND	1	0.079	0.5	ug/L		12/16/18	LZ	
4-Chlorotoluene	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
4-Isopropyltoluene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
4-Methyl-2-pentanone (MIBK)	ND	1	0.16	5	ug/L		12/16/18	LZ	
Acetone	**18**	1	0.2	10	ug/L		12/16/18	LZ	
Allyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Benzene	ND	1	0.071	0.5	ug/L		12/16/18	LZ	
Bromobenzene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Bromochloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromodichloromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Bromoform	ND	1	0.053	0.5	ug/L		12/16/18	LZ	
Bromomethane	ND	1	0.13	1	ug/L		12/16/18	LZ	
Carbon Tetrachloride	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chlorobenzene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Chlorodibromomethane	ND	1	0.045	0.5	ug/L		12/16/18	LZ	
Chloroethane	ND	1	0.4	0.5	ug/L		12/16/18	LZ	
Chloroform	ND	1	0.044	0.5	ug/L		12/16/18	LZ	
Chloromethane	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,2-Dichloroethene	ND	1	0.055	0.5	ug/L		12/16/18	LZ	
cis-1,3-dichloropropene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
cis-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Dibromomethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Dichlorodifluoromethane	ND	1	0.062	0.5	ug/L		12/16/18	LZ	
Ethylbenzene	ND	1	0.091	0.5	ug/L		12/16/18	LZ	
Hexachlorobutadiene	ND	1	0.073	1	ug/L		12/16/18	LZ	
Isopropylbenzene	ND	1	0.089	0.5	ug/L		12/16/18	LZ	

Matrix:	Water	Client:	Enthalpy - Berkeley	Collector:	Client
Sampled:	12/06/2018 15:30	Site:			
Sample #:	**410004-004**	Client Sample #:	SB-5-GW	Sample Type:	

Analyte	Result	DF	MDL	RDL	Units	Prepared	Analyzed	By	Notes
m and p-Xylene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
Methylene chloride	**18**	1	0.15	0.5	ug/L		12/16/18	LZ	
Methyl-t-butyl Ether (MTBE)	ND	1	0.068	0.5	ug/L		12/16/18	LZ	
Naphthalene	ND	1	0.061	0.5	ug/L		12/16/18	LZ	
N-butylbenzene	ND	1	0.094	0.5	ug/L		12/16/18	LZ	
N-propylbenzene	ND	1	0.09	0.5	ug/L		12/16/18	LZ	
o-Xylene	ND	1	0.075	0.5	ug/L		12/16/18	LZ	
Sec-butylbenzene	ND	1	0.077	0.5	ug/L		12/16/18	LZ	
Styrene	ND	1	0.088	0.5	ug/L		12/16/18	LZ	
Tert-butylbenzene	ND	1	0.092	0.5	ug/L		12/16/18	LZ	
Tetrachloroethene	ND	1	0.15	0.5	ug/L		12/16/18	LZ	
Toluene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
trans-1,2-dichloroethene	ND	1	0.17	0.5	ug/L		12/16/18	LZ	
trans-1,3-dichloropropene	ND	1	0.056	0.5	ug/L		12/16/18	LZ	
trans-1,4-dichloro-2-butene	ND	1	0.075	5	ug/L		12/16/18	LZ	
Trichloroethene	ND	1	0.078	0.5	ug/L		12/16/18	LZ	
Trichlorofluoromethane	ND	1	0.06	0.5	ug/L		12/16/18	LZ	
Vinyl Chloride	ND	1	0.08	0.5	ug/L		12/16/18	LZ	
Xylenes (Total)	ND	1	0.25	0.5	ug/L		12/16/18	LZ	

Surrogate	*% Recovery*	*Limits*	*Notes*
1,2-Dichloroethane-d4 (SUR)	*99*	*70-145*	
4-Bromofluorobenzene (SUR)	*97*	*70-145*	
Dibromofluoromethane (SUR)	*104*	*70-145*	
Toluene-d8 (SUR)	*101*	*70-145*	

QCBatchID: QC1198776	**Analyst:** sandyw	**Method:** EPA 8015B
Matrix: Water	**Analyzed:** 12/17/2018	**Instrument:** VOA-GC (group)

Blank Summary

Analyte	Blank Result	Units	MDL	RDL	Notes
QC1198776MB1					
TPH (C6 to C10)	ND	ug/L	16	50	
TPH (C6 to C12)	ND	ug/L	16	50	
TPH Gasoline	ND	ug/L	16	50	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount LCS	Spike Amount LCSD	Spike Result LCS	Spike Result LCSD	Units	Recoveries LCS	Recoveries LCSD	RPD	Limits %Rec	Limits RPD	Notes
QC1198776LCS1											
TPH Gasoline	500		460		ug/L	92			70-130		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount MS	Spike Amount MSD	Spike Result MS	Spike Result MSD	Units	Recoveries MS	Recoveries MSD	RPD	Limits %Rec	Limits RPD	Notes
QC1198776MS1, QC1198776MSD1											**Source:**	**409947-001**
TPH Gasoline	ND	500	500	420	410	ug/L	84	82	2.4	70-130	30	

QCBatchID: QC1198939	Analyst: lucy	Method: EPA 8260B
Matrix: Water	Analyzed: 12/16/2018	Instrument: VOA-MS (group)

Blank Summary

Analyte	Blank Result	Units	MDL	RDL	Notes
QC1198939MB1					
1,1,1,2-Tetrachloroethane	ND	ug/L	0.25	5	
1,1,1-Trichloroethane	ND	ug/L	0.38	5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.25	5	
1,1,2-Trichloroethane	ND	ug/L	0.25	5	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	0.29	5	
1,1-Dichloroethane	ND	ug/L	0.32	5	
1,1-Dichloroethene	ND	ug/L	0.3	5	
1,1-Dichloropropene	ND	ug/L	0.25	5	
1,2,3-Trichlorobenzene	ND	ug/L	0.28	5	
1,2,3-Trichloropropane	ND	ug/L	0.16	5	
1,2,4-Trichlorobenzene	ND	ug/L	0.27	5	
1,2,4-Trimethylbenzene	ND	ug/L	0.28	5	
1,2-Dibromo-3-chloropropane	ND	ug/L	0.12	5	
1,2-Dibromoethane	ND	ug/L	0.19	5	
1,2-Dichlorobenzene	ND	ug/L	0.26	5	
1,2-Dichloroethane	ND	ug/L	0.2	5	
1,2-Dichloropropane	ND	ug/L	0.36	5	
1,3,5-Trimethylbenzene	ND	ug/L	0.24	5	
1,3-Dichlorobenzene	ND	ug/L	0.34	5	
1,3-Dichloropropane	ND	ug/L	0.19	5	
1,4-Dichlorobenzene	ND	ug/L	0.43	5	
2,2-Dichloropropane	ND	ug/L	0.32	5	
2-Butanone (MEK)	ND	ug/L	0.78	100	
2-Chlorotoluene	ND	ug/L	0.33	5	
4-Chlorotoluene	ND	ug/L	0.31	5	
4-Isopropyltoluene	ND	ug/L	0.32	5	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	0.12	5	
Acetone	ND	ug/L	50	100	
Allyl Chloride	ND	ug/L	0.19	5	
Benzene	ND	ug/L	0.18	1	
Bromobenzene	ND	ug/L	0.53	5	
Bromochloromethane	ND	ug/L	0.17	5	
Bromodichloromethane	ND	ug/L	0.31	5	
Bromoform	ND	ug/L	0.13	5	
Bromomethane	ND	ug/L	0.68	5	
Carbon Tetrachloride	ND	ug/L	0.27	5	
Chlorobenzene	ND	ug/L	0.19	5	
Chlorodibromomethane	ND	ug/L	0.21	5	
Chloroethane	ND	ug/L	0.45	5	
Chloroform	ND	ug/L	0.18	5	
Chloromethane	ND	ug/L	0.27	5	
cis-1,2-Dichloroethene	ND	ug/L	0.27	5	
cis-1,3-dichloropropene	ND	ug/L	0.25	5	
cis-1,4-dichloro-2-butene	ND	ug/L	0.17	5	
Dibromomethane	ND	ug/L	0.23	5	
Dichlorodifluoromethane	ND	ug/L	0.33	5	
Di-isopropyl ether (DIPE)	ND	ug/L	0.17	1	
Ethylbenzene	ND	ug/L	0.21	5	
Ethyl-tertbutylether (ETBE)	ND	ug/L	0.23	1	
Hexachlorobutadiene	ND	ug/L	0.51	5	
Isopropylbenzene	ND	ug/L	0.24	5	
m and p-Xylene	ND	ug/L	0.45	5	

QCBatchID:	QC1198939	Analyst:	lucy	Method:	EPA 8260B
Matrix:	Water	Analyzed:	12/16/2018	Instrument:	VOA-MS (group)

Analyte	Blank Result	Units	MDL	RDL	Notes
QC1198939MB1					
Methylene chloride	ND	ug/L	0.16	5	
Methyl-t-butyl Ether (MTBE)	ND	ug/L	0.19	1	
Naphthalene	ND	ug/L	0.25	5	
N-butylbenzene	ND	ug/L	0.25	5	
N-propylbenzene	ND	ug/L	0.31	5	
o-Xylene	ND	ug/L	0.29	5	
Sec-butylbenzene	ND	ug/L	0.32	5	
Styrene	ND	ug/L	0.22	5	
t-Butyl alcohol (TBA)	ND	ug/L	5.2	10	
Tert-amylmethylether (TAME)	ND	ug/L	0.19	5	
Tert-butylbenzene	ND	ug/L	0.4	5	
Tetrachloroethene	ND	ug/L	0.8	5	
Toluene	ND	ug/L	0.24	5	
trans-1,2-dichloroethene	ND	ug/L	0.33	5	
trans-1,3-dichloropropene	ND	ug/L	0.23	5	
trans-1,4-dichloro-2-butene	ND	ug/L	0.17	5	
Trichloroethene	ND	ug/L	0.39	5	
Trichlorofluoromethane	ND	ug/L	0.25	5	
Vinyl Chloride	ND	ug/L	0.18	5	
Xylenes (Total)	ND	ug/L	0.45	5	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount LCS	Spike Amount LCSD	Spike Result LCS	Spike Result LCSD	Units	Recoveries LCS	Recoveries LCSD	RPD	Limits %Rec	Limits RPD	Notes
QC1198939LCS1											
1,1-Dichloroethene	50		55		ug/L	110			59-172		
Benzene	50		48		ug/L	96			62-137		
Chlorobenzene	50		52		ug/L	104			60-133		
Methyl-t-butyl Ether (MTBE)	50		41		ug/L	82			62-137		
Toluene	50		54		ug/L	108			59-139		
Trichloroethene	50		52		ug/L	104			66-142		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount MS	Spike Amount MSD	Spike Result MS	Spike Result MSD	Units	Recoveries MS	Recoveries MSD	RPD	Limits %Rec	Limits RPD	Notes
QC1198939MS1, QC1198939MSD1											**Source:**	**409947-001**
1,1-Dichloroethene	ND	50	50	51	50	ug/L	102	100	2.0	59-172	22	
Benzene	ND	50	50	47	46	ug/L	94	92	2.2	62-137	24	
Chlorobenzene	ND	50	50	49	49	ug/L	98	98	0.0	60-133	24	
Methyl-t-butyl Ether (MTBE)	1.9	50	50	40	42	ug/L	76	80	4.9	62-137	21	
Toluene	ND	50	50	51	51	ug/L	102	102	0.0	59-139	21	
Trichloroethene	ND	50	50	50	49	ug/L	100	98	2.0	66-142	21	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

Enthalpy Berkeley

2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

410004

Project Number: 305638
Site: SupplyBank

Subcontract Laboratory:
Enthalpy Analytical (Orange)
931 W Barkley Avenue
Orange, CA 92868
(714) 771-9923
ATTN: Lisa Nguyen

Results due: Report Level: II

Please send report to: Tracy Babjar (tracy.babjar@enthalpy.com)
*** Please report using Sample ID rather than Enthalpy (Berkeley) Lab #.

Sample ID	Sampled	Matrix	Analysis	Lab #	Comments
SB-2-GW	12/06 15:05	Water	8260-SUB	305638-001	5
SB-2-GW	12/06 15:05	Water	TVH-SUB 8015PPH	305638-001	
SB-4-GW	12/06 16:05	Water	8260-SUB	305638-002	5
SB-4-GW	12/06 16:05	Water	TVH-SUB	305638-002	
SB-7-GW	12/06 15:45	Water	8260-SUB	305638-003	5
SB-7-GW	12/06 15:45	Water	TVH-SUB	305638-003	
SB-5-GW	12/06 15:30	Water	8260-SUB	305638-004	5
SB-5-GW	12/06 15:30	Water	TVH-SUB	305638-004	

Hold
not This

Notes:	Relinquished By:	Received By:
	[signature]	[signature]
	Date/Time: 12/14/18 14:35	Date/Time: 12/15/18 1047
	Date/Time:	Date/Time:

Signature on this form constitutes a firm Purchase Order for the services requested above.

-002
1/5 HS

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: EA - Berkeley   Project: 305638

Date Received: 12/15/18   Sampler's Name Present: ☐ Yes ☒ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2)   Sample Temp (°C) (No Cooler): ____

Sample Temp (°C), One from each cooler: #1: 1.0 #2: ____ #3: ____ #4: ____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: ____

Section 3

Was the cooler packed with: ☑ Ice ☑ Ice Packs ☑ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other ____

Cooler Temp (°C): #1: 0.9 #2: ____ #3: ____ #4: ____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?	✓		
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Headspace: SB-4-GW (1/5)

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: ____ Date/Time ____

☒ Email (email sent to/on): LN / 12/15/18

Project Manager's response:

Completed By: [signature] Date: 12/15/18

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal
Sample Acceptance Checklist – Rev 4, 8/8/2017

Ship From
ENTHALPY ANALYTICAL, LLC
PROJECT MANAGEMENT
2323 FIFTH STREET
BERKELEY, CA 94710

Tracking #: 543135321

SDS

Ship To
ENTHALPY ANALYTICAL
METALS DEPARTMENT
931 W. BARKLEY
ORANGE, CA 92868

ORC

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ORANGE

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:

Signature Type: STANDARD

S92868A

95341555

Print Date: 12/14/2018 3:29 PM

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Appendix P

SupplyBank Oakport Project - Transportation Impact Review

Fehr & Peers, April 28, 2023

FEHR PEERS

Draft Memorandum

Date: April 28, 2023

To: Scott Gregory, Lamphier-Gregory

From: Sam Tabibnia and Molly Riddle, Fehr & Peers

Subject: SupplyBank.org at Oakport Project – Transportation Impact Review

OK22-0477

This memorandum summarizes the transportation assessment that Fehr & Peers completed for the proposed SupplyBank.org at Oakport Project in Oakland. The information provided in this memorandum is based on the City of Oakland's *Transportation Impact Review Guidelines* (TIRG) published in April 2017. Sections in this memorandum include:

1. Project Description

The Project site is located on a mostly vacant lot on the west side of Oakport Street, just north of Zhone Way (66th Avenue) and south of Peppermint Gate Access Road, in the City of Oakland. The Project would consist of a 10,000 square-foot workshop (Building 1), which this analysis assumes to be light industrial uses, a 123,000 square-foot warehouse (Building 2), and a five-story, 160,000 square-foot office building (Building 3). The Project would provide 331 surface parking spaces (including nine accessible spaces), 12 larger truck parking spaces, and 13 truck loading bays for the warehouse.

Automobile and truck access to the Project site would be provided via four driveways on Oakport Street. The two south driveways would primarily be used by passenger vehicles to access the south parking lot, which would provide 217 parking spaces and the adjacent office and warehouse facilities. The two north driveways would be used by both passenger vehicles and trucks to access the north parking lot, which would provide 114 passenger vehicle parking spaces and 12 truck parking spaces, and serve the adjacent workshop, warehouse, including 13 loading bays, and storage facilities.

An area adjacent to the north end of the Project would continue to be used by the East Bay Municipal Utility District (EBMUD) for storage of construction material with access to the Project site through the northwest corner of the Project.

2. Trip Generation

The Project trip generation is discussed below.

