

## **INITIAL STUDY/MITIGATED NEGATIVE DECLARATION**

### **Recess Storage Project 4224 Sonoma Highway Santa Rosa, California**

Prepared for:  
City of Santa Rosa  
Planning and Economic Development Department  
100 Santa Rosa Avenue, Room 3  
Santa Rosa, CA 95404

Contact:  
Susie Murray, Senior Planner

Prepared by:



June 2019

## Environmental Checklist

1. **Project Title:** Recess Storage Project
2. **Lead Agency Name and Address:** City of Santa Rosa  
Economic and Planning Department  
100 Santa Rosa Ave., Room 3  
Santa Rosa, CA 95404
3. **Contact Person and Phone Number:** Susie Murray, Senior Planner  
(707) 543-4348  
smurray@srcity.org
4. **Project Location:** 4224 Highway 12  
Santa Rosa, CA 95409  
APN 032-010-005
5. **Project Sponsor's Name and Address:** American Recess Development Corporation  
85 Keystone Ave Suite E  
Reno, NV89503
6. **General Plan Designation(s):** Retail and Business Services
7. **Zoning Designation(s):** General Commercial
8. **Description of Project:** The Recess Storage Project includes development of a four-story, 124,000 square foot self-storage facility and two multi-family residence structures. One structure will have six dwelling units and one structure will have eight dwelling units. Development of the project will include demolition of the existing structures, clearing and grubbing of existing vegetation, site grading, and construction of onsite improvements including the new storage facility and residences, onsite parking and driveways, and landscaping. Parking onsite will include 36 parking spaces three of which would be compliant with the Americans with Disabilities Act. A loading space will be provided and a secured gate entry will be installed. The property at 4200 is currently

built out. An expanded project description is provided below.

### **9. Surrounding Land Uses and Setting.**

The proposed project site is located at Assessor's Parcel Number (APN) 032-010-005 (4224 Highway 12) and 032-010-023 (4200 Highway 12) in the eastern portion of Santa Rosa, in unincorporated Sonoma County, California. The parcels are located southeast of Highway 12 and west of Mission Boulevard. The 2.68 acre site currently constructed with one, 2,664 square foot single family home and two out-structures that are approximately 872 square feet in size. The property located at 4200 Highway 12 is built out. Existing residential development occurs to the south and north of the project site. Commercial developments occur to the south, north and west. The Santa Rosa Creek multiuse trail occurs to the east of the site. The site is relatively flat with the exception on the northeast portion with has a slope of greater than 10 percent.

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## Environmental Factors Potentially Affected

The proposed Project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

- |   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> Aesthetics                | <input type="checkbox"/> Agriculture/Forestry Resources | <input checked="" type="checkbox"/> Air Quality                        |
| <input checked="" type="checkbox"/> Biological Resources      | <input checked="" type="checkbox"/> Cultural Resources  | <input type="checkbox"/> Energy  |
| <input checked="" type="checkbox"/> Geology & Soils           | <input type="checkbox"/> Greenhouse Gas Emissions       | <input checked="" type="checkbox"/> Hazards & Hazardous Materials      |
| <input checked="" type="checkbox"/> Hydrology & Water Quality | <input type="checkbox"/> Land Use & Planning            | <input checked="" type="checkbox"/> Mandatory Findings of Significance |
| <input type="checkbox"/> Mineral Resources                    | <input type="checkbox"/> Noise                          | <input type="checkbox"/> Population & Housing                          |
| <input type="checkbox"/> Public Services                      | <input type="checkbox"/> Recreation                     | <input type="checkbox"/> Transportation                                |
| <input checked="" type="checkbox"/> Tribal Cultural Resources | <input type="checkbox"/> Utilities & Service Systems    | <input checked="" type="checkbox"/> Wildfire                           |

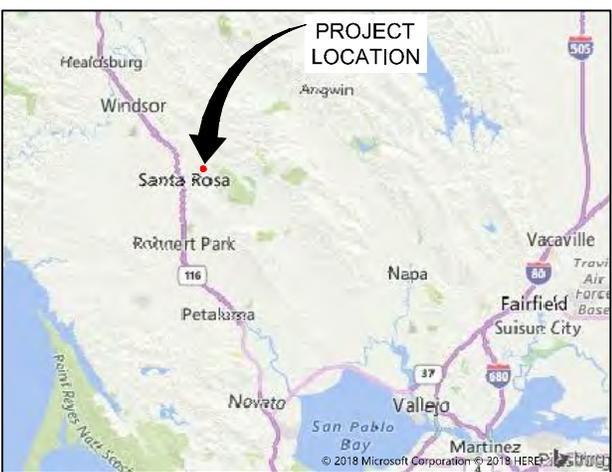
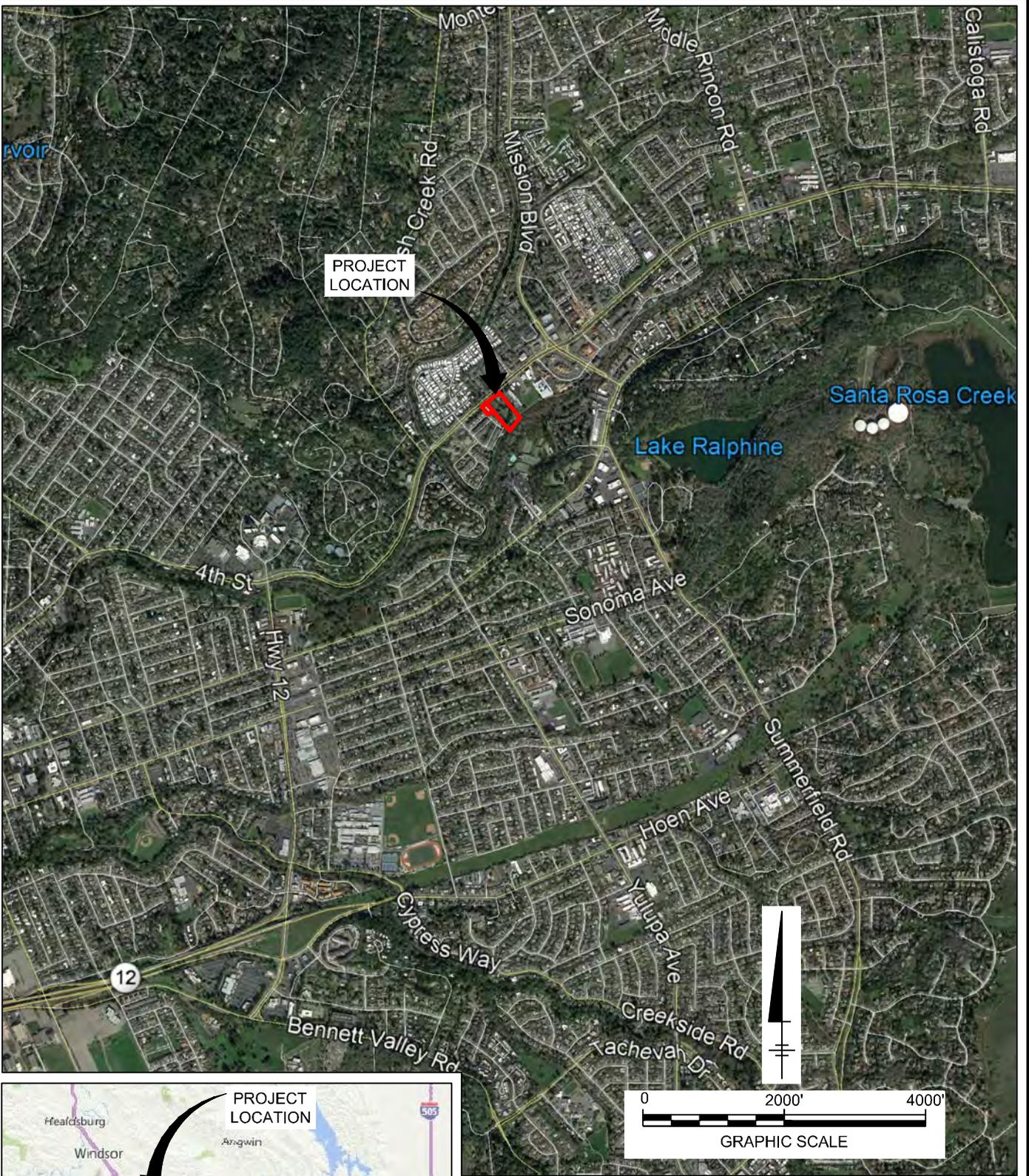
## Project Description and Background