Automobile Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the Project on any given weekday. **Table 1** summarizes the trip generation for the Project. Trip generation data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual (11th Edition)* was used as a starting point to estimate the vehicle trip generation.

ITE's *Trip Generation Manual (11th Edition)* is primarily based on data collected at single-use suburban sites where the automobile is often the only travel mode. Although the Project site is not located in a dense, mixed-use environment, it is about one mile from the Coliseum BART Station. This analysis therefore reduces the ITE-based trip generation by about 16 percent to account for non-automobile trips. This adjustment is consistent with the City of Oakland's TIRG and is based on US Census commute data for Alameda County from the 2014 5-Year Estimates of the American Community Survey (ACS), which shows that the non-automobile mode share is about 16 percent for areas located more than one mile from a BART station that have a population density of fewer than 6,000 people per square mile.

Table 1: Project Automobile Trip Generation

Land Use	ITE Code	Size[1] (KSF)	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
Office[2]	710	160	1,750	221	30	251	42	203	245
Warehousing[3]	150	123	230	29	9	38	11	30	41
Workshop[4]	110	10	90	10	1	11	1	7	8
ITE Trip Generation Subtotal			2,070	260	40	300	54	240	294
Non-Auto Adjustment[5]			*-320*	*-40*	*-7*	*-47*	*-8*	*-38*	*-46*
Net New Automobile Trips			**1,750**	**220**	**33**	**253**	**46**	**202**	**248**

Notes:
1. KSF = 1,000 square feet.
2. ITE *Trip Generation (11th Edition)* land use category 710 (General Office Building, General Urban/Suburban):
   Daily: Ln(T) = 0.87 * Ln(X) + 3.05
   AM Peak Hour: Ln(T) = 0.86 * Ln(X) + 1.16 (88% in, 12% out)
   PM Peak Hour: Ln(T) = 0.83 * Ln(X) + 1.29 (17% in, 83% out)
3. *ITE Trip Generation (11th Edition)* land use category 150 (Warehousing, General Urban/Suburban):
   Daily: T = 1.58 * X + 38.29
   AM Peak Hour: T = 0.12 * X + 23.62 (77% in, 23% out)
   PM Peak Hour: T = 0.12 * X + 26.48 (28% in, 72% out)
4. *ITE Trip Generation (11th Edition)* land use category 110 (General Light Industrial, General Urban/Suburban):
   Daily: T= 3.76 * X + 50.47
   AM Peak Hour: Ln(T) = 0.68 * Ln(X) + 3.81 (88% in, 12% out)
   PM Peak Hour: Ln(T) = 0.72 * Ln(X) + 0.38 (14% in, 86% out)
5. Reduction of 15.6% assumed, based on City of Oakland *TIRG*, using Census data for suburban environments with less than 6,000 people per square mile and more than one mile from a BART station.

Source: Fehr & Peers, 2023.

Non-Automobile Trip Generation

Consistent with the City of Oakland TIRG, **Table 2** presents the estimates of Project trip generation for all travel modes for the Project.

Table 2: Project Trip Generation by Travel Mode

Mode	Mode Share Adjustment Factors[1]	Daily	AM Peak Hour	PM Peak Hour
Automobile	0.844	1,750	253	248
Transit	0.113	230	34	33
Bike	0.009	20	3	3
Walk	0.026	50	8	8
	Total Trips	**2,050**	**298**	**292**

Notes:
1. Based on *City of Oakland TIRG*, assuming Project site is in a suburban environment located more than one mile from a BART station with fewer than 6,000 people per square mile.

Source: Fehr & Peers, 2023.

3. Vehicle Miles Traveled (VMT) Assessment

On September 21, 2016, the City of Oakland's Planning Commission directed staff to update the City of Oakland's California Environmental Quality Act (CEQA) Thresholds of Significance Guidelines related to transportation impacts in order to implement the directive from Senate Bill 743 (Steinberg 2013) to modify local environmental review processes by removing automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity or traffic congestion, as a significant impact on the environment pursuant to CEQA. The Planning Commission direction aligns with draft proposed guidance from the Governor's Office of Planning and Research and the City's approach to transportation impact analysis, with adopted plans and polices related to transportation, which promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. Consistent with the Planning Commission direction and the Senate Bill 743 requirements, the City of Oakland published the revised TIRG on April 14, 2017 to guide the evaluation of the transportation impacts associated with land use development projects.

Many factors affect travel behavior, including density of development, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development that is located at a great distance from other land uses, in areas with poor access to non-single occupancy vehicle travel modes generate more vehicle travel compared to development located in urban areas, where a higher density of development, a mix of land uses, and non-single occupancy vehicle travel options are available.

Given these travel behavior factors, most of Oakland has lower VMT per capita and VMT per worker ratios than the nine-county San Francisco Bay Area region. Further, within the City of Oakland, some neighborhoods may have lower VMT ratios than others.

VMT Estimate

This analysis uses the latest version of the Alameda County Transportation Commission (CTC) Travel Demand Model which was released in May 2019 and is consistent with the Metropolitan Transportation Commission Plan Bay Area 2040 (i.e., Sustainable Communities Strategy) transportation network and land uses for 2020 and 2040. The model produces forecasts that are generally consistent with the travel demand forecasts that the MTC has produced for Plan Bay Area 2040 for the Plan horizon year of 2040 and meets the regional model consistency requirements.

Neighborhoods within Oakland are expressed geographically in transportation analysis zones, or TAZs, which are used in transportation planning models for transportation analysis and other planning purposes. The Alameda CTC Travel Demand Model includes 369 TAZs within Oakland that vary in size from a few city blocks in the downtown core, to multiple blocks in outer neighborhoods, to even larger geographic areas in lower-density neighborhoods. Based on the transportation network and land use inputs, such as population and employment characteristics by TAZ, the Model predicts trip generation by TAZ and assigns all predicted trips within, across, or to/from the county onto the roadway network and the transit system by mode (single-driver and carpool vehicle, biking, walking, or transit) and transit carrier (bus, rail) for a particular scenario.

The Alameda CTC Model outputs the home-work (i.e., commute) VMT per worker, which measures all of the worker commute VMT by a motor vehicle on a typical weekday between homes and workplaces. Based on the Alameda CTC Travel Demand Model, the regional average daily VMT per worker is 18.1 under 2020 conditions and 18.2 under 2040 conditions.

Thresholds of Significance for VMT

According to the City of Oakland TIRG, the following threshold of significance related to substantial additional VMT is applicable to the Project:

- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per worker minus 15-percent

Screening Criteria

VMT impacts would be less than significant for a project if any of the identified screening criteria outlined below are met:

1. Small Projects: The project generates fewer than 100 vehicle trips per day
2. Low-VMT Areas: The project meets map-based screening criteria by being located in an area that exhibits below-threshold VMT, or 15 percent or more below the regional average
3. Near Transit Stations: The project is located in a Transit Priority Area[1] or within a one-half

[1] According to the California Public Resource Code, a Transit Priority Area is defined as a one-half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor. Public Resources Code, § 21064.3 defines major transit stop as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of 15 minutes or less during the morning and afternoon peak commute periods. Public Resources Code, § 21155 defines a high-quality transit corridor as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

mile of a Major Transit Corridor or Stop[2] and satisfies the following:

- Has a Floor Area Ratio (FAR) of more than 0.75,
- includes less parking for use by residents, customers, or employees of the project than other typical nearby uses, or less than or less than required by the City (if parking minimums pertain to the site) or allowed without a conditional use permit (if minimums and/or maximums pertain to the site),
- and is consistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the MTC).

VMT Screening Analysis

The Project satisfies screening Criterion #2, as described below.

Criterion #1: Small Projects

As shown in Table 1, the Project would generate more than 100 vehicle trips per day and therefore does not meet Criterion #1.

Criterion #2: Low-VMT Area

Table 3 shows the estimated 2020 and 2040 VMT per worker for TAZ 1403, the TAZ in the Alameda CTC Model in which the Project is located, as well as the applicable VMT thresholds of 15 percent below the regional average. According to the TIRG, the warehouse and industrial components of the Project should be screened by comparing the VMT per worker in the TAZ to the regional average minus 15 percent due to their classification as production, distribution, and repair (PDR) uses. As shown in Table 3, the 2020 and 2040 estimated average daily VMT per worker in the Project TAZ is less than the regional averages minus 15 percent. The Project would therefore meet Criterion #2.

Criterion #3: Near Transit Stations

The Project is about one mile from the Coliseum BART Station. The nearest bus stop to the Project site is on 66th Avenue at Coliseum Way, about 0.4 mile east of the Project site. The bus stop is served by AC Transit Line 98, which operates with 20-minute headways during weekday peak commute periods. Thus, the Project is not located in a Transit Priority Area and is not within a one-half mile of a Major Transit Corridor or Stop. Therefore, it would not satisfy Criterion #3.

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[2] "Major transit stop" is defined in CEQA Section 21064.3 as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Table 3: Project Daily Vehicle Miles Traveled Summary

Geographic Area	Home-Work VMT per Worker (2020)	Home-Work VMT per Worker (2040)
Proposed Project (Alameda CTC Model TAZ 1403)	14.0	14.6
Bay Area Region Average	18.1	18.2
Bay Area Region Average minus 15% (i.e., threshold of significance)	15.4	15.5
Significant Impact?	**No**	**No**

Notes:

1. Alameda CTC Travel Demand Model results at https://www.alamedactc.org/planning/sb743-vmt/ and accessed in July 2022.

Source: Fehr & Peers, 2023.

VMT Screening Conclusion

The Project satisfies the City of Oakland's VMT screening Criterion #2 and is therefore determined to have a less-than-significant impact on VMT.

4. Site Access and Circulation Analysis

An evaluation of access and circulation for all travel modes, based on the site plan, dated April 3, 2019 and provided in **Appendix A**, is summarized below.

Automobile Access and Circulation

All automobile access to the Project would be on Oakport Street, a two-lane roadway with no median, a gravel shoulder, no sidewalks, and a posted speed limit of 40 miles per hour (mph). Parking and stopping are currently prohibited on both sides of Oakport Street with concrete barriers along southbound Oakport Street to physically prohibit parking or stopping along the street.

Based on the Project site plan, the Project proposes to reconfigure Oakport Street to provide one 13-foot automobile lane and one five-foot Class 2 bicycle lane in each direction, and a five-foot sidewalk on the west side of the street.

Access to the Project site would be provided via four driveways; for the purpose of this discussion these are labeled A through D from north to south. The driveways would be 30-feet (Driveway A), 45-feet (Driveway B), 30-feet (Driveway C), and 26-feet wide (Driveway D). The Project proposes to provide a 220-foot long right-turn pocket on southbound Oakport Street at Driveway B. Each driveway would provide one inbound and one outbound lane with all movements allowed at the driveway. All four driveways would provide adequate sight distance between exiting motorists and pedestrians on the adjacent sidewalk on each side of the driveway.[3]

City of Oakland Municipal Code Section 12.04.270 requires driveways to be between 12 and 35 feet wide. Driveway B would be 45 feet wide, exceeding the maximum driveway width. This driveway would primarily be used for truck access. If the width of this driveway is reduced to 35 feet, larger trucks, such as a WB-67, turning into the driveway may not be able to use the driveway if another large truck is waiting at the driveway to exit. Reducing the driveway width to 40 feet would allow large trucks to simultaneously turn in to and out of the driveway. The City of Oakland Municipal Code Section 12.04.290 allows for an appeal to the Driveway Appeals Board to implement driveway widths not consistent with City Code requirements.

All four driveways would be controlled by an access gate and an adjacent guard shack. Driveway A (the northmost driveway) can accommodate a queue of about 80 feet at the access gate before queues spill back onto Oakport Street, and Driveways B through D can accommodate a queue of about 40 feet, which corresponds to about one or two vehicles, before queues spill back onto Oakport Street. The queuing space for Driveways C and D which provide access for the Project main parking lot may not be adequate to accommodate the passenger vehicles entering the site during the morning peak commute period.

> **Recommendation 1:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:
>
> - Implement one of the following at Driveway B (the second driveway from the north) to be consistent with the City of Oakland Municipal Code Section 12.04.270:
>   - Reduce the width of the driveway opening to 35 feet.
>   - If a high volume of large trucks, such as WB-67, is expected, then coordinate with the City of Oakland Driveway Appeals Board to provide a wider driveway.
> - Implement one of the following at Driveways C and/or D (the two south driveways) to reduce the potential for queues at Project access gates spilling back onto Oakport Street:

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[3] Adequate sight distance is defined as a clear line-of-sight between a motorist ten feet back from the sidewalk and a pedestrian 10 feet away on each side of the driveway.

- Redesign the Project to provide at least 75 feet of queuing space for at least one of the driveways.
- Keep the access gates at the two driveways open during normal business hours.

Driveways A and B would provide access to the north parking lot and adjacent workshop, warehouse, and EBMUD storage facilities. The north lot would provide 114 passenger vehicle parking spaces, 12 truck parking spaces, and access to 13 loading bays. Drive aisles in this lot range from 30-feet to 60-feet wide. Driveways C and D would provide access to the south parking lot and adjacent office and warehouse facilities. The south lot would provide 217 parking spaces primarily limited to passenger vehicles. This lot would also provide access to a 20-foot wide fire access lane wrapping around the south and west sides of the office building. Drive aisles in this south lot range from 26-feet to 30-feet wide. Per *City of Oakland Municipal Code* Section 17.116.210, the dimensions of parking spaces and drive aisles meet requirements.

Stopping Sight Distance

This analysis uses stopping sight distance (SSD) as defined by Caltrans' *Highway Design Manual, Seventh Edition (*HDM, 2020*)* to determine if the Project driveways provide adequate sight distance between vehicles turning into and out of the Project driveways and through traffic on Oakport Street. SSD is defined as the distance required by the driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the road becomes visible and in advance of reaching the object. Currently, the posted speed limit on Oakport Street is 40 mph. Per *Caltrans Highway Design Manual* Table 201.1, the minimum SSD for 40 mph is 300 feet.

The SSD for each driveway is shown in **Appendix B** based on the Project site plan dated April 3, 2019, and is discussed below:

- Driveway A would exceed the minimum required SSD in both directions of Oakport Street.
- Driveway B would exceed the minimum required SSD for northbound Oakport Street but may not meet the minimum required SSD for southbound Oakport Street because vehicles in the proposed right-turn lane and potential landscaping may block sight lines between vehicles in the driveway and vehicles on southbound Oakport Street.
- Driveway C would exceed the minimum required SSD in both directions of Oakport Street.
- Driveway D would exceed the minimum required SSD for southbound Oakport Street but the existing curve on Oakport Street may limit the sight lines between vehicles turning

left out of Driveway D and through vehicles on northbound Oakport Street as well as between vehicles waiting to turn left from northbound Oakport Street into Driveway D and through vehicles on northbound Oakport Street.

Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Eliminate the proposed right-turn-lane on southbound Oakport Steet at the approach to Driveway B (second driveway from the north).
- Limit the outbound movement at Driveway D (southmost driveway) to right-turns only.
- Provide a left-turn lane on northbound Oakport Street at the approach to Driveway D (southmost driveway). If a left-turn lane cannot be accommodated, prohibit left-turns into the driveway and physically limit the driveway to right-turns in and out only.

Automobile Parking

This section addresses the automobile parking required by the City of Oakland, the estimated parking demand for the Project, and changes to on-street parking.

Automobile Parking Requirements

The *City of Oakland Planning Code Sections* 17.116.080 and 17.116.090 establish minimum and maximum parking requirements for commercial and industrial activities, respectively, as shown in **Table 4**. No minimum parking requirements apply to the Project based on its zoning as Coliseum District 6 (D-CO-6). Maximum parking requirements apply only to the office land use, as described below. Table 4 summarizes the off-street automobile parking requirements for the Project. The Project is required to provide between 0 and 363 parking spaces. The Project would include 331 off-street parking spaces, which meets the City *Code* requirement.

New parking facilities with 300 to 350 parking spaces are required to provide at least eight ADA accessible parking spaces with one van-accessible space for every six accessible parking spaces. The Project would provide nine accessible parking spaces consisting of the following:

- Seven accessible parking spaces, including one van accessible space, in the south parking lot along the northeast corner of the office building

- Two accessible parking spaces, including one van accessible space, on the north side of the warehouse parking lot

Thus, the Project would meet the minimum requirement for accessible and van accessible parking spaces.

Table 4: Automobile Parking Requirements

Land Use	Size[1] (KSF)	Required Parking Rates		Required Parking Spaces	
		Min	Max	Min	Max
Office[2]	160	No minimum	Ground Floor: 1 per 300 SF, Above Ground Floor: 1 per 500 SF	n/a	363
Warehouse[3]	123	No minimum	No spaces required	n/a	0
Workshop[3]	10	No minimum	No spaces required	n/a	0
			Total Parking Required	*0 to 363*	
			Total Parking Supplied	*331*	
			Meets *Code* Requirements?	**Yes**	

Notes:
1. KSF = 1,000 square-feet.
2. Office Land Use: Per Oakland Municipal Code Section 17.116.080 – Off-Street Parking – Commercial Activities, Zone: Coliseum District 6 (D-CO-6).
3. Industrial Land Uses: Parking: Per Oakland Municipal Code Section 17.116.090 – Off-Street Parking – Industrial Activities, Zone: Coliseum District 6 (D-CO-6).

Source: Fehr & Peers, 2023.

Plug-In Electric Vehicle (PEV) Charging Infrastructure

Chapter 15.04 of the *Oakland Municipal Code* requires the Project to provide PEV-ready and PEV-capable parking spaces. Per *Code* Section 15.04.2.11.130, a minimum of ten percent of the parking spaces are required to be PEV-ready and an additional 10 percent of the spaces are required to be PEV-capable. Since the Project would provide 331 parking spaces, it is required to provide a minimum of 33 PEV-ready and 33 PEV-capable parking spaces. The Project site plan does not identify any parking spaces as PEV-ready or PEV-capable.

Recommendation 3: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Ensure that the Project provides a minimum of 33 PEV-ready and an additional 33 PEV-capable parking spaces.

Estimated Parking Demand

Table 5 summarizes the estimated parking demand for the Project based on parking data published by ITE in the *Parking Generation Manual (5th Edition)*. Similar to the trip generation estimate presented earlier in this memorandum, the ITE-based parking demand estimate is also reduced by about 16 percent to account for non-automobile trips. The Project is estimated to have parking demand of 369 vehicles, which would exceed the 331 spaces provided on site. Since the parking supply proposed by the Project is about 10 percent less than the estimated demand, the Project would not provide excessive parking supply that would encourage employees and visitors to not drive to and from the site. Thus, the parking supply proposed by the Project is consistent with the Transportation Demand Management (TDM) Plan that the Project is required to develop and implement, to reduce the vehicular trips and parking generated by the Project by at least 20 percent.

Table 5: Estimated Parking Demand

Land Use	ITE Code	Size[1] (KSF)	Weekday Parking Demand	
			Rate (Spaces per KSF)	Demand (Spaces)
Office[2]	710	160	2.39	382
Warehousing[2]	150	123	0.39	48
Workshop[2]	110	10	0.65	7
			Subtotal Parking Demand	*437*
			Non-Auto Reduction (15.6%)[3]	*-68*
			Total Parking Demand	369
			Parking Supply	331
			Does Parking Supply Meet or Exceed Demand?	**No**

Notes

1. KSF = 1,000 square feet.
2. Average Rates, Peak Period Parking Demand per 1,000 square feet Gross Floor Area:
   Office – General Office Building (land use category 710) Weekday (Monday-Friday), General Urban/Suburban, 9:00 AM-3:00 PM
   Industrial – Warehousing (150), Weekday (Monday-Friday), General Urban/Suburban, 11:00 AM-4:00 PM.
   Industrial – General Light Industrial (110), Weekday (Monday-Friday), General Urban/Suburban, 9:00 AM-4:00 PM.
3. Non-automobile trip reduction: Based on City of Oakland TIRG, assuming Project site is in a suburban environment located more than one mile from a BART station with fewer than 6,000 people per square mile.

Sources: ITE Parking Generation Manual, 5th Edition, 2019; Fehr & Peers, 2023.

On-Street Parking

Currently, no on-street parking is provided on either side of Oakport Street. The Project does not propose to provide on-street parking on either side of Oakport Street. No other on-street or public off-street parking is provided within walking distance (about 0.25 mile) of the Project site. Thus, Project employees and visitors who cannot park on-site would not be able to use on-street parking.

Passenger Vehicle Loading and Unloading

It is expected that some employees and visitors that travel to and from the Project site would be dropped off and/or picked-up, including via rideshare. If the Project driveways are controlled by access gates, these vehicles may not be able to enter the Project parking lot and Oakport Street adjacent to the Project does not provide a shoulder or parking lane to accommodate drop offs and pick-ups.

> **Recommendation 4:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Implement one of the following to accommodate passenger drop offs and pick-ups:
  - Provide a pull-out space on the west side of Oakport Street along the Project frontage to accommodate passenger loading and unloading.
  - Allow non-employee vehicles, such as rideshare vehicles, to enter the Project site to drop off and/or pick-up passengers.

Loading Requirements and Truck Access

The *City of Oakland Planning Code* Sections 117.116.140 and 117.116.150 establish minimum requirements for off-street loading berths for office and industrial activities, respectively. The *City of Oakland Planning Code* Section 17.116.220 establishes required dimensions for loading berths. Commercial (office) berths are required to be at least 33 feet long, 12 feet wide, and 14 feet high. Industrial loading berths are required to be at least 45 feet long, 12 feet wide, and 14 feet high. No specific drive aisle dimensions for loading areas are provided, rather, the *Code* states they are required to allow efficient utilization of all required loading berths by motor vehicles of the types typically employed by the activities served. **Table 6** summarizes these off-street loading requirements.

The Project would provide a total of 13 loading berths, five docks on the north side of the warehouse building and eight docks on the west side of the building. Both loading areas would accommodate trucks as long as 60 feet long and over 12-feet wide. The proposed number and dimensions of the loading berths, as well as their location within a single lot, would meet *Code* requirements.

Table 6: Loading Berth Requirements

Land Use	Size (KSF)[1]	Minimum Required Loading Berths	Loading Berths Required
Office[2]	160	3 berths per 160 KSF or more	3
Industrial Activity[3]	133	2 berths required per 50-99 KSF, plus an additional berth per each additional 150 KSF	3
		Total Loading Berths Required	6
		Total Loading Berths Supplied	13
		Meets *Code* Requirements?	**Yes**[4]

Notes
1. KSF = 1,000 square feet.
2. Per Oakland Planning Code Section 17.116.140 – Off-Street Loading – Commercial Activities, Business, Communication and Media Service with greater than 160,000 square feet of floor area.
3. Per Oakland Planning Code Section 17.116.150 – Off-Street Loading – Industrial Activities for 50,000—99,999 square feet of floor area and for each additional 150,000 square feet or fraction of one-half or more thereof.
4. Although all the loading berths are located in the warehouse building and no loading berths are provided for the office building, the total loading berths meet Code requirements because the buildings are located on the same lot, Per Oakland Planning Code Section 17.116.170.

Source: Fehr & Peers, 2023.

Truck Parking and Circulation

The Project would also provide 12 trailer parking spaces on the west end of the north parking lot. The trailer parking spaces would be 12-feet wide by 50-feet long. Drive aisles within this area of the parking lot would be 60-feet wide perpendicular to the trailer parking spaces and 30-feet to 45-feet wide on the north and east ends of the lot. An unobstructed maneuvering area at least 60-feet wide is available perpendicular to both contiguous loading berths.

Trucks would enter the Project site via Driveway B and drive to the west side of the north parking lot. Trucks accessing the loading berths on the north side of the warehouse (Building 2) would turn right into the 60-foot wide drive aisle and then back into the loading berths. To exit, trucks would turn right into the adjacent drive aisle and exit the site via Driveway B. Trucks accessing the loading berths on the west side of the warehouse (Building 2) would drive to the westmost drive aisle in the north parking lot, turn right into that drive aisle, reverse south along the building and back into the loading berths. To exit, the trucks would turn right out of the berths, follow the drive aisle along the north side of the building and exit via Driveway B.

Bicycle Access and Bicycle Parking

The only existing bicycle facility within the vicinity of the Project is a Class 1 shared-use path along the Oakland Estuary, accessible via a curb cut and a boardwalk on the west side of the Oakport Street/Zhone Way intersection. This facility is part of the San Francisco Bay Trail. There are no Bay Wheels bike-share stations in the vicinity of the Project.

The City's *Oakland Bike Plan (Let's Bike Oakland,* 2019*)*[4] proposes the following facilities in the vicinity of the Project:

- Class 2 separated bicycle path along Zhone Way/66th Avenue, between Oakport Street and San Leandro Street. However, the City of Oakland's *66th Avenue BART to Bay Trail One Bay Area Grant (OBAG) Project* proposes a Class 1 separated multi-use path for this corridor. The concept plan is included as **Appendix C** to this memorandum.[5]
- Class 2 bicycle path along Tidewater Avenue, between High Street and the San Francisco Bay Trail, 0.3 miles north of the Project.
- Class 2 bicycle path connecting the segment of the San Francisco Bay Trail south of Lions Creek to an existing Class 2 bicycle lane on Edgewater Drive, 0.2 miles south of the Project.

The City of Oakland's concept plan for the *66th Avenue BART to Bay Trail OBAG Project* includes the following improvements at the Oakport Street/Zhone Way intersection:

- A new multi-use path crossing treatment across the south approach of the intersection, including a curb ramp on the east side.
- A new Class 1 multi-use path along the south side of Zhone Way/66th Avenue.
- Upgrades to the existing signal at the intersection including a dedicated phase for the multi-use path users.
- A raised eight-foot wide median on Zhone Way/66th Avenue between Oakport Street and the I-880 Southbound off-ramp.
- Changes to roadway geometry and striping to maintain the current number of vehicle travel lanes and provide stop bars on the intersection approaches.

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[4] The proposed bicycle facilities for Zhone Way/66th Avenue and Tidewater Avenue were also included in the City of Oakland's *Coliseum Area Specific Plan* (2015).

[5] See https://www.oaklandca.gov/projects/66th-ave for additional information.

The Project proposes to provide a pedestrian connection from the west side of the office building at the south end of the Project to the existing north-south gravel path along the west side of the Project. The path would be accessible via a gate in the fence surrounding the Project site. The Project also proposes five-foot Class 2 bicycle lanes in both directions of Oakport Street along the Project frontage. However, the City's Bike Plan does not identify any bicycle facilities along Oakport Street.

> **Recommendation 5:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Eliminate the proposed Class 2 bicycle lanes on Oakport Street.
- At the Oakport Street/Zhone Way intersection, install a multi-use crossing treatment across the south approach of the intersection with a curb ramp with truncated domes on the east side consistent with the 66th Avenue BART to Bay Trail OBAG Project concept plan. Coordinate with City of Oakland staff to ensure this treatment is compatible with future plans for the Oakport Street/Zhone Way intersection.
- Pave the segment of the existing gravel path connecting the San Francisco Bay Trail and the proposed gate providing access to the Project site and sign and stripe this facility as a multi-use path. Install lighting along the multi-use path between the Project site and the Oakport Street/Zhone Way intersection.
- Install a curbless treatment or ramp with truncated domes or similar treatment at both ends of the marked path where it crosses the fire access lane so users have warning they are crossing a space shared by vehicles, bicycles, and pedestrians.

Bicycle Parking Requirements

Chapter 17.117 of the *City of Oakland Planning Code* requires long-term and short-term bicycle parking for new buildings. Long-term bicycle parking includes lockers or locked enclosures, and short-term bicycle parking includes bicycle U-racks. Sections 17.117.110 and 120 set minimum and maximum bicycle parking requirements for the Project's office and industrial land uses, respectively. These requirements are described in **Table 7**.

Per City *Code* the Project is required to provide 19 long-term spaces, eight short-term bicycle parking spaces, and four showers and 16 lockers within the office building (Building 3). Current site plans do not show any long-term bicycle facilities or showers and lockers in the office building. The site plan shows short-term bicycle racks accommodating 14 bicycles on the north side of the warehouse (Building 2) and 48 bicycles on the east side of the office building (Building 3).

Table 7: Bicycle Parking Requirements

Land Use	Size (KSF)[1]	Long-Term Bicycle Parking		Short-Term Bicycle Parking		Additional Facilities[4]	
		Spaces per Unit[2]	Spaces	Spaces per Unit[2]	Spaces	Showers	Lockers
Office[2]	160	1 space: 10 KSF, Minimum 2 spaces	16	1 space: 20 KSF, Minimum 2 spaces	8	4	16
Industrial Activities[3]	133	1 space: 40 KSF, Minimum 2 spaces	3	No spaces required	0	0	0
Minimum Required Parking Facilities			*19*		*8*	*4*	*16*
Proposed Parking Facilities			*None shown*		*62*	*None shown*	*None shown*
Meets Code Requirements?			***No***		***Yes***	***No***	***No***

Notes:
1. KSF = 1,000 square-feet.
2. Per Oakland Planning Code Section 17.117.110 – Required Bicycle Parking – Commercial Activities.
3. Per Oakland Planning Code Section 17.117.120 – Required Bicycle Parking – Industrial Activities.
4. Per Oakland Planning Code Section 17.117.130 – Required shower and locker facilities, a minimum of two (2) showers per gender plus one (1) shower per gender for each commercial (e.g., office) use of 150,000 sf. above 150,000 sf, and four (4) lockers are required per shower.

Source: Fehr & Peers, 2023.

Recommendation 6: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Provide long-term bicycle parking for at least 16 bicycles in the office building (Building 3) and at least three bicycles in the warehouse building (Building 2) to meet the minimum amount of long-term bicycle parking required (19 spaces). Ensure that long-term bicycle parking in the office building as well as short-term bicycle parking is easily accessible from the entrance, main lobby, and the proposed path on the west side of the building.
- Provide at least four shower and 16 locker facilities in the office building (Building 3).
- Ensure that the required number of short-term bicycle parking spaces is provided and the required clearance dimensions are provided for the style of bicycle rack provided.

Pedestrian Access and Circulation

Currently, no sidewalks are provided on either side of Oakport Street adjacent to the Project site, or on the north side of Zhone Way between Oakport Street and Coliseum Way. The San Francisco Bay Trail, an approximately 12-foot wide north-south multi-use path along the Estuary west of the Project site, provides access to the Project site, Oakport Field and nearby park amenities, and connects to areas north and south of the Project site. The San Francisco Bay Trail connects to the Oakport Street/Zhone Way intersection via a boardwalk.

Existing pedestrian facilities at the Oakport Street/Zhone Way intersection include the following:

- A striped crosswalk across the south intersection approach with a perpendicular curb ramp and truncated domes on the west side and a diagonal curb ramp with truncated domes on the east side.
- A five-foot sidewalk on the south side of 66th Avenue which continues along the Southbound I-880 On-ramp for approximately 240 feet east of the intersection with Oakport Street where it turns south as a path that reconnects with a sidewalk on the north/east side of Oakport Street south of 66th Avenue. The five-foot sidewalk on the north side of Oakport Street extends for about 115 feet to the east of the path and does not connect to any other pedestrian facility.

The *66th Avenue BART to Bay Trail OBAG Project* would include the addition of a high visibility green-painted multi-use path crossing treatment across the south approach at the Oakport Street/Zhone Way intersection as shown in the concept plan (see **Appendix C**). Per the concept plan, this crossing would be supported by a dedicated signal phase for the multi-use path users. **Recommendation 5** recommends that the Project install the multi-use path crossing treatment identified in the *66th Avenue BART to Bay Trail OBAG Project* concept plan.

The Project proposes a five-foot sidewalk along the west side of Oakport Street along the Project frontage and connecting to the Oakport Street/Zhone Way intersection. Pedestrian access gates along the Project frontage would restrict access between this sidewalk and the Project site. The Project site plan does not show any curb ramps or crosswalk markings across the Project driveways.

> **Recommendation 7:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Ensure that the sidewalk on the west side of Oakport Street has a minimum width of 5.5 feet (seven feet preferred)
- Provide high visibility crosswalk markings with directional curb ramps and truncated domes on both ends across each of the four Project driveways.