The Recess Storage Project (Project) will construct a four-story, 124,000-square foot, self-storage facility and two multi-family residential structures; one structure will have six dwelling units and one structure will have eight dwelling units. The Project entitlements include a Prezoning to the CG (General Commercial) zoning district for Annexation to the City of Santa Rosa; a Tentative Parcel Map to subdivide an approximately 2.68-acre parcel into three separate lots; a minor Conditional Use Permit for a self-storage facility and multi-family housing; a Design Review for the construction of a commercial building greater than 10,000 square feet and attached housing; and a Hillside Development Permit for development on slopes greater than 10 percent.

The Project involves annexation of two parcels, 4200 and 4224 Sonoma Hwy., into the City of Santa Rosa (Figure 1). The property located at 4224 Sonoma Highway 12 (Sonoma Highway) is currently constructed with a 2,664-square foot single family home constructed in approximately 1948, which is currently unoccupied. There are two out-structures encompassing approximately 872 feet each. The property located at 4200 Sonoma Highway is built out and no new development is proposed as part of the Project. Both sites are currently within unincorporated Sonoma County (a two-parcel County island). Prior to Annexation, which will be facilitated by Local Agency Formation Commission (LAFCO), the two properties will be Prezoned to the CG (General Commercial) zoning district, which is consistent with the City's General Plan land use designation of Retail and Business Services.

The proposed storage facility will be located at the northern portion of the parcel, adjacent to Sonoma Highway, and the residential structures will be located on the southern and eastern sides of the Project site. Both the storage facility and residential structures will take primary access from Sonoma Highway, with a secondary access point from Streamside Drive (Figure 2)

**Storage Facility:** The proposed four-story storage building will have a variety of sidings (combinations of fiber cement board, Concrete Masonry Unit various complementary shades of



Recess Storage Project Santa Rosa, California	
<b>SITE LOCATION MAP</b>	
 <b>ARCADIS</b>   Design & Consultancy for natural and built assets	FIGURE <b>1</b>

metal siding, and decorative metal siding) with varied roof lines. Each floor will be approximately 31,000 square feet for a total area of 124,000 square feet. The storage facility will have a 900 square foot office located on the southwestern side of the facility. A concrete driveway will be constructed at the southern portion of the property to provide access to the storage facility and the residences from Sonoma Highway from the west. The storage facility will have two elevators.

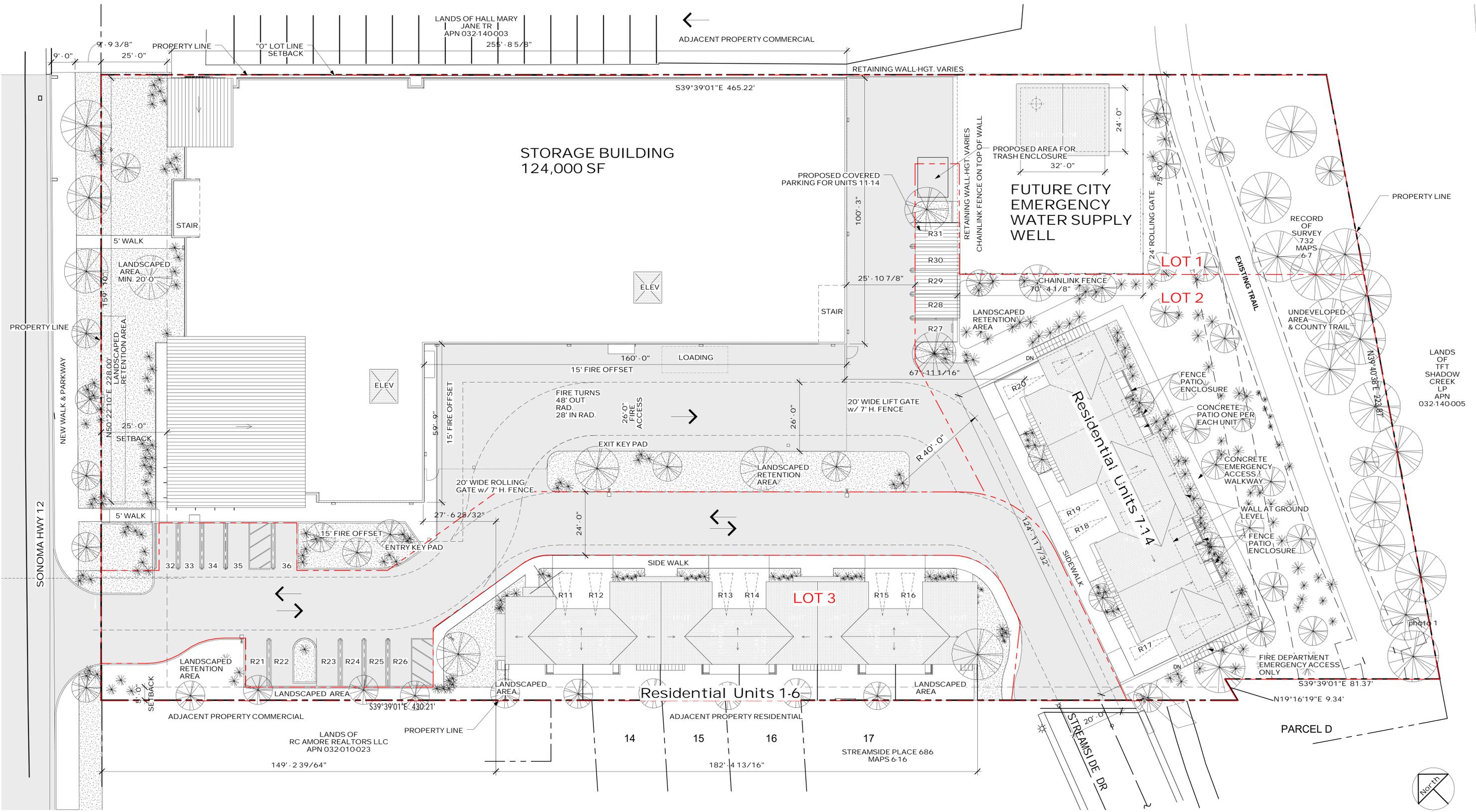
A required 25-foot landscaped area will be constructed along the western front of the property, separating the storage facility from Sonoma Highway. A new sidewalk will also be constructed between the facility and Sonoma Highway.

**Multifamily Residences:** The Project will construct two multi-family residential structures on two subdivided lots. The first, located on Lot 2 towards the southern property line, will have eight units and overlook the creek and multiuse path. The second, on Lot 3 adjacent to existing residential structures on Calloway Drive, will have six units. The residential structures will have a (combination of vertical and horizontal fiber cement board and metal siding, with complementary decorative reclaimed wood siding accents, and varied roof lines. The residential structure facing the creek path will comply with the Hillside development standards by following the natural topography and stepping with the existing slope. This will not only preserve but will highlight the natural features of our site and the surrounding areas. The roof line visible from the multiuse path will be also stepping down with the nature slope. Each multi-family residential structure will be two or three stories and residences will vary in size from approximately 885 square feet to 1562 square feet. Construction of the residences will include installation of utility connections including water, sewer, electricity, and natural gas.

**Parking:** The parking requirements are set forth in the Zoning Code Chapter 20-36, Table 3-4. The Project is required to provide 1.5 parking spaces for one-bedroom units, 2.5 parking spaces for each unit with two or more bedrooms, and five spaces for the self-storage facility. The Project is comprised of four one-bedroom residential units, ten residential units with two or more bedrooms, and one self-storage building, and complies with the Zoning Code providing a total of 36 parking spaces, 14 of which are either covered or garaged, and three of which are compliant with the Americans with Disabilities Act. A loading space will also be provided. A secured gate entry will be installed at the separation of the driveway to separate the storage facility and residences. Landscaping will further aid in providing a separation between the two land uses and to provide privacy for the residences.

**Landscaping and Lighting:** Site improvements include landscaping including planting of trees, shrubs, and herbaceous vegetation that will be located around the property, within the parking area for the multi-family residences, at the frontage of Sonoma Highway, and between the multi-family residence structure at Lot 2 (Figure 3a and 3b). Landscaping will include drought tolerant plants and replacement trees in compliance with the City Water Efficient Landscaping Ordinance (WELO) and will include tree replacement in compliance with the City's Tree Ordinance, City Code Chapter 17-24.

Bioretention areas will be incorporated into the site to capture the post development storm water during light rain events and encourage infiltration in accordance with the Priority 1 objectives of



Site Plan/ Roof Plan

Scale 1/16" = 1'-0"

ISSUED FOR:		
	DATE	DESCRIPTION

**RECESS**  
 85 Keystone Avenue, Suite E  
 Reno, Nevada 89503  
 Tel (775) 357-9206

DRAWN BY:	CRN
DESIGNED BY:	CRN
CHECKED BY:	
SUBMITTED BY:	AR

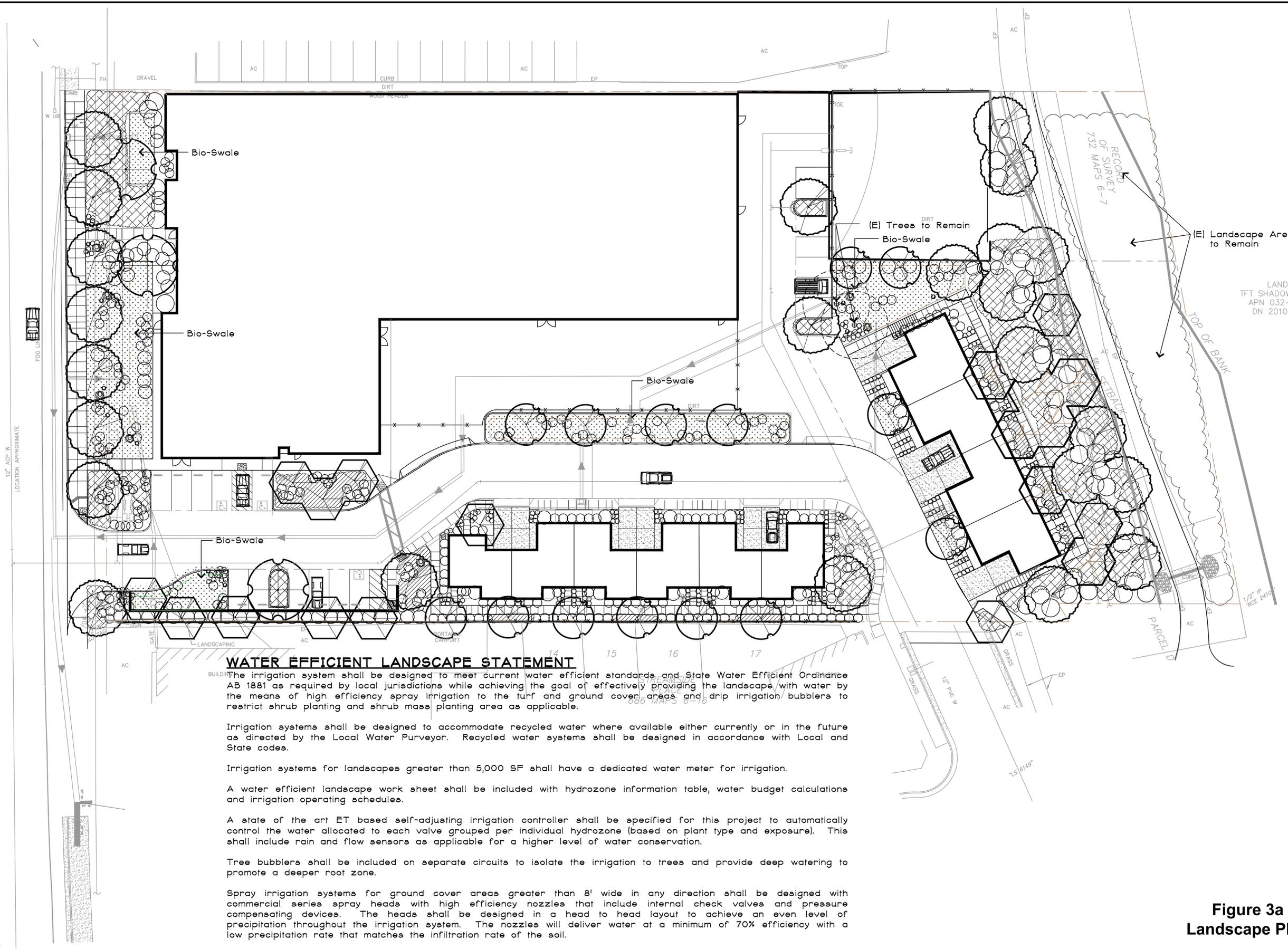
SCALE:  
 1/16" = 1'-0"

RECESS STORAGE PROJECT  
 4224 SONOMA HIGHWAY  
 Santa Rosa, CA 95409  
 Sonoma County APN 032-010-005



DWG #	FIGURE 2 SITE PLAN
-------	-----------------------

Plot Date: 8/10/18  
File No: 18-018  
Name: Landscaping



### WATER EFFICIENT LANDSCAPE STATEMENT

The irrigation system shall be designed to meet current water efficient standards and State Water Efficient Ordinance AB 1881 as required by local jurisdictions while achieving the goal of effectively providing the landscape with water by the means of high efficiency spray irrigation to the turf and ground cover areas and drip irrigation/bubblers to restrict shrub planting and shrub mass planting area as applicable.