The workshop (Building 1) and the warehouse (Building 2) can be accessed by pedestrians through doorways directly accessible from the walkways connecting to the pedestrian access gates on Oakport Street. Pedestrians accessing the office (Building 3) from Oakport Street would walk along the walkway on the south side of the warehouse and then cross the drive aisle separating the warehouse and office buildings using the covered crosswalk near the southwest corner of the warehouse building. The Project would also provide a pedestrian connection to Bay Trail west of the Project site through an access gate near the southwest corner of the office building and crossing the fire lane west of the office building, which would also connect to the pedestrian walkways within the Project site.

The Project includes seven accessible parking spaces in the south parking lot along the northeast corner of the office building, with an accessible path to the main lobby of the office building and a covered crossing of the drive aisle north of the office building connecting to the warehouse. Two additional accessible parking spaces are provided on the north side of the warehouse adjacent to a doorway.

Transit Access

Transit service providers in the Project vicinity include BART, Amtrak, and AC Transit as described below.

Bay Area Rapid Transit (BART)

BART provides regional rail service throughout the East Bay and across the Bay. The Project is located approximately one mile (walking distance) northwest of the Coliseum BART Station. The nearest station portal is on the east side of San Leandro Street, approximately 0.2 miles south of 66th Avenue. The Coliseum Station is an above ground station with curbside pedestrian access and local transit connections.

This station serves BART's Orange Line (Berryessa/Nort San José - Richmond), Green Line (Berryessa/North San José - Daly City), and Blue Line (Dublin/Pleasanton - Daly City). These routes operate on weekdays with 15-minute headways and on weekends with 30-minute headways.

The Project is located northwest of the BART station, separated by several city streets and the I-880 freeway. The BART Station can be accessed from the Project site via a one-mile walking route along the San Francisco Bay Trail, the south side of 66th Avenue, and east side of San Leandro Street. No sidewalks currently exist along Oakport Street or the north side of 66th Street between Oakport Street and Coliseum Way. The planned *66th Avenue BART to Bay Trail OBAG Project* would improve the pedestrian and bicycle connections between the Project site and the Coliseum BART Station. In addition, the Project TDM Plan includes a shuttle service between the Project site and the Coliseum BART Station.

Amtrak

Amtrak provides regional rail service throughout the Bay and to destinations throughout northern California and the United States. The Project is located slightly more than one mile (walking distance) northwest of the Oakland Coliseum/Airport Amtrak Station. The station is on the west end of 73rd Avenue, accessible from San Leandro Street, approximately 0.2 miles south of 66th Avenue. The Oakland Coliseum/Airport Amtrak station is an at-grade station with curbside pedestrian access and local transit connections.

This station serves the Capitol Corridor route which operates between Auburn and San Jose, California. Capital Corridor trains stop at the Oakland Coliseum/Airport Amtrak Station on weekdays with a one- to two-hour frequency during AM and PM commute periods with one to two trains operating midday. On weekends, Capitol Corridor trains stop at the station with a two- to three-hour frequency throughout the day.

Alameda-Contra Costa Transit District (AC Transit)

AC Transit is the primary bus service provider in 13 cities, including Oakland, and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo, and Santa Clara Counties.

The nearest bus stops to the Project site, which are served by Route 98, are located on 66th Avenue at Coliseum Way, approximately 0.4 miles east of the Project site. The westbound stop (AC Transit Stop Number 55296) is located on the nearside of the intersection, and the eastbound stop (AC Transit Stop Number 56452) is located on the far side on an island between Coliseum Way and a dedicated northbound right-turn lane. No amenities are provided at the westbound stop while the eastbound stop includes a bus shelter and bench.

Line 98 provides service between the Eastmont Transit Center and the Oakland BART Station. Line 98 operates with the following service frequency:[6]

- Weekday service: 5:54 AM-11:23 PM, approximately 20-minute headways
- Weekend service: 6:00 AM-10:40 PM, approximately 30-minute headways

The *66th Avenue BART to Bay Trail OBAG Project* would include new AC Transit stops at the Oakport Street/Zhone Way intersection (see **Appendix C**). Per the concept plan, a southbound stop would be installed on Oakport Street on the far side of the intersection and an eastbound stop would be installed on the south side of Zhone Way approximately 100 feet east of the intersection. The eastbound stop would require the reconfiguration of the Southbound I-880 On-ramp as envisioned in the *66th Avenue BART to Bay Trail OBAG Project* and cannot be implemented until the on-ramp reconfiguration has been completed.

> **Recommendation 8:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff and in consultation with AC Transit, the following shall be considered as part of the final design for the Project:
>
> - Consistent with the *66th Avenue BART to Bay Trail OBAG Project* concept plan, install a new southbound AC Transit Stop on the west side of Oakport Street just south of the Oakport Street/Zhone Way intersection.
> - Install a temporary northbound/eastbound AC Transit stop on northbound Oakport Street approximately 350 feet south of the Oakport Street/Zhone Way intersection. The stop should be located adjacent to the existing pedestrian path between 66th Avenue and Oakport Street. The temporary stop can be removed when the Southbound I-880 On-ramp has been reconfigured by the *66th Avenue BART to Bay Trail OBAG Project* and the permanent bus stop has been installed on eastbound Zhone Way east of Oakport Street.
> - Install shelters with benches and real-time arrival information at both bus stops.

5. Collision Analysis

A five-year history (January 1, 2018 to December 31, 2022) of collision data on Oakport Street along the Project frontage was obtained from the Statewide Integrated Traffic Records System

[6] Source: AC Transit service tables accessed on January 27, 2023 from: https://www.actransit.org/bus-lines-schedules/98.

(SWITRS) and evaluated for this collision analysis. **Table 8** summarizes the collision data by type and location, and **Table 9** summarizes the collision data by severity and location.

As shown in Table 8, 15 collisions were reported during this five-year timeframe along Oakport Street adjacent the Project site. Two segments along Oakport Street are evaluated: one north segment extending between Peppermint Gate Access Road to just north of the S-curve adjacent the southeast corner of the Project site, and a south segment extending through the S-curve to the intersection with Zhone Way. One sideswipe property damage only collision was reported in the north segment near Peppermint Gate Access Road; All remaining collisions (14 of 15) occurred in south segment along the S-curve.

The most reported collision types within the south segment include hit object (29 percent), and head-on (21 percent) collisions. Collisions along this segment were mostly due to drivers traveling at unsafe speeds (29 percent), improper turning (21 percent), traveling on the wrong side of the road (21 percent), or unsafe starting and backing (21 percent). No collisions involved pedestrians or bicyclists. One collision involved a truck. Most collisions along the south segment resulted in property damage only (50 percent) with remaining collisions resulting in severe injury (14 percent), other visible injury (seven percent), and complaint of pain (29 percent); no collisions resulted in a fatality.

The *Highway Safety Manual* (HSM, Predictive Method - Volume 2, Part C) provides a methodology to predict the number of collisions for intersections and street segments based on their specific characteristics, such as vehicle and pedestrian volume, number of lanes, on-street parking, and number of driveways. **Table 10** presents the predicted collision frequencies for the two study segments using the HSM Predictive Method for Urban and Suburban Arterials and compares the predicted collision frequencies with the actual reported collision frequencies. **Appendix D** provides the detailed predicted collision frequency calculation sheets based on the HSM methodology. Roadway segments with collision frequencies greater than the predicted frequency are identified as locations that should be evaluated in greater detail for collision trends and potential modifications.

Table 8: Summary of Collisions by Type

Location	Head-on	Sideswipe	Rear-End	Broadside	Hit Object	Overturned	Pedestrian-Involved	Other	Total
Oakport Street, Peppermint Gate Access Road to SE corner of the Project site	0	1	0	0	0	0	0	0	**1**
Oakport Street, SE corner of the Project site to Zhone Way/66th Avenue	3	0	1	1	4	2	0	3	**14**
Total	**3**	**1**	**1**	**1**	**4**	**2**	**0**	**3**	**15**

Source: SWITRS five-year collision data reported from January 1, 2018 to December 31, 2022; Fehr & Peers, 2023.

Table 9: Summary of Collision Severity

Location	Crash Severity							Person-Injuries			
	Property Damage Only (0)	Fatal (1)	Injury (Severe) (2)	Injury (Other Visible) (3)	Complaint of Pain (4)	Total	Truck Involved Collisions	Bicycle	Pedestrian	Driver / Passenger	Total
Oakport Street, Peppermint Gate Access Road to SE corner of the Project site	1	0	0	0	0	**1**	0	0	0	0	**0**
Oakport Street, SE corner of the Project site to Zhone Way/66th Avenue	7	0	2	1	4	**14**	1	0	0	0	**0**
Total	**8**	**0**	**2**	**1**	**4**	**15**	**0**	**0**	**0**	**0**	**0**

Source: SWITRS five-year collision data reported from January 1, 2018 to December 31, 2022; Fehr & Peers, 2023.

Table 10: Predicted and Actual Collision Frequencies

Location	Predicted Collision Frequency (Per year)[1]	Actual Collision Frequency (Per year)[2]	Difference	Higher Than Predicted?
Oakport Street (north), Peppermint Gate Access Road to SE corner of the Project site	0.3	0.2	-0.1	No
Oakport Street (south), SE corner of the Project site to Zhone Way/66th Avenue	0.1	2.8	+2.7	**Yes**

Notes:
1. Based on the Highway Safety Manual Predictive Method (Volume 2, Part C).
2. Based on SWITRS five-year collision data reported from January 1, 2018 to December 31, 2022.

Source: Fehr & Peers, 2023.

As shown in Table 10, the south segment of Oakport Street between the southeast corner of the Project and Zhone Way (i.e., the roadway segment with an S-curve) has a higher reported collision frequency than predicted by the HSM. As previously noted, a review of the collision history along this segment shows these collisions were primarily due to drivers traveling at unsafe speeds through the curve, improper turning, or crossing the centerline through the S-curve, and unsafe starting or backing through the bend in the road. Review of Google Earth images from recent years show vehicles frequently parked on the shoulder of Oakport Street prior to installation of barriers around 2021. Most collisions within the south segment (about 65 percent) occurred prior to 2021, indicating that the installation of barriers, which prohibit vehicles from parking or stopping along this street segment, likely contributed to the reduction in collisions.

The Project proposes to install curb and gutter on both sides of Oakport Street as well as new lane striping. Installation of signage prior to the S-curve on the southbound and northbound approaches warning drivers to reduce their speed, combined with double-sided reflective chevron signs (or similar devices) installed through the S-curve could warn of the roadway geometry. All together these improvements could enhance sightlines and reduce the likelihood of collisions along this roadway segment.

> **Recommendation 9:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered prior to the Project occupancy:

- Conduct a speed study on Oakport Street to determine if the posted speed limit on Oakport Street along the Project frontage can be reduced. If justified, reduce the posted speed limit per the speed study.

Recommendation 10: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Install signage on southbound and northbound Oakport Street warning of the S-curve consistent with the *California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014 Edition) Figure 2C-2. Example of Warning Signs for a Turn*.
- Install double-sided reflective chevron signs or similar devices through the S-curve per *CA MUTCD Figure 2C-2*.
- Install speed feedback signs in both directions of Oakport Street ahead of the S-curve.

6. Conclusion and Summary of Recommendations

Per the site plan review, the following recommendations would improve access and circulation for the Project and the surrounding areas:

Recommendation 1: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Implement one of the following at Driveway B (the second driveway from the north) to be consistent with the City of Oakland Municipal Code Section 12.04.270:
  - Reduce the width of the driveway opening to 35 feet.
  - If a high volume of large trucks, such as WB-67, is expected, then coordinate with the City of Oakland Driveway Appeals Board to provide a wider driveway.
- Implement one of the following at Driveways C and/or D (the two south driveways) to reduce the potential for queues at Project access gates spilling back onto Oakport Street:
  - Redesign the Project to provide at least 75 feet of queuing space for at least one of the driveways.
  - Keep the access gates at the two driveways open during normal business hours

Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Eliminate the proposed right-turn-lane on southbound Oakport Steet at the approach to Driveway B (second driveway from the north).
- Limit the outbound movement at Driveway D (southmost driveway) to right-turns only.
- Provide a left-turn lane on northbound Oakport Street at the approach to Driveway D (southmost driveway). If a left-turn lane cannot be accommodated, prohibit left-turns into the driveway and physically limit the driveway to right-turns in and out only.

Recommendation 3: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Ensure that the Project provides a minimum of 33 PEV-ready and an additional 33 PEV-capable parking spaces.

Recommendation 4: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Implement one of the following to accommodate passenger drop offs and pick-ups:
  - Provide a pull-out space on the west side of Oakport Street along the Project frontage to accommodate passenger loading and unloading.
  - Allow non-employee vehicles, such as rideshare vehicles, to enter the Project site to drop off and pick-up passenger.

Recommendation 5: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Eliminate the proposed Class 2 bicycle lanes on Oakport Street.
- At the Oakport Street/Zhone Way intersection, install a multi-use crossing treatment across the south approach of the intersection with a curb ramp with truncated domes on the east side consistent with the 66th Avenue BART to Bay Trail OBAG Project concept plan. Coordinate with City of Oakland staff to ensure this treatment is compatible with future plans for the Oakport Street/Zhone Way intersection.

- Pave the segment of the existing gravel path connecting the San Francisco Bay Trail and the proposed gate providing access to the Project site and sign and stripe this facility as a multi-use path. Install lighting along the multi-use path between the Project site and the Oakport Street/Zhone Way intersection.
- Install a curbless treatment or ramp with truncated domes or similar treatment at both ends of the marked path where it crosses the fire access lane so users have warning they are crossing a space shared by vehicles, bicycles, and pedestrians.

Recommendation 6: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Provide long-term bicycle parking for at least 16 bicycles in the office building (Building 3) and at least three bicycles in the warehouse building (Building 2) to meet the minimum amount of long-term bicycle parking required (19 spaces). Ensure that long-term bicycle parking in the office building as well as short-term bicycle parking is easily accessible from the entrance, main lobby, and the proposed path on the west side of the building.
- Provide at least four shower and 16 locker facilities in the office building (Building 3).
- Ensure that the required number of short-term bicycle parking spaces is provided and the required clearance dimensions are provided for the style of bicycle rack provided.

Recommendation 7: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Ensure that the sidewalk on the west side of Oakport Street has a minimum width of 5.5 feet (seven feet preferred)
- Provide high visibility crosswalk markings with directional curb ramps and truncated domes on both ends across each of the four Project driveways.

Recommendation 8: While not required to address a CEQA impact, and at the discretion of City of Oakland staff and in consultation with AC Transit, the following shall be considered as part of the final design for the Project:

- Consistent with the *66th Avenue BART to Bay Trail OBAG Project* concept plan, install a new southbound AC Transit Stop on the west side of Oakport Street just south of the Oakport Street/Zhone Way intersection.

- Install a temporary northbound/eastbound AC Transit stop on northbound Oakport Street approximately 350 feet south of the Oakport Street/Zhone Way intersection. The stop should be located adjacent to the existing pedestrian path between 66th Avenue and Oakport Street. The temporary stop can be removed when the Southbound I-880 On-ramp has been reconfigured by the *66th Avenue BART to Bay Trail OBAG Project* and the permanent bus stop has been installed on eastbound Zhone Way east of Oakport Street.
- Install shelters with benches and real-time arrival information at both bus stops.

Recommendation 9: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered prior to the Project occupancy:

- Conduct a speed study on Oakport Street to determine if the posted speed limit on Oakport Street along the Project frontage can be reduced. If justified, reduce the posted speed limit per the speed study.

Recommendation 10: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Install signage on southbound and northbound Oakport Street warning of the S-curve consistent with the *California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014 Edition) Figure 2C-2. Example of Warning Signs for a Turn.*
- Install double-sided reflective chevron signs or similar devices through the S-curve per *CA MUTCD Figure 2C-2*.
- Install speed feedback signs in both directions of Oakport Street ahead of the S-curve.

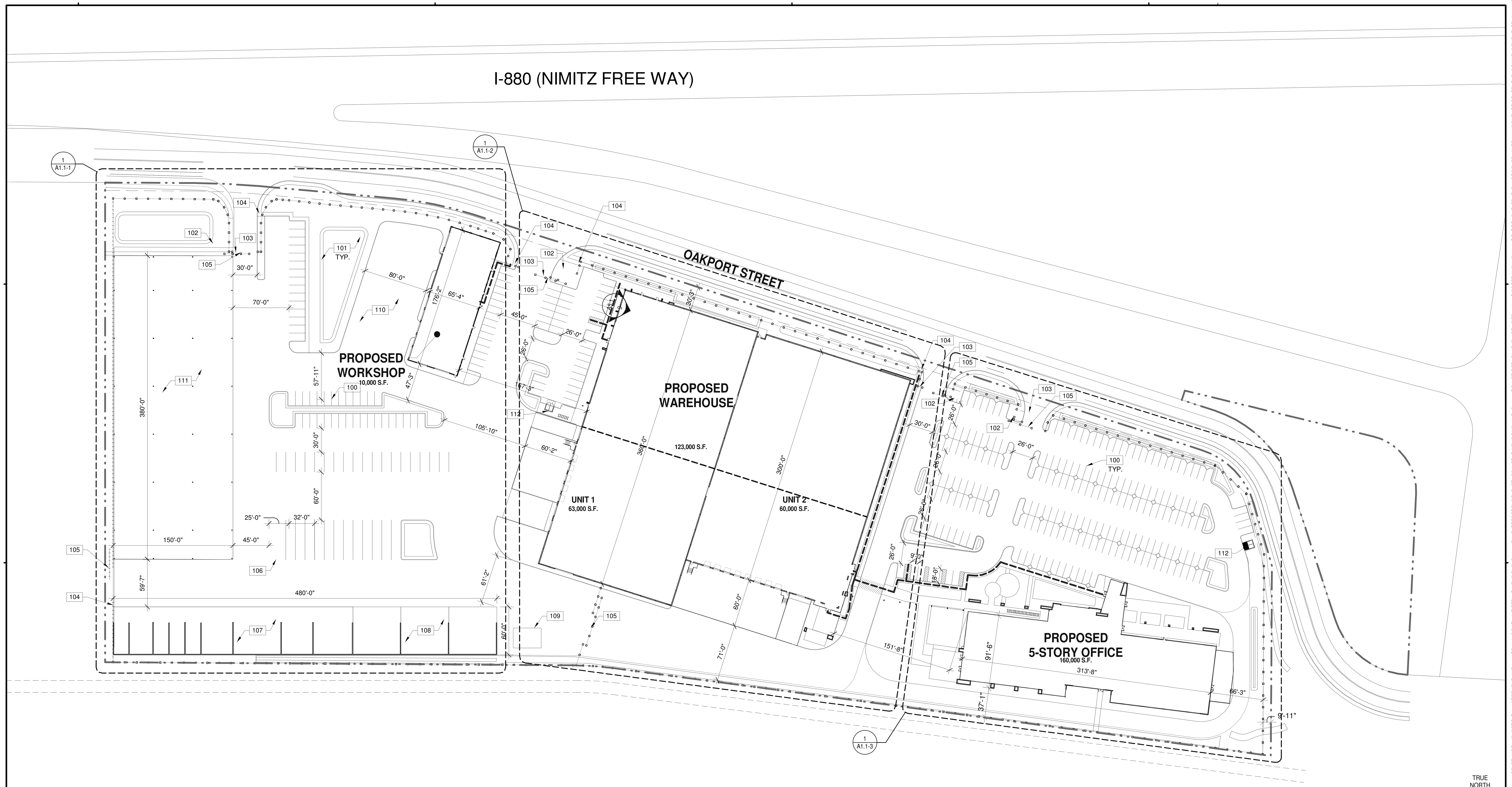
Please contact Sam Tabibnia (stabibnia@fehrandpeers.com or 510-835-1943) with questions or comments.

ATTACHMENTS

Appendix A – Project Site Plan
Appendix B – Stopping Sight Distance Diagrams
Appendix C – 66th Avenue BART to Bay Trail OBAG Project Concept Plan
Appendix D – Predicted Collision Frequency

Appendix A:
Project Site Plan

CAUTION: IF THIS SHEET IS NOT 24"x36" IT IS A REDUCED PRINT



OVERALL SITE PLAN

SCALE: 1" = 60'-0"

TRUE NORTH

SITE LEGEND

PROPERTY LINE.

ACCESSIBLE PATH OF TRAVEL, 1:20 MAX. SLOPE 2% MAX. CROSS SLOPE.

POLE MOUNTED LIGHT FIXTURE, SEE ELECTRICAL DRAWINGS

WALLPACK LIGHT FIXTURE, SEE ELECTRICAL DRAWINGS

TRANSFORMER WITH CONCRETE PAD, SEE ELECTRICAL DRAWINGS. (PROVIDE PROTECTION BOLLARDS PER LOCAL UTILITY OR PUBLIC WORK STANDARDS)

FIRE LANE (HATCHED)

PARKING STALL COUNT TOTAL

DOCK HIGH TRUCK DOOR

GRADE LEVEL TRUCK DOOR

FIRE HYDRANT (VERIFY LOCATION WITH CIVIL DRAWINGS)

P.I.V. WITH TAMPER, SEE FIRE PROTECTION DRAWINGS

NOTES

SEE SHEET A0.2 FOR GENERAL NOTES

100. PAINTED PARKING STRIPING PER CITY STANDARDS.
101. LANDSCAPE AND IRRIGATION AREA.
102. GUARD SHACK.
103. GATED DRIVEWAY.
104. PEDESTRIAN GATE.
105. VEHICLE GATE.
106. VEHICLE WASH ENCLOSURE.
107. MATERIAL BIN.
108. SCRAPS BINS.
109. PROPANE TANK.
110. PTA TRAINING AREA.
111. PIPE LAYDOWN AREA.
112. TRASH ENCLOSURE.

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OVERALL SITE PLAN

	DATE	REMARKS
1	04/03/2019	PLANNING SUBMITTAL

PA/PM:	J. BABINE
DRAWN BY.:	E.S.
JOB NO.:	SNR17-0069-00

SHEET
A1.0

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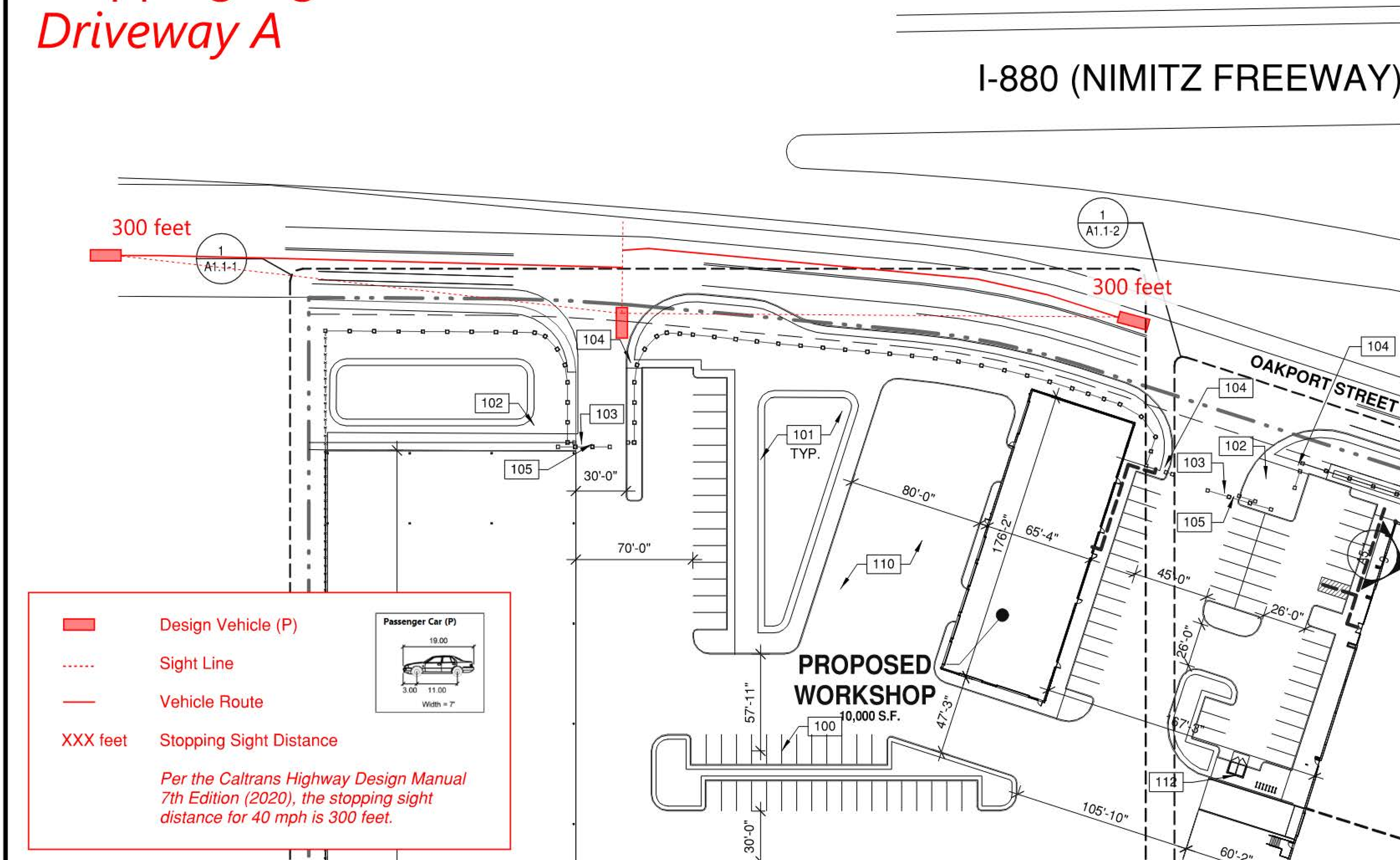
Appendix B:
Stopping Sight Distance Diagrams

Stopping Sight Distance
Driveway A



Design Vehicle (P)

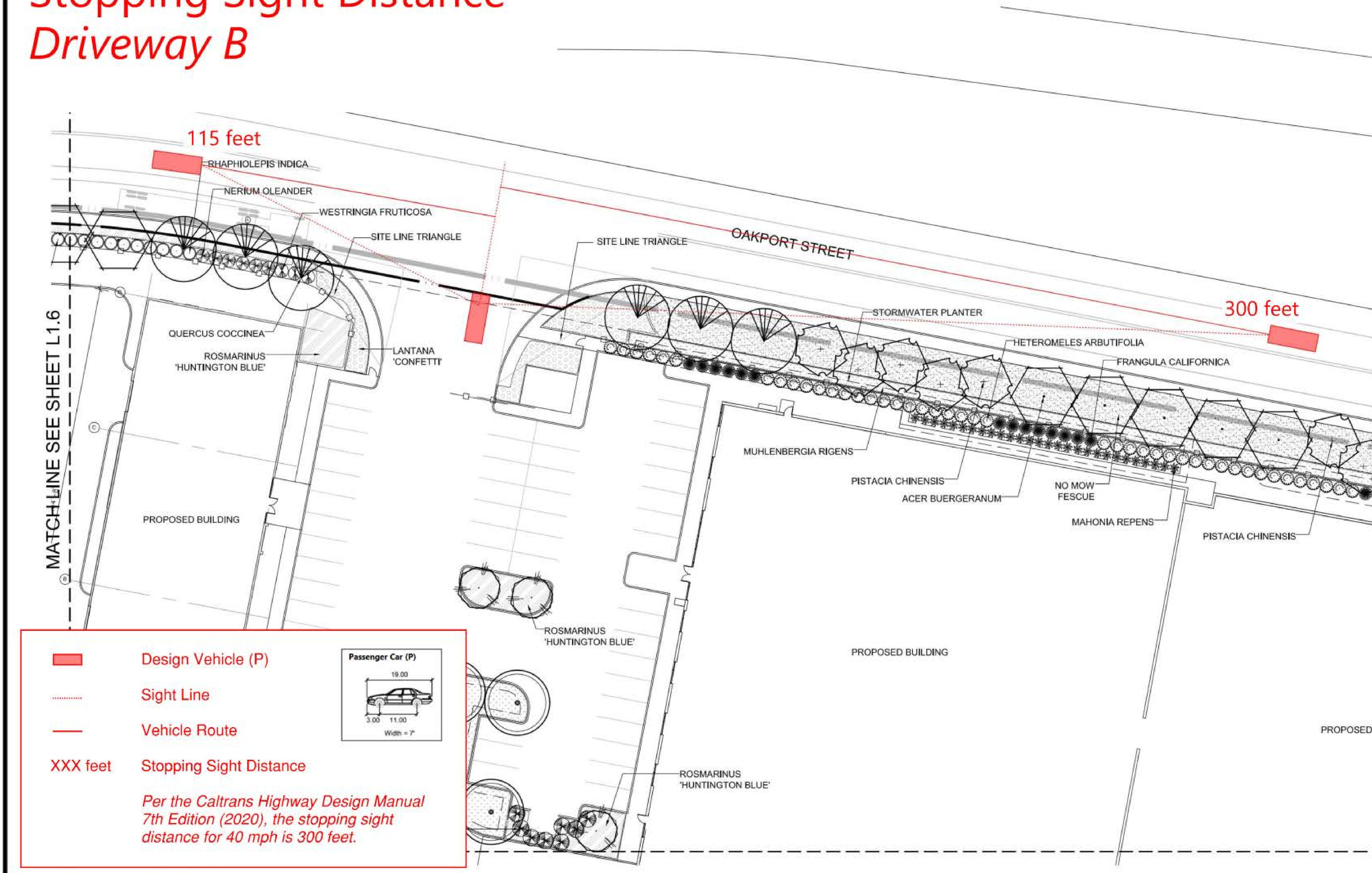
Sight Line

Vehicle Route

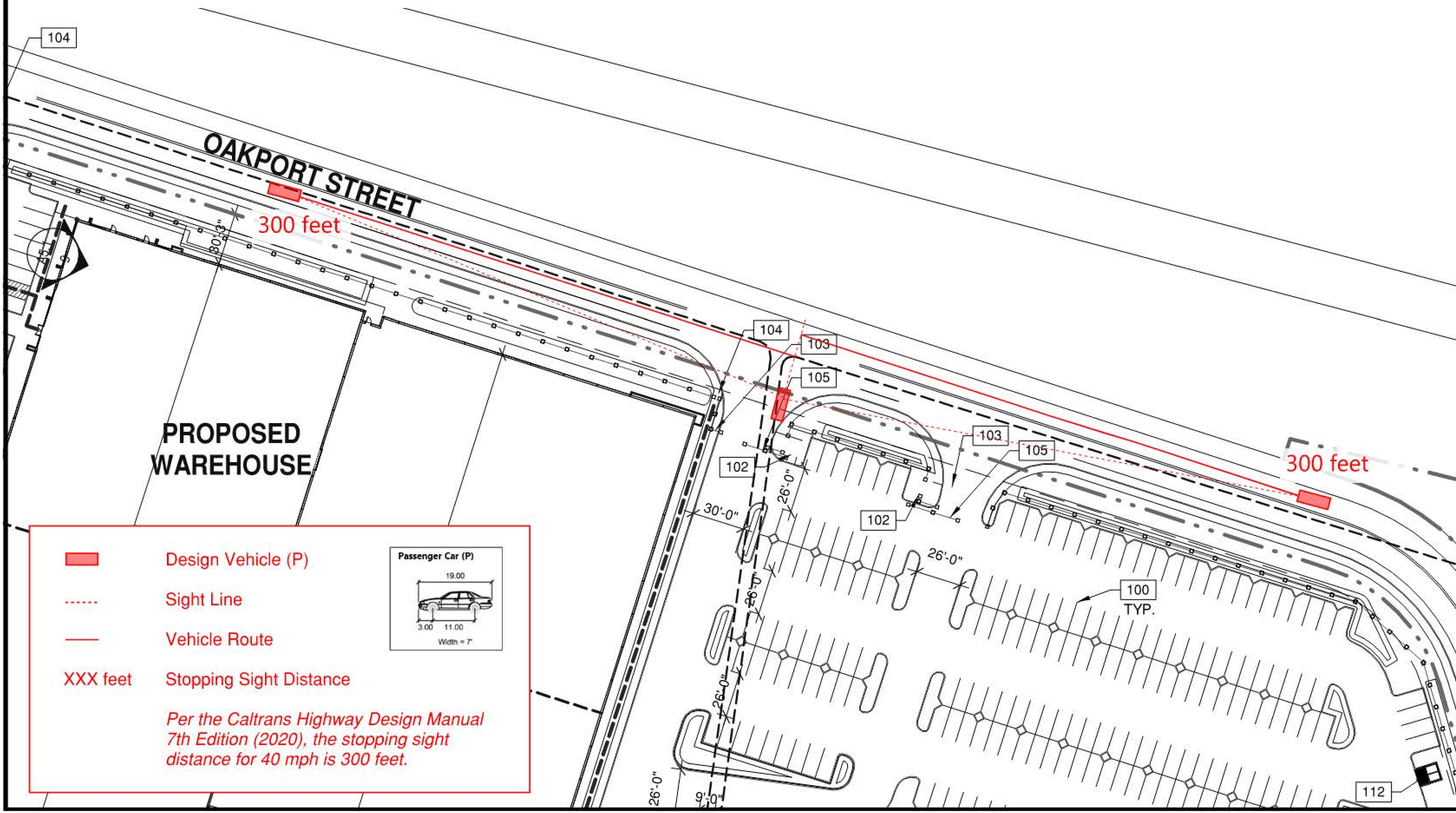
XXX feet Stopping Sight Distance

Per the Caltrans Highway Design Manual 7th Edition (2020), the stopping sight distance for 40 mph is 300 feet.