Irrigation systems shall be designed to accommodate recycled water where available either currently or in the future as directed by the Local Water Purveyor. Recycled water systems shall be designed in accordance with Local and State codes.

Irrigation systems for landscapes greater than 5,000 SF shall have a dedicated water meter for irrigation.

A water efficient landscape work sheet shall be included with hydrozone information table, water budget calculations and irrigation operating schedules.

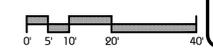
A state of the art ET based self-adjusting irrigation controller shall be specified for this project to automatically control the water allocated to each valve grouped per individual hydrozone (based on plant type and exposure). This shall include rain and flow sensors as applicable for a higher level of water conservation.

Tree bubblers shall be included on separate circuits to isolate the irrigation to trees and provide deep watering to promote a deeper root zone.

Spray irrigation systems for ground cover areas greater than 8' wide in any direction shall be designed with commercial series spray heads with high efficiency nozzles that include internal check valves and pressure compensating devices. The heads shall be designed in a head to head layout to achieve an even level of precipitation throughout the irrigation system. The nozzles will deliver water at a minimum of 70% efficiency with a low precipitation rate that matches the infiltration rate of the soil.

The drip irrigation system will incorporate pressure compensating drip bubblers with 1/4" drip tubes to each plant which delivers water at 90% efficiency at an application rate that matches the soil type.

**Figure 3a  
Landscape Plan**



**HWA**  
Landscape Architecture  
Site Planning  
7157 Fitness Drive  
Brentwood, CA 94513  
Phone: 925.513.3091  
Fax: 925.513.3099



**Access Storage**  
4924 Highway 12  
Santa Rosa, California  
Access Development Company

**Preliminary Plan**

date: 11.06.18	drawn by: rw
scale: 1"=20'	job no: 18.007
revisions:	1) 5.10.19 Revised per new site plan





the LID Technical Design Manual. The bioretention areas will be equipped with overflow drains to minimize inundation on paved surfaces during larger storms.

Lighting for the self-storage facility and multi-family residences will be required, as a standard condition of approval to conform with the City's lighting standards and final design review approval. Lighting for the Project is expected to include a variety of fixtures such as residential lighting, security lighting, and parking lighting.

**Utilities and Infrastructure:** Utilities will extend to the residential structures from the public street. Wastewater will be accommodated via the installation of new sanitary sewer lines that will connect to new 8-inch sanitary sewer main extended from Streamside Drive. Domestic, irrigation, and fire protection water services will be provided from a public water main connecting to the City's existing water system branches in Sonoma Highway and Streamside Drive.

**Site Preparation:** Site preparation will include demolition of all existing structures, clearing of designated vegetation, installation of tree protection for trees designated to remain, grading and installation of on- and off-site improvements. Debris from demolition will be removed from the site and deposited at an appropriate landfill. The existing well and septic system will be abandoned in accordance with permits from the Sonoma County Well and Septic Division.

**Additional Improvements:** Additional improvements include installation of a public road that will connect Sonoma Highway and Streamside Drive; a Fire Department turnaround and public fire hydrant. The Tentative Map also includes two easements, one for a City well to be used as an emergency water source, and the other for a Los Alamos sewer trunk-line.

**Construction Schedule:** Construction will occur for approximately 14 to 16 months. Construction is anticipated to begin in Summer 2020 and completed in Fall 2021. Construction will be restricted to the hours of 7:00 AM to 7:00 PM Monday through Friday and 9:00 AM to 5:00 PM on Saturdays or as allowed under Municipal Code Section 17-16.030. No construction activities are permitted on Sundays and holidays. Equipment anticipated to be used includes bulldozers, backhoes, excavators, dump trucks, cranes, as well as smaller hand-held equipment. All materials will be stored on-site during construction.

**Environmental Checklist**

**I. Aesthetics**

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>1. AESTHETICS—Would the project:</b>				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) In nonurbanized areas, substantially degrade existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning or other regulatory governing scenic quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Setting**

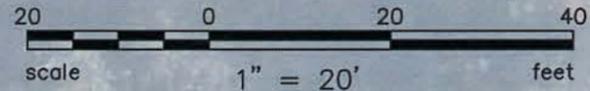
The approximately 2.68-acre Project site is located in eastern Santa Rosa, on the south side of Sonoma Highway, between Mission Boulevard and Brush Creek Road. The site is relatively flat, with a 10 percent slope change at the eastern portion of the site. The site is currently developed with a single-family home and with two outbuildings. Vegetation consists of a mix of native, non-native, and ornamental trees and shrubs. Existing public views of the site occur from Sonoma Highway and a public multi-use path adjacent to Santa Rosa Creek on the south side of the parcel. The parcel at 4200 Sonoma Highway is currently developed and no construction will occur at this site.

The City of Santa Rosa General Plan identifies the stretch of Sonoma Highway from Farmer’s Lane to Calistoga Road as a scenic road and requires that new development maintain the visual character of the scenic roadway. This area of roadway is not included in the SR (Scenic Road) combining district regulated by the Zoning Code.

As shown in Figure 2 Site Plan, the storage structure will be setback 25 feet from the property line. The residential structure on the southwestern property line will be setback approximately 150 feet from the interior side of the sidewalk, which will not readily visible from Sonoma Highway. The Project will be setback approximately 150 feet from Santa Rosa Creek (Figure 4). All three structures will have a variety of exterior siding materials, varied roof lines, and landscaping.