Stopping Sight Distance
Driveway B



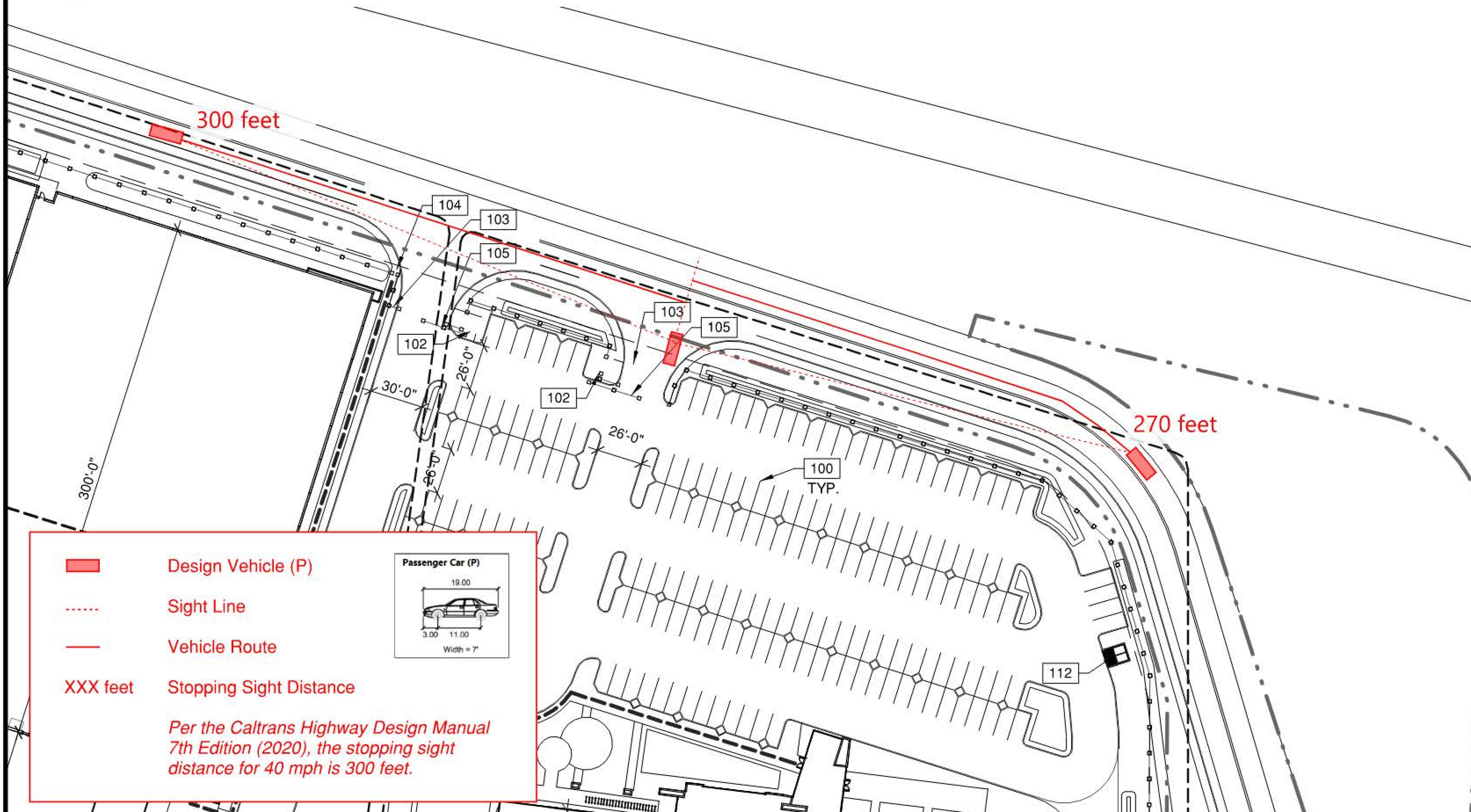
Stopping Sight Distance
Driveway C



Stopping Sight Distance

Driveway D

Diagram I of II



Design Vehicle (P)

Sight Line

Vehicle Route

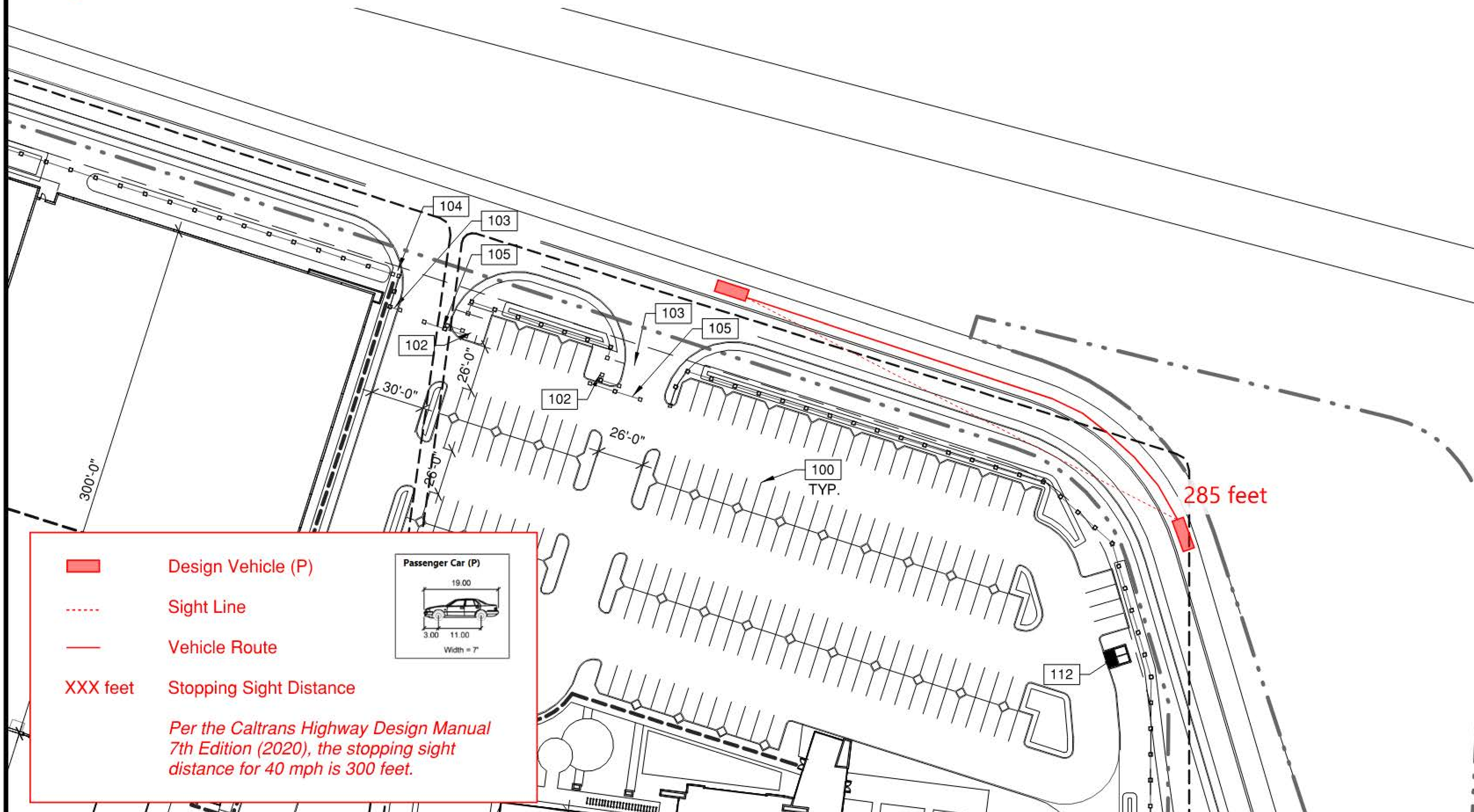
XXX feet Stopping Sight Distance

Per the Caltrans Highway Design Manual 7th Edition (2020), the stopping sight distance for 40 mph is 300 feet.

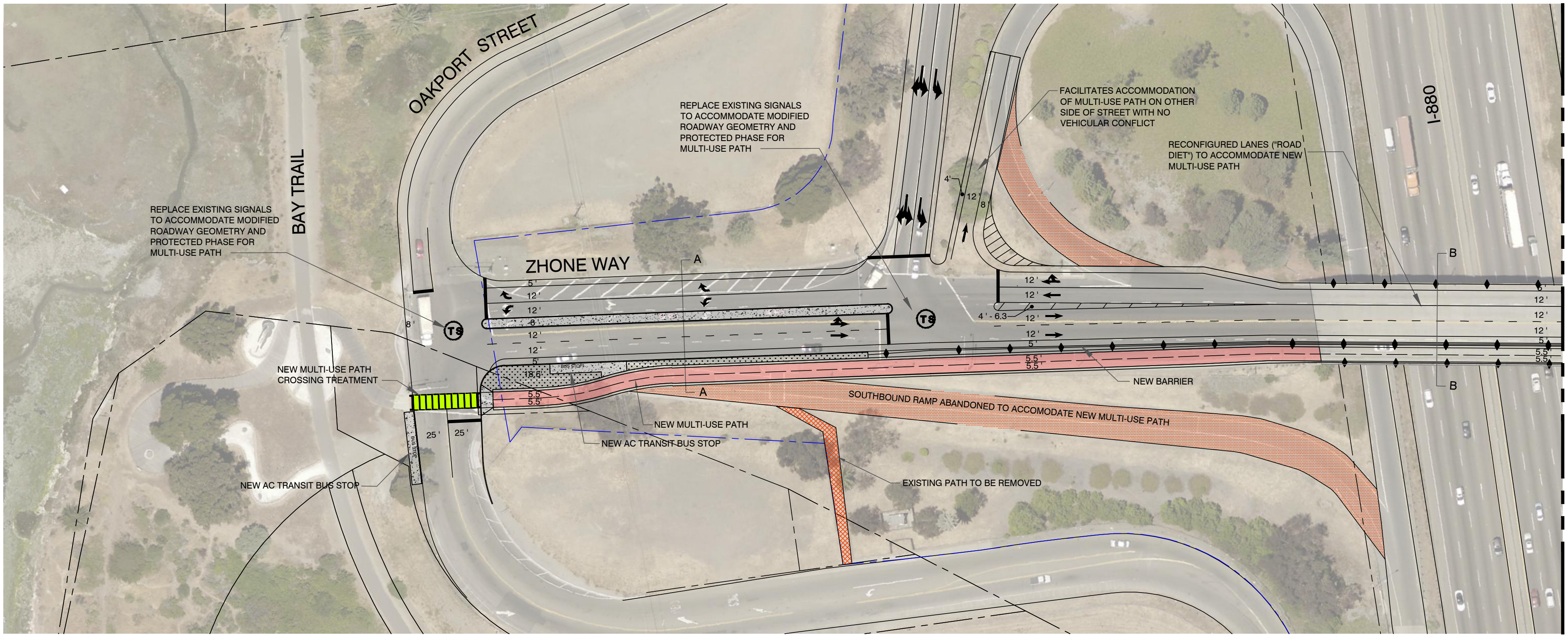
Stopping Sight Distance

Driveway D

Diagram II of II



Appendix C:
66th Avenue BART to Bay Trail OBAG Project Concept Plan



Legend

New Multi-Use Path	Potential Green Infrastructure
Area Subject to Ramp Removal/ Relocation	Concrete Sidewalk/Median
Railroad Gate Arm	Caltrans Right of Way
Railroad Signal Light	Parcel Line

Sam Schwartz

ActiveWayz Engineering

BART to Bay Trail OBAG Grant

Design Concept Plan

6/3/2022

CITY OF OAKLAND

20' 40' 80'

Appendix D:
Predicted Collision Frequency

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	Molly Riddle	Roadway	Oakport Street
Agency or Company	Fehr & Peers	Roadway Section	Peppermint Gate Access Road to Southeast Corner of Project
Date Performed	01/17/23	Jurisdiction	City of Oakland, CA
		Analysis Year	2023

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.35
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	4,110
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	1
Minor industrial / institutional driveways (number)		--	3
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	5
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	1.00	1.00	1.00	1.00

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	0.101	1.000	0.101	1.00	1.00	0.101
Fatal and Injury (FI)	-16.22	1.66	0.65	0.032	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.300	0.030	1.00	1.00	0.030
Property Damage Only (PDO)	-15.62	1.69	0.87	0.074	$(5)_{TOTAL}-(5)_{FI}$ 0.700	0.071	1.00	1.00	0.071

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brmv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.030	1.000	0.071	0.101
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.022	0.778	0.055	0.077
Head-on collision	0.068	0.002	0.004	0.000	0.002
Angle collision	0.085	0.003	0.079	0.006	0.008
Sideswipe, same direction	0.015	0.000	0.031	0.002	0.003
Sideswipe, opposite direction	0.073	0.002	0.055	0.004	0.006
Other multiple-vehicle collision	0.029	0.001	0.053	0.004	0.005

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	0.156	1.000	0.156	1.00	1.00	0.156
Fatal and Injury (FI)	-3.96	0.23	0.50	0.045	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.297	0.046	1.00	1.00	0.046
Property Damage Only (PDO)	-6.51	0.64	0.87	0.107	$(5)_{TOTAL}-(5)_{FI}$ 0.703	0.109	1.00	1.00	0.109

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brsv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.046	1.000	0.109	0.156
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.001	0.066	0.007	0.008
Collision with fixed object	0.723	0.033	0.759	0.083	0.116
Collision with other object	0.010	0.000	0.013	0.001	0.002
Other single-vehicle collision	0.241	0.011	0.162	0.018	0.029

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15{,}000)^t$	from Table 12-7
Major commercial	0	0.158	1.000	0.000	--
Minor commercial	0	0.050	1.000	0.000	
Major industrial/institutional	1	0.172	1.000	0.047	
Minor industrial/institutional	3	0.023	1.000	0.019	
Major residential	0	0.083	1.000	0.000	
Minor residential	0	0.016	1.000	0.000	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.066	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.066	1.000	0.066	1.00	1.00	0.066
Fatal and injury (FI)	--	0.323	0.021	1.00	1.00	0.021
Property damage only (PDO)	--	0.677	0.045	1.00	1.00	0.045

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.101	0.156	0.066	0.323	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.101	0.156	0.066	0.323	0.004	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.022	0.055	0.077
Head-on collisions (from Worksheet 1D)	0.002	0.000	0.002
Angle collisions (from Worksheet 1D)	0.003	0.006	0.008
Sideswipe, same direction (from Worksheet 1D)	0.000	0.002	0.003
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.004	0.006
Driveway-related collisions (from Worksheet 1H)	0.021	0.045	0.066
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.004	0.005
Subtotal	0.052	0.116	0.167
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.001	0.007	0.008
Collision with fixed object (from Worksheet 1F)	0.033	0.083	0.116
Collision with other object (from Worksheet 1F)	0.000	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.011	0.018	0.029
Collision with pedestrian (from Worksheet 1I)	0.002	0.000	0.002
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.049	0.109	0.159
Total	0.101	0.225	0.326

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.3	0.35	0.9
Fatal and injury (FI)	0.1	0.35	0.3
Property damage only (PDO)	0.2	0.35	0.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	Molly Riddle	Roadway	Oakport Street
Agency or Company	Fehr & Peers	Roadway Section	Southeast Corner of Project to Zhone Way
Date Performed	01/27/23	Jurisdiction	City of Oakland, CA
		Analysis Year	2023

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	4,110
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	75
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	2
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.97	1.00	1.00	1.00	1.97

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	0.026	1.000	0.026	1.97	1.00	0.051
Fatal and Injury (FI)	-16.22	1.66	0.65	0.008	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.300	0.008	1.97	1.00	0.015
Property Damage Only (PDO)	-15.62	1.69	0.87	0.019	$(5)_{TOTAL}-(5)_{FI}$ 0.700	0.018	1.97	1.00	0.036

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	(9)$_{FI}$ from Worksheet 1C	from Table 12-4	(9)$_{PDO}$ from Worksheet 1C	(9)$_{TOTAL}$ from Worksheet 1C
Total	1.000	0.015	1.000	0.036	0.051
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.011	0.778	0.028	0.039
Head-on collision	0.068	0.001	0.004	0.000	0.001
Angle collision	0.085	0.001	0.079	0.003	0.004
Sideswipe, same direction	0.015	0.000	0.031	0.001	0.001
Sideswipe, opposite direction	0.073	0.001	0.055	0.002	0.003
Other multiple-vehicle collision	0.029	0.000	0.053	0.002	0.002

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N$_{brsv}$**	**Proportion of Total Crashes**	**Adjusted N$_{brsv}$**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N$_{brsv}$**
	from Table 12-5		from Table 12-5	from Equation 12-13		(4)$_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	0.040	1.000	0.040	1.97	1.00	0.079
Fatal and Injury (FI)	-3.96	0.23	0.50	0.012	(4)$_{FI}$/((4)$_{FI}$+(4)$_{PDO}$) 0.297	0.012	1.97	1.00	0.023
Property Damage Only (PDO)	-6.51	0.64	0.87	0.028	(5)$_{TOTAL}$-(5)$_{FI}$ 0.703	0.028	1.97	1.00	0.055

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	(9)$_{FI}$ from Worksheet 1E	from Table 12-6	(9)$_{PDO}$ from Worksheet 1E	(9)$_{TOTAL}$ from Worksheet 1E
Total	1.000	0.023	1.000	0.055	0.079
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with animal	0.026	0.001	0.066	0.004	0.004
Collision with fixed object	0.723	0.017	0.759	0.042	0.059
Collision with other object	0.010	0.000	0.013	0.001	0.001
Other single-vehicle collision	0.241	0.006	0.162	0.009	0.015

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15{,}000)^t$	from Table 12-7
Major commercial	0	0.158	1.000	0.000	--
Minor commercial	0	0.050	1.000	0.000	
Major industrial/institutional	0	0.172	1.000	0.000	
Minor industrial/institutional	0	0.023	1.000	0.000	
Major residential	0	0.083	1.000	0.000	
Minor residential	0	0.016	1.000	0.000	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.000	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.97	1.00	0.000
Fatal and injury (FI)	--	0.323	0.000	1.97	1.00	0.000
Property damage only (PDO)	--	0.677	0.000	1.97	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.051	0.079	0.000	0.130	0.005	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.051	0.079	0.000	0.130	0.004	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.011	0.028	0.039
Head-on collisions (from Worksheet 1D)	0.001	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.003	0.004
Sideswipe, same direction (from Worksheet 1D)	0.000	0.001	0.001
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.002	0.003
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.000	0.002	0.002
Subtotal	0.015	0.036	0.051
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.001	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.017	0.042	0.059
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.006	0.009	0.015
Collision with pedestrian (from Worksheet 1I)	0.001	0.000	0.001
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.025	0.055	0.080
Total	0.040	0.091	0.131

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.09	1.5
Fatal and injury (FI)	0.0	0.09	0.4
Property damage only (PDO)	0.1	0.09	1.0

Appendix Q

SupplyBank.org at Oakport Project – Transportation Demand Management Plan

Fehr & Peers, April 28, 2023

Draft Memorandum

Date: April 28, 2023

To: Scott Gregory, Lamphier-Gregory

From: Sam Tabibnia and Molly Riddle, Fehr & Peers

Subject: SupplyBank.org at Oakport Project – Transportation Demand Management Plan

OK21-0392

The proposed SupplyBank.org at Oakport Project (Project) is required to prepare a Transportation and Parking Demand Management (TDM) Plan per the City of Oakland Standard Condition of Approval (SCA) 78 (Department of Planning and Building, Bureau of Planning, Revised December 16, 2021). According to the SCA, the TDM Plan goal is to achieve a 20 percent vehicle trip reduction (VTR) because the project would generate more than 100 net new peak hour trips.

This memorandum describes the project and its setting, lists the mandatory TDM strategies that the project shall implement, and describes the compliance for the TDM Plan.

Project Description

The Project site is located on a mostly vacant lot on the west side of Oakport Street, just north of Zhone Way (66th Avenue) and south of Peppermint Gate Access Road, in the City of Oakland. The Project would consist of a 10,000 square-foot workshop (Building 1), a 123,000 square-foot warehouse (Building 2), and a five-story, 160,000 square-foot office building (Building 3). The Project would include 331 surface parking spaces, 12 larger truck parking spaces, and 13 truck loading bays for the warehouse. Automobile and truck access to the Project site would be provided via four driveways on Oakport Street.

Project Location

Located in the Coliseum/Airport area of Oakland, the Project is in a low-density area with a mix of commercial and industrial uses and park land located west of I-880 and east of the Oakland Estuary. Few streets are provided in the vicinity of the Project and Oakport Street, the street adjacent the Project, lacks sidewalks. Streets further away in neighborhoods on the east side of I-880 and approximately 0.2 miles north and south of the Project site are generally aligned to a grid and have sidewalks on most streets.

The Project is approximately one mile from the Coliseum BART Station and the Oakland Coliseum/Airport Amtrak Station. The nearest AC Transit bus stop is along 66th Avenue at Coliseum Way (Line 98 with headways ranging from 20 to 30 minutes), about 0.4 mile east of the Project site.

The Project is currently served by a Class 1 multi-use path on the west side of the Project along the Oakland Estuary. This facility is part of the San Francisco Bay Trail. Planned bicycle facilities include the *66th Avenue BART to Bay Trail OBAG Project,* which would provide a Class 4 separated bicycle lane along the south side of 66th Avenue, between Oakport and San Leandro Streets, and would connect the Project site to the Coliseum BART Station and the Oakland Coliseum/Airport Amtrak Station.

Trip Generation and Commute Mode Share

Table 1 summarizes the trip generation for the Project by travel mode as summarized in the *Project Transportation Impact Review (TIR)* Memorandum per the City of Oakland's *Transportation Impact Review Guidelines* (TIRG, April 2017).

Table 1: Project Trip Generation by Travel Mode

Mode	Mode Share Adjustment Factors[1]	Daily	AM Peak Hour	PM Peak Hour
Automobile	0.844	1,750	253	248
Transit	0.113	230	34	33
Bike	0.009	20	3	3
Walk	0.026	50	8	8
	Total Trips	**2,050**	**298**	**292**

Notes:
1. Based on *City of Oakland TIRG*, assuming the Project site is in a suburban environment located more than one mile from a BART station with fewer than 6,000 people per square mile.

Source: Fehr & Peers, 2023.

Table 2 summarizes the commute mode split for workers in the Project census tract (Tract 4090). Based on the Census data, about 82 percent of the workers in the project census tract drive alone and about 11 percent carpool to and from work.

Table 2: Journey to Work for Workers in Project Census Tract (Tract 4090)

Transportation Mode	Percent of Workers in Project Census Tract
Automobile	
Drove Alone	82%
Carpooled	11%
Subtotal	*93%*
Transit	
BART	2%
Bus	2%
Subtotal	*4%*
Bike	<1%
Walk	<1%
Other	3%
Total	**100%**

Source: U.S. Census Bureau, American Community Survey 2012-2016 Five-year estimates. Special Tabulation: Census Transportation Planning Products; Fehr & Peers, 2023.

Mandatory TDM Measures

This section describes the mandatory strategies that are part of the City's TIRG and that shall be directly implemented by the Project Applicant and building management. **Appendix A** lists the mandatory strategies and their applicability to the Project.

Table 3 lists the mandatory TDM strategies, and the effectiveness of each strategy primarily on reducing VTR based on the Alameda County Transportation Commission (CTC) VMT Reduction Calculator Tool,[1] which is a tool that accounts for the particular location of a development project and quantifies the effects of various strategies in reducing VMT based on research compiled in *Quantifying Greenhouse Gas Mitigation Measures* (California Air Pollution Control Officers Association (CAPCOA), December 2021). This report is a resource for local agencies to quantify the benefit, in terms of reduced travel demand, of implementing various TDM strategies.

[1] See https://www.alamedactc.org/planning/sb743-vmt/ for more information.

Table 3: Mandatory TDM Program Components

TDM Strategy	Description	Estimated Vehicle Trip Reduction[1]
A. Infrastructure Improvements	Various improvements	N/A[2]
B. Pre-Tax Commuter Benefit	Require tenants to provide employees with pre-tax commuter benefits up to $300 per month	1-2%
C. Subsidized or Discounted Transit Program	Require tenants to provide subsidized, discounted, or free transit passes for employees	2-3%[3]
D. Employee BART Shuttle	Provide a free shuttle between the Project Site and the Coliseum BART Station which would operate during weekday peak commute periods.	3-5%[4]
E. Limited Parking Supply	Provide fewer parking spaces than the estimated demand for the site	8-10%
F. Parking Management	Establish eligibility requirements for parking permits and/or charge for parking	
G. Parking Cash Out	Require tenants to provide cash value equivalent to the cost of a parking pass for employees that forgo a subsidized/free parking space	2-12%
H. Preferential Parking for Carpoolers	Provide preferential parking for eligible carpoolers.	0-2%
I. Carpooling and Ride-Matching Assistance	Assist employees in forming carpools.	
J. Bicycle Amenities and Monitoring	Provide bicycle parking above the minimum requirement, including showers, long-term bicycle storage and personal lockers, and monitor usage	0-1%
K. Remote Work Options	Where feasible, encourage tenants to provide employees the opportunity to work flexible schedules and telecommute.	5-7%[5]
L. Guaranteed Ride Home	Encourage employees to register for the Guaranteed Ride Home (GRH) program.	N/A[2]
M. TDM Coordinator	Designate a coordinator responsible for implementing and managing the TDM Plan	N/A[2]
N. TDM Marketing and Education	Provide active marketing of carpooling, BART, AC Transit, and other non-auto modes	1-4%
	Estimated Trip Reduction	**20-38%**

Notes
1. Generally based on the results of the Alameda CTC VMT Reduction Calculator Tool unless noted otherwise. Although the focus of the Tool is reductions to VMT, the research used to generate the reductions also indicates vehicle trip reductions are applicable as well. For the purposes of this analysis the VTR is assumed to equal the VMT reduction.
2. The effectiveness of this strategy cannot be quantified at this time. This does not necessarily imply that the strategy is ineffective. It only demonstrates that at the time of the CAPCOA report development, existing literature did not

provide a robust methodology for calculating its effectiveness. In addition, many strategies are complementary to each other and isolating their specific effectiveness may not be feasible.
3. This strategy assumes that all employees would receive a transit subsidy of $5.00 per weekday (value to employee).
4. Based on available ridership data for other employee-based shuttle services in the East Bay (The West Berkeley Shuttle and the Harbor Bay Shuttle in Alameda)
5. This strategy assumes that 50 percent of the office employees would telework one day a week.
Source: Fehr & Peers, 2023.

The TDM strategies include both one-time physical infrastructure improvements and on-going operational strategies. Physical improvements will be implemented as part of the Project and thus are anticipated to have a one-time capital cost. Some level of ongoing maintenance cost may also be required for certain measures. Operational strategies provide on-going incentives and support for the use of non-auto transportation modes. These TDM measures have monthly or annual costs and will require on-going management.

Operational TDM strategies are most effective for persons that commute to and from a site on a regular basis, especially during weekday peak commute periods when transit service peaks and is most conveniently available. Thus, the mandatory strategies in Table 3 are primarily targeted at the Project employees. Project visitors are not directly targeted because they would generally visit the site too infrequently to be aware of the TDM benefits or to make them cost-effective. However, some of the mandatory strategies, especially the ones that would improve the infrastructure, would also benefit the site visitors as well as visitors to the larger area surrounding the Project site.

A more detailed description of the TDM measures that comprise the mandatory TDM program is provided below:

A. *Infrastructure Improvements* – the following infrastructure improvements in the Project vicinity, which were identified in the site plan evaluation completed as part of the Project TIR, would improve the bicycling and walking facilities in the area and further encourage the use of these modes:

   Recommendation 1: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

   - Implement one of the following at Driveway B (the second driveway from the north) to be consistent with the City of Oakland Municipal Code Section 12.04.270:
     - Reduce the width of the driveway opening to 35 feet.

    - If a high volume of large trucks, such as WB-67, is expected, then coordinate with the City of Oakland Driveway Appeals Board to provide a wider driveway.
- Implement one of the following at Driveways C and/or D (the two south driveways) to reduce the potential for queues at Project access gates spilling back onto Oakport Street:
    - Redesign the Project to provide at least 75 feet of queuing space for at least one of the driveways.
    - Keep the access gates at the two driveways open during normal business hours

Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Eliminate the proposed right-turn-lane on southbound Oakport Steet at the approach to Driveway B (second driveway from the north).
- Limit the outbound movement at Driveway D (southmost driveway) to right-turns only.
- Provide a left-turn lane on northbound Oakport Street at the approach to Driveway D (southmost driveway). If a left-turn lane cannot be accommodated, prohibit left-turns into the driveway and physically limit the driveway to right-turns in and out only.

Recommendation 3: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Ensure that the Project provides a minimum of 33 PEV-ready and an additional 33 PEV-capable parking spaces.

Recommendation 4: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Implement one of the following to accommodate passenger drop offs and pick-ups:
    - Provide a pull-out space on the west side of Oakport Street along the Project frontage to accommodate passenger loading and unloading.
    - Allow non-employee vehicles, such as rideshare vehicles, to enter the Project site to drop off and pick-up passenger.

Recommendation 5: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Eliminate the proposed Class 2 bicycle lanes on Oakport Street.
- At the Oakport Street/Zhone Way intersection, install a multi-use crossing treatment across the south approach of the intersection with a curb ramp with truncated domes on the east side consistent with the 66th Avenue BART to Bay Trail OBAG Project concept plan. Coordinate with City of Oakland staff to ensure this treatment is compatible with future plans for the Oakport Street/Zhone Way intersection.
- Pave the segment of the existing gravel path connecting the San Francisco Bay Trail and the proposed gate providing access to the Project site and sign and stripe this facility as a multi-use path. Install lighting along the multi-use path between the Project site and the Oakport Street/Zhone Way intersection.
- Install a curbless treatment or ramp with truncated domes or similar treatment at both ends of the marked path where it crosses the fire access lane so users have warning they are crossing a space shared by vehicles, bicycles, and pedestrians.

Recommendation 6: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Provide long-term bicycle parking for at least 16 bicycles in the office building (Building 3) and at least three bicycles in the warehouse building (Building 2) to meet the minimum amount of long-term bicycle parking required (19 spaces). Ensure that long-term bicycle parking in the office building as well as short-term bicycle parking is easily accessible from the entrance, main lobby, and the proposed path on the west side of the building.
- Provide at least four shower and 16 locker facilities in the office building (Building 3).
- Ensure that the required number of short-term bicycle parking spaces is provided and the required clearance dimensions are provided for the style of bicycle rack provided.