LANDS OF  
TFT SHADOW CREEK LP  
APN 032-140-005  
DN 2010-094016



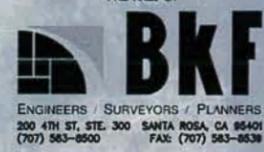
*Eric D. Wade*  
ERIC D. WADE  
C 81862

04/17/2019

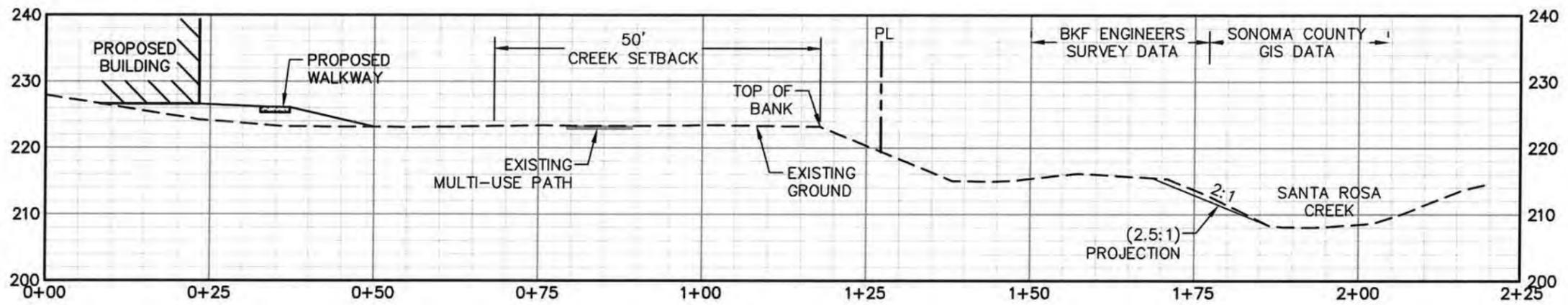


**CREEK SETBACK EXHIBIT**  
4224 HWY 12  
CITY OF SANTA ROSA, CALIFORNIA  
APRIL 2019

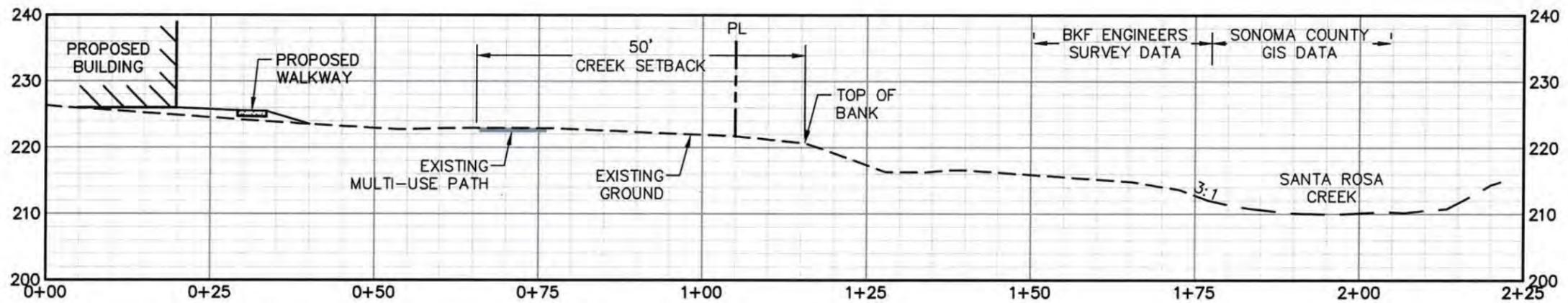
Figure 4a



Plot Apr 17, 2019 at 9:45am



SECTION 1  
 H: 1"=20'  
 V: 1"=20'



SECTION 2  
 H: 1"=20'  
 V: 1"=20'

**CREEK SETBACK SECTIONS**

4224 HWY 12  
 CITY OF SANTA ROSA, CALIFORNIA  
 APRIL 2019

PREPARED BY



Figure 4b

The multi-family residences are designed to front onto the internal street to provide a pleasant and walkable streetscape with front doors and front yards facing the street. New plantings call for trees and shrubs to complement other neighboring developments.

The Project includes full frontage improvements along Sonoma Highway including sidewalk and landscaping (Figure 5). The site plan is designed to allow pedestrian, bicycle, and vehicular circulation throughout the Project, as well as to adjacent streets and neighborhoods. The streetscapes with sidewalks in front of each home will provide a pedestrian path. The Project will consist of native and drought tolerant plant species and hydro-zones will be utilized to make efficient use of water in compliance with the City of Santa Rosa's Water Efficient Landscape Ordinance (WELo).

The proposed Project is subject to Design Review in order to verify that the architectural style, massing, color and materials, and other proposed design elements of the new development are compatible with the existing character of the site vicinity. A standard condition of approval for the Project will address exterior lighting to appropriately design lighting features to minimize spillover onto adjacent properties and to shield light sources from view.

General Plan policy OSC-B-5 requires a Hillside Development Permit for all new development on slopes greater than 10 percent. General Plan policy OSC-B-2 requires that alteration to slopes greater than percent be minimized to the greatest extent feasible. As the Project site contains slopes that exceed 10 percent, the project is subject to the City's Hillside Development Standards and requires a Hillside Development Permit pursuant to Chapter 20-32 of the Zoning Code. The Hillside Development Standards are intended to conserve significant natural features and result in hillside development design that are sensitive to the existing terrain, views and significant natural landforms, thereby avoiding visual and environmental impacts. The Project will comply with the Hillside Development Standards by using the natural contours for the development of the multi-family residences in Lot 2 as shown in Figure 6. Because the Project will comply with the Hillside Development Standards, the Project will not conflict with the City's General Plan or the Hillside Development Permit and impacts would be less than significant.

- a) **No Impact.** There are no scenic vistas within the vicinity of the Project area and the Project site is not part of a scenic vista. Therefore, there will be no impacts on scenic vistas.
- b) **Less than Significant Impact.** The Project site is not located within or along a designated scenic corridor nor does it contain scenic resources (trees, rock outcroppings, or historic buildings) related to a scenic highway. The Project site is located on a portion of Sonoma Highway that is identified as an eligible state scenic highway but is not officially designated. According to California Department of Transportation (Caltrans), the nearest officially designated state scenic highway is a portion of Sonoma Highway from Danielli Avenue, east of Santa Rosa, to London Way near Agua Caliente. Danielli Avenue is approximately 4 miles east to the Project site (Caltrans 2007). The City's



Recess Storage Project  
Santa Rosa, California

Figure 5  
View from Sonoma Highway



Residential Units 7-14 East Elevation  
Scale 3/16" = 1'-0"



Residential Units 7-14 North Elevation  
Scale 3/16" = 1'-0"



Residential Units 7-14 West Elevation  
Scale 3/16" = 1'-0"



Residential Units 7-14 South Elevation  
Scale 3/16" = 1'-0"

ISSUED FOR:	17 Oct. 2018	PLANNING REVIEW
	DATE	DESCRIPTION



DRAWN BY: CRN  
DESIGNED BY: CRN  
CHECKED BY:  
SUBMITTED BY: AR

SCALE:  
3/16" = 1'-0"

RECESS STORAGE -  
RESIDENTIAL UNITS ALONG EXISTING TRAIL  
4224 Hwy 12  
Santa Rosa, CA 95409  
Sonoma County APN 032-010-005



General Plan identifies Sonoma Highway within the Project area as a Scenic Road. Development of the Project will be consistent with the surrounding land use (residential and commercial) and will be compliant with the City's design standards. Because the Project will be consistent with the City's General Plan and design standards, impacts related to scenic roads will be less than significant.

According to the cultural and historic resources report, the existing structures on the Project site are not considered historic buildings and there are not rock outcroppings or other scenic features on site (Origer & Associates 2017).

The arborist report identified 58 heritage trees that will be removed and two oak trees that will be retained (Arcadis 2019). The landscaping plan (Figure 3b) identifies 21 24-inch box trees and 38 36-inch box trees to be planted as to meet replacement requirements onsite in compliance with the Tree Ordinance, City Code Chapter 17-24. The project is in compliance with the City's Tree Ordinance which will reduce impacts related to tree removal to less than significant. Because there are no scenic resources within the vicinity of the Project, and heritage trees will be replaced per the City's ordinance impacts will be less than significant.

- c) **Less than Significant Impact with Mitigation Incorporation.** During construction, the site will be graded and trees will be removed and heavy equipment will be seen from public views of the Project site. However, the view of the Project site during construction will be temporary and will not result in a significant degradation of the visual character of the site or surroundings.

The site is surrounded to the southwest and northeast by existing development, including residential development and commercial uses to the east. The views of the completed Project will be consistent with the surrounding land uses. The Project site will not substantially degrade the existing visual character or quality of the site and its surroundings as it will continue the residential development called for in the City's General Plan in a manner consistent with the City's design standards and compatible with the surrounding community.

The multi-family structure on Lot 2 will be situated on a 10percent slope which could accentuate the views of the structure if design did not include the natural contours of the site. Compliance with the Hillside Development Standards requires the use of the natural contours in siting developments will be a standard condition of approval for the Project. The Project has been designed in a manner that aims to retain the natural contours and minimizing visibility of the new residences on Lot 2 to the extent feasible as shown in Figure 6. Compliance with the Hillside Development Standards as a condition of approval would reduce impacts to less than significant.

Construction of the proposed Project will remove 58 trees (Arcadis 2019). Two protected trees, Trees No 24 and No 25 will be retained and protected in place. Because of their location, construction has the potential to damage the two protected trees. Implementation of **Mitigation Measure AES-01** which includes measures to protect the



Residential Units 7-14 East Elevation  
Scale 3/16" = 1'-0"



Residential Units 7-14 North Elevation  
Scale 3/16" = 1'-0"



Residential Units 7-14 West Elevation  
Scale 3/16" = 1'-0"



Residential Units 7-14 South Elevation  
Scale 3/16" = 1'-0"

ISSUED FOR:	17 Oct. 2018	PLANNING REVIEW
	DATE	DESCRIPTION



DRAWN BY: CRN  
DESIGNED BY: CRN  
CHECKED BY:  
SUBMITTED BY: AR

SCALE:  
3/16" = 1'-0"

RECESS STORAGE -  
RESIDENTIAL UNITS ALONG EXISTING TRAIL  
4224 Hwy 12  
Santa Rosa, CA 95409  
Sonoma County APN 032-010-005



trees from construction activities will establish a Tree Protection Perimeter, including erection of fencing and restriction of use of the perimeter for the storage of materials or other activities during construction. Implementation of Mitigation Measures AES-01 will protect Trees No 24 and No 25 during construction

Construction and operation of the Project will temporarily reduce the visual character of the site from the Santa Rosa Creek multi-use path. During and immediately after construction, because of the removal of trees and other vegetation, views from the multi-use path of the structure on Lot 2 will be obvious and result in a temporary change in the character of the view from the path. As identified in the Landscape Plan (Figure 3), trees and vegetation that will be planted between the structure and the path to restore the views from the path. Once the trees and other vegetation has been able to mature, views of the structures will be screened, and views of the structure will become less obvious and the visual character of the site from the path will be consistent with the surrounding area. Once vegetation matures, views from the multi-use path will be similar to existing conditions and operation of the multifamily structure on Lot 2 would not permanently change the character of existing views. As shown in Figure 7 mature vegetation will screen the views from the path both from the north and south and the visual character would be restored. Because the change in visual character from the multi-use path would be temporary during construction and during the establishment of vegetation, impacts would be less than significant.

- d) **Less than Significant Impact.** Construction of the Project will include equipment and some minor lighting that will result in a minor temporary increase in light and glare at the site during construction. Nighttime construction work is not anticipated, but some lighting may be used during the fall and winter months in the afternoon to provide for a safe work area. Lighting will be directed down and away from adjacent residences, businesses, and the creek area and light will be contained on site.

The storage facility and new homes will include lighting. The City of Santa Rosa Zoning Code (Zoning Code) Section 20-30.080 requires that lighting fixtures be shielded or recessed to reduce light bleed to adjoining properties, and that each light fixture be directed downward and away from adjoining properties and public rights-of-way, so that no on-site light fixture directly illuminates an area off the site. Exterior lighting fixtures associated with the storage facility and multi-family residential structures have been selected and will be installed in compliance with Code Section 20-30-080. Fixtures will be downcast and installed to direct light toward the site and prevent intrusion into adjacent properties, including creek habitat to the east of the site. Compliance with these requirements will not create a new source of substantial light or glare associated with the Project that will adversely affect day or nighttime views in the area. Additionally, the replacement of trees along the southside of Lot 2 will further prevent light intrusion into adjacent riparian habitat in the creek area. As a standard condition of approval, the Project lighting plan will be approved by the City prior to the issuance of grading and building permits. Installation of the lighting according to City requirements and in

compliance with Zoning Code Section 20-30-080 will reduce impacts related to increased light and glare to less than significant.

**Mitigation Measures:**

**Mitigation Measure AES-01:**

Protective measures shall be implemented to protect retained trees. In accordance with City Code Section 17-24.050(D), a "Tree Protection Perimeter" shall be established at the dripline around each tree or cluster of trees to be preserved. The Perimeter shall be enclosed by temporary protective fencing prior to initiating grading activities and shall remain for the duration of construction. No ground disturbance including the placement of utilities or sub drains shall occur within the Tree Protection Perimeter.

- Plastic tree protection fencing shall be installed at the dripline of trees within construction zone. If access within the dripline is required, it shall be done under the supervision of the project arborist.
- Tree protection fencing will be installed prior to clearing and grubbing and kept in place for the duration of construction.
- No parking or operation of equipment, storage of materials, disposal of waste or other construction activities shall occur within the driplines of protected trees.
- If any deviation from the protection measures are necessary, a certified arborist shall be consulted to ensure retained trees are protected during the entire construction process.
- Tree preservation notes shall be printed on all plan sets submitted for grading and building permits.

## II. Agricultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>2. AGRICULTURE RESOURCES</b>				
<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.</p>				
<b>Would the project:</b>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

The Project is located within an area of residential and commercial land use and will be rezoned by the City as General Commercial. The Project site was formerly a rural residential single-family home. At one time the site was a small walnut orchard, but it has not been in agricultural production for many years. The following definitions are used in this section and are derived from United States Department of Agriculture and described in 7 Code of Federal Regulations 657.5

**Prime Farmland:** is the farmland that has the best combination of physical and chemical features that are able to provide long-term agricultural production. This land has soil quality, growing season, and moisture supply to produce sustained high yields.

**Farmland of Statewide Importance:** is land that is similar to Prime Farmland but may have greater slopes or lower moisture supply.

**Unique Farmland:** is land that contains lesser quality soils used for sustained agricultural production. This land is usually irrigated but may include non-irrigated land.