Recommendation 7: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Ensure that the sidewalk on the west side of Oakport Street has a minimum width of 5.5 feet (seven feet preferred)

- Provide high visibility crosswalk markings with directional curb ramps and truncated domes on both ends across each of the four Project driveways.

Recommendation 8: While not required to address a CEQA impact, and at the discretion of City of Oakland staff and in consultation with AC Transit, the following shall be considered as part of the final design for the Project:

- Consistent with the *66th Avenue BART to Bay Trail OBAG Project* concept plan, install a new southbound AC Transit Stop on the west side of Oakport Street just south of the Oakport Street/Zhone Way intersection.
- Install a temporary northbound/eastbound AC Transit stop on northbound Oakport Street approximately 350 feet south of the Oakport Street/Zhone Way intersection. The stop should be located adjacent to the existing pedestrian path between 66th Avenue and Oakport Street. The temporary stop can be removed when the Southbound I-880 On-ramp has been reconfigured by the *66th Avenue BART to Bay Trail OBAG Project* and the permanent bus stop has been installed on eastbound Zhone Way east of Oakport Street.
- Install shelters with benches and real-time arrival information at both bus stops.

Recommendation 9: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered prior to the Project occupancy:

- Conduct a speed study on Oakport Street to determine if the posted speed limit on Oakport Street along the Project frontage can be reduced. If justified, reduce the posted speed limit per the speed study.

Recommendation 10: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Install signage on southbound and northbound Oakport Street warning of the S-curve consistent with the *California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014 Edition) Figure 2C-2. Example of Warning Signs for a Turn.*
- Install double-sided reflective chevron signs or similar devices through the S-curve per *CA MUTCD Figure 2C-2*.
- Install speed feedback signs in both directions of Oakport Street ahead of the S-curve.

B. *Pre-tax Commuter Benefits* – Require tenants to provide employees the option to enroll in the pre-tax commuter benefits program. This strategy allows employees to deduct monthly transit passes or other amount using up to $300 pre-tax dollars. This can help to lower payroll taxes and allows employees to save on transit.

C. *Subsidized or Discounted Transit Program* – Require tenants to provide free or reduced cost transit for employees to increase transit mode share. Options include:

- Offer a monthly commuter check (or alternatively Clipper Card, which is accepted by BART, AC Transit, and other major transit providers in the Bay Area) to employees to use public transit. Note that as of 2023, IRS allows up to $300 per employee per month.[2]
- Participate in AC Transit's EasyPass program, which enables institutions to purchase annual bus passes for their employees in bulk at a deep discount. The passes allow unlimited rides on all AC Transit buses for all participants. For more information, see https://www.actransit.org/easypass.

Based on the CAPCOA report, a transit fare subsidy of about $5.00 per employee per weekday (value to rider and not cost to employer) available to all employees would translate to an approximately two to three percent VTR.

D. *Employee BART Shuttle* – The Project would provide a free shuttle between the Project and the Coliseum BART station, which would also provide access to AC Transit and Amtrak). At a minimum, the shuttle would operate during the weekday peak commute periods (7:00 to 9:30 AM and 3:30 to 6:30 PM) with 20-minute headways.

E. *Limited Parking Supply* – Based on the parking demand analysis completed for the Project TIR, the Project is estimated to have a peak parking demand of 369 vehicles, exceeding the parking supply of 331 spaces provided on-site by about 10 percent. Since no on-street or other off-street parking is available in the Project vicinity, the proposed constrained parking supply would discourage some site employees from driving.

F. *Parking Management* – Since the Project would provide fewer on-site parking spaces than the expected peak demand and the Project parking facilities would be gated, it is expected that parking passes would be issued to site employees. Consider one or more of the following in determining which employees receive parking passes:

- Establish eligibility requirements to provide parking passes to only employees who demonstrate a need for a vehicle, such as disabled employees, employees not living within walking distance of public transit, employees with atypical

[2] Department of the Treasury Internal Revenue Service, Publication 15-B (2023) Employer's Tax Guide to Fringe Benefits, (https://www.irs.gov/publications/p15b)

working hours, and/or employees who need vehicle for other needs such as drop off and pick-up of children.

- No free parking passes included in tenant leases.
- Charge employees for parking passes.

G. *Parking Cash Out* – If employees are provided with subsidized/free parking, require Project tenants to offer employees the choice of forgoing their subsidized/free parking for a cash payment equivalent to or greater than the cost of a parking pass.

H. *Preferential Parking for Carpoolers* – The Project would offer designated preferential carpool parking for eligible commuters. To be eligible for carpool parking, the carpool shall consist of two or more people. The Project shall monitor and provide adequate carpool spaces to meet and exceed potential demand.

I. *Carpooling and Ride-Matching Assistance* – Encourage tenants to provide personalized ride-matching assistance to pair employees interested in forming commute carpools. As an enhancement, consider using specific services such as ComoVee, or 511.org RideShare.

J. *Bicycle Amenities and Monitoring* –The Project would include long-term parking in a secure bicycle room, as well as showers and lockers, in the Project office building, and short-term parking in the form of bike racks adjacent to the warehouse and office buildings. The Project shall monitor the usage of these facilities and provide additional bicycle parking, if necessary.

K. *Guaranteed Ride home* – Encourage tenants and employees to register for the Guaranteed Ride Home (GRH) program. Employees may be hesitant to commute by any other means, besides driving alone, since they lose the flexibility of leaving work in case of an emergency. GRH programs encourage alternative modes of transportation by offering free rides home in the case of an illness or crisis, if the employee is required to work unscheduled overtime, if a carpool or vanpool is unexpectedly unavailable, or if a bicycle problem arises. The Alameda County Transportation Commission offers a GRH service for all registered permanent employees who are employed within Alameda County, live within 100 miles of their worksite, and do not drive alone to work. The GRH program is offered at no cost to the employer, and employers are not required to register for their employees to enroll and use the program.

L. *TDM Coordinator* – The Project shall designate a staff person as their TDM coordinator to coordinate, monitor and publicize TDM activities for the entire site. In addition, each tenant shall also designate a staff person as their TDM coordinator.

M. *TDM Marketing and Education* – Site management shall regularly provide employees information about transportation options. This information shall be provided as part of new employee orientations and would also be posted at central location(s) and be updated as necessary. This information shall include:

- *Transit Routes* – Promote the use of transit by providing user-focused maps. These maps provide employees with wayfinding to nearby transit stops and transit-accessible destinations and are particularly useful for those without access to portable mapping applications.
- *Real-time Transit Information System* – The Project should consider installing real-time transit information, such as TransitScreen, in a visible location, such as the office building lobby to provide employees and visitors with up-to-date transit arrival and departure times.
- *Transit Fare Discounts* – Provide information about local discounted fare options offered by BART and AC Transit, including discounts for youth, elderly, persons with disabilities, and Medicare cardholders.
- *Car Sharing* – Promote accessible car sharing programs, such as Zipcar, and Getaround by informing employees of nearby car sharing locations and applicable membership information.
- *Ridesharing* – Provide employees with phone numbers and contact information for ride sharing options including Uber, Lyft, and Oakland taxicab services.
- *Carpooling* – Provide employees with phone numbers and contact information for carpool matching services such as the Metropolitan Transportation Commission's 511 RideMatching.
- *Bicycle Routes* – Educate employees about nearby bicycle routes providing access to local and reginal destinations, such as the San Francisco Bay Trail located west of the Project site along the Oakland Estuary.
- *Bay Area Commuter Benefits Program* – Provide information on the Bay Area Commuter Benefits Program to all Project tenants. As of September 30, 2014, Bay Area employers with 50 or more full-time employees within the Bay Area Air Quality Management District (Air District) geographic boundaries are required to register and offer commuter benefits to their employees in order to comply with Air District Regulation 14, Rule 1, also known as the Bay Area Commuter Benefits Program. Employers must select one of four Commuter Benefit options to offer their employees: a pre-tax benefit, an employer-provided subsidy, employer-provided transit, or an alternative commute benefit.[3]

[3] Information about Commute Benefits Program is at 511.org/employers/commuter/overview

Additional TDM Measures

The project should consider the implementation of some or all of the following additional strategies to limit automobile use and encourage non-automotive travel. If the mandatory TDM strategies do not meet the required goals, the implementation of some or all these measures may become necessary.

N. *Employee Vanpool* – Provide a Project-sponsored vanpool service. Vanpooling is a flexible form of public transportation that provides groups of 5-15 people with a cost-effective and convenient rideshare option for commuting. Best practice is to subsidize the cost for employees that have a similar origin and destination and provide priority parking for employees that vanpool.

O. *Designated Parking Spaces for Car-Share* – Offer to designate at least two on-site parking spaces for car-sharing (such as Getaround, Zip Car, etc.) for free. Monitor the usage of the car sharing spaces and adjust if necessary. An additional strategy is to consider providing free/subsidized car-share membership to employees.

P. *Personalized Trip Planning* – Provide personalized trip planning in the form of in-person assistance or as a web tool, this provides employees with a customized menu of options for commuting. Trip planning reduces the barriers employees see to making a walk, bike, or transit trip to the site. Transit trip making tools, such as those available from Google or 511.org, could be promoted to inform employees of transit options to/from work. Providing a map of preferred walking and bicycling routes to destinations within the Project vicinity would be a proactive strategy to encourage those individuals to use alternatives to driving. An additional strategy is to conduct a survey or mapping exercise with employees and connect those who are traveling from similar origins. The Project can make a presentation to tenants and their employees upon request or at set times.

Monitoring, Evaluation, and Enforcement

Since the Project would generate more than 100 peak hour trips, this TDM program requires regular periodic evaluation of the program to determine if the program goals in reducing automobile trips are satisfied and to assess the effectiveness of the various strategies implemented. The Project shall submit an annual compliance report for the first five years following completion of the Project for review and approval by the City. The annual report shall document the following:

- Summary of implemented TDM measures and their effectiveness (e.g., bicycle parking occupancy, number of transit passes issued, etc.)
- Results of Project employee transportation survey to monitor the vehicle trip generation and mode share for Project employees
- Weekday AM and PM peak period and daily traffic volume counts at the Project driveways

If deemed necessary, the City may elect to have a peer review consultant, paid for by the Project, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the Project has failed to implement the TDM Plan, the Project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in the Project Conditions of Approval. The Project shall not be considered in violation of this Condition if the TDM Plan is fully implemented but the VTR goal is not achieved.

If in two successive years the project's TDM goals are not satisfied, Project shall implement additional TDM measures. If in five successive years the project is found to meet the stated TDM goal, additional surveys and monitoring shall be suspended until such a time as the City deems they are needed.

Please contact Sam Tabibnia (stabibnia@fehrnadpeers.com, 510.835.1943) with questions or comments.

Appendix A: Mandatory TDM Program Components

TDM Strategy	Required When	Required for Project?
Bus boarding bulbs or islands	• A bus boarding bulb or island does not already exist and a bus stop is located along the project frontage; and/or • A bus stop along the project frontage serves a route with 15 minutes or better peak hour service and has a shared bus-bike lane curb	No, no bus stop is currently located along the Project frontage.
Bus Shelter	• A stop with no shelter is located within the project frontage, or • The project is located within 0.10 miles of a flag stop with 25 or more boardings per day	No, no bus stop is currently located along the Project frontage or within 0.10 miles of the Project site.
Concrete Bus Pad	• A bus stop is located along the project frontage and a concrete bus pad does not already exist	No, no bus stop is currently located along the Project frontage.
Curb Extensions or bulb-outs	• Identified as an improvement within site analysis	No, the site analysis did not identify new curb extensions or bulb-outs.
Implementation of Corridor-Level Bikeway Improvement	• A buffered Class II or Class IV bikeway facility is in a local or county adopted plan within 0.10 miles of the project location; and • The project would generate 500 or more daily bicycle trips	No, the Project would not generate 500 or more daily bicycle trips.
Implementation of Corridor-Level Transit Capital Improvement	• A high quality transit facility is in a local or county adopted plan within 0.25 miles of the project location; and • The project would generate 400 or more peak period transit trips	No, the Project would not generate 400 or more peak period transit trips.
Installation of amenities such as lighting; pedestrian oriented green infrastructure, trees, or other greening landscape; and trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.	• Always required	**Yes, the Project would provide a 5.5-foot sidewalk along the Project frontage on Oakport Street and connect to the Oakport Street/Zhone Way intersection and the Bay Trail west of the Project site (TIR Recommendation 5).**

TDM Strategy	Required When	Required for Project?
Installation of safety improvements identified in the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.)	• When improvements are identified in the Pedestrian Master Plan along project frontage or at an adjacent intersection	**Yes, the Project would make improvements at the Oakport Street/Zhone Way intersection consistent with the 66th Avenue BART to Bay Trail OBAG Project concept plan (TIR Recommendation 5).**
In-street bicycle corral	• A project includes more than 10,000 square feet of ground floor retail, is located along a Tier 1 bikeway, and • On-street vehicle parking is provided along the project frontages.	No, the Project does not include more than 10,000 square feet of ground floor retail.
Intersection improvements	• Identified as an improvement within site analysis	**Yes, the Project would improve the south crossing at the Oakport Street/Zhone Way intersection (TIR Recommendation 5).**
New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards	• Always required	**Yes, the Project would provide a 5.5-foot sidewalk along the Project frontage on Oakport Street and connect to the Oakport Street/Zhone Way intersection (TIR Recommendation 7).**
No monthly permits and establish minimum price floor for public parking	• If proposed parking ratio exceeds 1:1000 sf (commercial)	**Yes, the Project would not provide monthly permits, nor would parking be accessible to the public.**
Parking garage is designed with retrofit capability	• Optional if proposed parking ratio exceeds 1:1.25 (residential) or 1:1000 sf (commercial)	No, the Project does not propose to build a parking garage.
Parking space reserved for car share	• A project is located within downtown. One car share space preserved for buildings between 50 – 200 units, then one car share space per 200 units.	No, the Project is not located in downtown and is not residential.
Paving, lane striping or restriping (vehicle and bicycle), and signs to midpoint of street section	• Typically required	**Yes, the Project would update the paving and striping along the Project frontage to the opposite edge of the roadway.**

TDM Strategy	Required When	Required for Project?
Pedestrian crossing improvements, pedestrian supportive signal changes	• Identified as an improvement within site analysis • Identified as an improvement within operations analysis	**Yes, the Project would improve pedestrian crossings across the four driveways along the Project frontage and provide an enhanced multi-use crossing treatment at the Oakport Street/Zhone Way intersection (TIR Recommendations 5 and 7).**
Real-time transit information system	• A project frontage block includes a bus stop or BART station and is along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better	**Yes, although there are no transit stops located along the Project frontage, the Project would include real-time transit information for the recommended new bus stops at the Oakport Street/ Zhone Way intersection (TIR Recommendation 8)**.
Relocating bus stops to far side	• A project is located within 0.10 mile of any active bus stop that is currently near-side	No, there are no transit stops located within 0.10 miles of the Project.
Signal upgrades	• Project size exceeds 100 residential units, 80,000 sf of retail, or 100,000 sf of commercial; and • Project frontage abuts an intersection with signal infrastructure older than 15 years	No, the only signal adjacent to the Project site is at the Oakport Street/Zhone Way intersection which would be upgraded by the City's *66th Avenue BART to Bay Trail OBAG Project*.
Transit queue jumps	• Identified as a needed improvement within operations analysis of a project with frontage along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better	No, not identified as a needed improvement.
Trenching and placement of conduit for providing traffic signal interconnect	• Project size exceeds 100 units, 80,000 sf of retail, or 100,000 sf of commercial; and • Project frontage block is identified for signal interconnect improvements as part of a planned ITS improvement; and • A major transit improvement is identified within operations analysis requiring traffic signal interconnect	No, not identified as a needed improvement.
Unbundled parking	• If proposed parking ratio exceeds 1:1.25 (residential)	No, the Project does not meet land use requirements.

Sources: City of Oakland Transportation Impact Review Guidelines, 2017; Fehr & Peers, 2023.