**Forest Land:** “Forest land” is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits [Public Resources Code (PRC) 12220(g)].

**Timber Land:** “Timberland” means land, other than land owned by the Federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others (PRC 4526).

**Timberland Production Zone:** “Timberland production zone” or “TPZ” means an area which has been zoned pursuant to California Government Code (CGC) Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses [CGC 51104(g)].

### **Discussion**

- a) **No Impact.** The Project site does not include designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Project site is not currently in agricultural production. Therefore, the proposed Project will not convert existing Prime Farmland, Unique Farmland, or Farmland of Importance to non-agricultural use. Therefore, the Project will have no impacts associated with the loss or conversion of agricultural lands.
- b) **No Impact.** The Project site is not zoned or designated for agriculture and is not under a Williamson Act contract. Therefore, the proposed Project will not interfere or conflict with a Williamson Act contract site.
- c) **No Impact.** The Project site is not zoned for or located in a forested area or areas with timber or timber production (TPZ) and will therefore not conflict with or cause rezoning of forest land or timberland.
- d) **No Impact.** The Project site is not located within forested lands and therefore the proposed Project will not result in the conversion of forested lands to non-forest use.
- e) **No Impact.** The Project involves construction of a commercial storage facility and multi-family residences on land that is currently within the County of Sonoma where it is zoned for rural residential Development. The land is designated on the City of Santa Rosa Land Use Diagram as Retail and Business Services, for which environmental impacts were considered in the scope of review for the City of Santa Rosa General Plan 2035 Environmental Impact Report (EIR), certified by Council in 2009. The project will Prezone both 4200 and 4224 into the CG (General Commercial) zoning district which is consistent with the General Plan land use designation, and will be annexed into the City.

The project site is surrounded by commercial and residential uses. There are no properties within the vicinity of the Project that are designated for agriculture production and there are limited or no agricultural opportunities within the vicinity of the proposed Project. Therefore, the Project will not result in any changes in the existing environment that will result in conversion of Farmland to non-agricultural use.

**Mitigation Measures:** None Required.

### III. Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>3. AIR QUALITY</b>				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations				
<b>Would the project:</b>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors ) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### Setting

The Project site is located in the City of Santa Rosa, within the boundaries of the San Francisco Bay Area Air Basin. The Bay Area Air Quality Management District (BAAQMD) is the regional agency with regulatory authority over stationary sources in the San Francisco Bay Area Air Basin, while the California Air Resources Board (CARB) has regulatory authority over mobile sources such as construction equipment, trucks, and automobiles throughout the state. The BAAQMD has the primary responsibility to meet and maintain the state and federal ambient air quality standards in the Bay Area.

Pursuant to the Clean Air Act Amendments of 1990, the United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The NAAQS are classified as primary and secondary standards. Primary standards prescribe the maximum permissible concentration in the ambient air and are required to protect public health. Secondary standards specify levels of air quality required to protect public welfare, including materials, soils, vegetation, and wildlife, from any known or anticipated adverse effects. NAAQS are established for six pollutants (known as criteria pollutants): ozone (O<sub>3</sub>), particle pollution (i.e., respirable particulate matter less than 10 microns in diameter [PM<sub>10</sub>] and respirable particulate matter less than 2.5 microns in diameter [PM<sub>2.5</sub>]), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb). The CARB has also established its own air quality standards in the State of California, known as the California Ambient Air Quality Standards (CAAQS). The CAAQS are generally more stringent than the NAAQS and include air quality standards for all the criteria pollutants listed under

NAAQS plus sulfates (SO<sub>4</sub>), hydrogen sulfide (H<sub>2</sub>S), vinyl chloride, and visibility-reducing particulate matter.

The USEPA classifies the air quality within an Air Quality Control Region with regard to its attainment of Federal primary and secondary NAAQS. According to USEPA guidelines, an area with air quality better than the NAAQS for a specific pollutant is designated as being in attainment for that pollutant. Any area not meeting the NAAQS is classified as a nonattainment area. Where there is a lack of data for the USEPA to make a determination regarding attainment or nonattainment, the area is designated as unclassified and is treated as an attainment area until proven otherwise. Similarly, the CARB makes State area designations for the State criteria pollutants.

Both the State and Federal Clean Air Acts require areas to be classified as either attainment or non-attainment for each criteria pollutant, based on whether or not the state and national standards have been achieved. Therefore, areas in California have two sets of attainment/non-attainment designations: one for Federal standards and one for state standards. As summarized in Table III-1, the San Francisco Bay Area Air Basin is currently “in attainment” for the state standards for CO, NO<sub>2</sub>, SO<sub>2</sub>, and sulfates. The current status of the San Francisco Bay Area Air Basin for 1-hour and 8-hour ozone, 24-hour and annual PM<sub>10</sub>, and annual PM<sub>2.5</sub> standards is “non-attainment.”

**Table III-1**

**Air Quality Standards Attainment Status for the San Francisco Bay Area Air Basin**

Parameter		State Standard		Federal Standard	
Ozone (O <sub>3</sub> )	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	<b>Non-Attainment</b>	--	No Federal Standard
	8-Hour	0.070 ppm (137 µg/m <sup>3</sup> )	<b>Non-Attainment</b>	0.075 ppm	<b>Non-Attainment</b>
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m <sup>3</sup> )	Attainment	35 ppm (40 mg/m <sup>3</sup> )	Attainment
	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )	Attainment	9 ppm (10 mg/m <sup>3</sup> )	Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )	Attainment	0.100 ppm	Unclassified
	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	Attainment	0.053 ppm (100 µg/m <sup>3</sup> )	Attainment
Sulfur Dioxide (SO <sub>2</sub> )	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )	Attainment	0.075 ppm (196 µg/m <sup>3</sup> )	Attainment
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )	Attainment	0.14 ppm (365 µg/m <sup>3</sup> )	Attainment
	Annual Arithmetic Mean	--	No State Standard	0.030 ppm (80 µg/m <sup>3</sup> )	Attainment
Particulate Matter (PM <sub>10</sub> )	24-Hour	50 µg/m <sup>3</sup>	<b>Non-Attainment</b>	150 µg/m <sup>3</sup>	Unclassified
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	<b>Non-Attainment</b>	--	No Federal Standard

Parameter		State Standard		Federal Standard	
Particulate Matter – Fine (PM <sub>2.5</sub> )	24-Hour	--	No State Standard	35 µg/m <sup>3</sup>	<b>Non-Attainment</b>
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	<b>Non-Attainment</b>	15 µg/m <sup>3</sup>	Attainment
Lead (Pb)	30 Day Average	1.5 µg/m <sup>3</sup>	See Note 1	--	No Federal Standard
	Calendar Quarter	--	No State Standard	1.5 µg/m <sup>3</sup>	Attainment
	Rolling 3-Month Average	--	No State Standard	0.15 µg/m <sup>3</sup>	Attainment
Sulfates	24-Hour	25 µg/m <sup>3</sup>	Attainment	--	No Federal Standard

## Notes:

- 1 CARB has identified lead as a 'toxic air contaminant' with no threshold level of exposure below which there are no adverse health effects determined.  
ppm – parts per million  
µg/m<sup>3</sup> – micrograms per cubic meter

Source: BAAQMD. "Ambient Air Quality Standards and Bay Area Attainment Status."

<http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>. Accessed May 2018.

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under California Environmental Quality Act (CEQA). These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions will cause significant environmental impacts under the CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (BAAQMD 2017a). The significance thresholds identified by BAAQMD, as shown below in Table III-2, represent an appropriate approach and are used as a guideline in this analysis.

**Table III-2  
BAAQMD Significance Thresholds**

Pollutant	Construction-Related	Operational-Related	
	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tpy)
ROG	54	54	10
NOX	54	54	10
PM <sub>10</sub>	82 (exhaust)	82	15
PM <sub>2.5</sub>	54 (exhaust)	54	10

Note: The BAAQMD consider contributions of fugitive dust to be less-than-significant if best management practices (BMPs) are implemented.

## **Discussion**

- a) **No Impact.** The Project will not conflict with or obstruct implementation of the BAAQMD Clean Air Plan. An air quality plan describes air pollution control strategies to be implemented by a city, county, or region classified as a non-attainment area. The main purpose of an air quality plan is to bring the area into compliance with the requirements of federal and state air quality standards. To bring the San Francisco Bay Area region into attainment, the BAAQMD developed the 2017 Bay Area Clean Air Plan (BAAQMD 2017b). BAAQMD's 2017 Clean Air Plan focuses on protecting public health and protecting the climate. Because the Project will not conflict with the applicable air quality plan, there will be no impact.
- b) **Less than Significant Impact.** The Project will include demolition and construction activities that will result in short-term air quality impacts from combustion emissions and fugitive dust emissions. These emissions will be reduced through implementation of Mitigation Measure AQ-01. There will also be long-term emissions associated with Project-related vehicle trips.

**Construction:** Trucks and construction equipment will produce short-term air emissions including ozone precursors, CO and PM<sub>10</sub> during construction. Construction-related emissions were modeled using CalEEMod, Version 2016.3.2 computer program (Appendix A). CalEEMod is a land use emissions computer model designed to provide a uniform platform to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Input parameters were based on default model settings and project-specific information where available. Three construction phases were modeled: grading, site improvement, and building construction between June 2019 and August 2020. The modeled maximum daily construction emissions are summarized in Table III-3.

**Table III-3  
Estimated Regional Construction Emissions (lb/day)**

<b>Project Phase</b>	<b>CO</b>	<b>ROG</b>	<b>Nox</b>	<b>Sox</b>	<b>PM<sub>10</sub> (exhaust)</b>	<b>PM<sub>2.5</sub> (exhaust)</b>
<b>Construction</b>	18.4	3.0	22.8	0.04	1.1	1.1
<b>Significance Threshold</b>	NA	54	54	NA	82	54
<b>Exceed Significance Threshold?</b>	No	No	No	No	No	No

Note: lb/day = pounds per day

Based upon the quantified estimates provided in Table III-3, no exceedance of any of the criteria pollutants are anticipated and therefore Project construction will not result in significant short-term air quality impacts.

**Operation:** The Project will result in emissions from building operation and vehicle traffic from residences as well as the storage facility customers and workers. As shown in Table III-4, emissions associated with these pieces of equipment are below the significance thresholds for each evaluated pollutant. Therefore, the impact due to operations will be less than significant.

**Table III-4  
Proposed Project Operation Air Emissions**

Project Phase	Daily (lb / day)				Annual (ton / year)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Operations	10.8	3.49	2.75	1.56	0.84	0.59	0.29	0.09
Significance Threshold	54	54	82	54	10	10	15	10
Exceed Significance Threshold?	NO	NO	NO	NO	NO	NO	NO	NO

The Project will have emissions less than the significance thresholds adopted by BAAQMD for evaluating impacts related to criteria pollutants. Therefore, the Project will not contribute substantially to existing or projected violations of criteria pollutant standards. Thus, the Project will not result in cumulative impacts to regional air quality.

- c) **Less than Significant Impact with Mitigation Incorporation.** Typical sensitive receptors include inhabitants of long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. The area surrounding the Project is residential and commercial. Substantial amounts of dust are not expected from construction activities as fugitive dust emissions will be controlled by implementing required actions to prevent, reduce or mitigate excessive fugitive dust emissions. This includes requiring regular watering and other dust-preventive measures during clearing, grading, earth-moving, or excavation operations. Use of diesel-powered equipment has the potential to emit toxic air contaminants such as diesel particulate matter; however, given the limited exposure to emissions, the impacts will not have the potential to expose sensitive receptors to substantial pollutant concentrations. Implementation of **Mitigation Measure AQ-01** will further reduce these emissions through reduced idling time and proper vehicle maintenance.
- d) **Less than Significant Impact.** The Project construction and operation will not generate any permanent source of new odors or subject sensitive receptors to new significant permanent odors. During construction, odors will be generated by construction equipment; these odors will be present only temporarily during construction. Therefore, the Project will result in less than significant impacts under this criterion.

**Mitigation Measures:****Mitigation Measure AQ-01: Construction**

The applicant shall implement the following air quality construction measures:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. 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.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to comply with applicable regulations.

## IV. Biological Resources

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

### Setting

Information and evaluation of biological resources is derived from the Biological Resources Assessment, prepared by Arcadis, dated June 2018, for 4224 Sonoma Highway (Appendix B). The Project is an approximately 2.68 acre parcel which is currently occupied by a single family home and two outbuildings. The Project site is bordered to the north by commercial retail and to the south by single family residences and former pet grooming facility (4200 Sonoma Highway). Sonoma Highway borders the site to the west and the Santa Rosa Creek trail occurs to the east. The site is adjacent to the Santa Rosa Creek multiuse trail and Santa Rosa Creek. The site was surveyed by certified arborist Joshua Tallis (Appendix C). The survey found a total of 60 trees that are protected under the City's Tree Ordinance Chapter 17-24 including one Big Leaf Maple (*Acer macrophyllum*), four California Bay (*Umbellularia californica*), 52 Coast Live Oak (*Quercus*

*agrifolia*), one Northern California Black Walnut (*Juglans hindsii*), and two Valley Oak (*Quercus lobata*).

Vegetation at the site generally consists of ruderal herbaceous species as well as native and non-native trees, including scattered mature oaks. Because of current and past land use, the site is dominated by non-native species including ripgut brome (*Bromus diandrus*), broadleaf filaree (*Erodium botrys*), prickly lettuce (*Lactuca serriola*), soft brome (*Bromus hordeaceus*), and Himalayan blackberry (*Rubus armeniacus*). Adjacency to the Santa Rosa Creek trail and Santa Rosa Creek allows for the site to be used by common wildlife including blacktailed deer (*Odocoileus hemionus*), Virginia opossum (*Didelphis marsupialis*) raccoon (*Procyon lotor*), and birds. The mature trees on-site provide nesting for passerine species although no nests were observed during the April 20, 2018 site visit. Species observed onsite include blacktailed deer, black phoebe (*Sayornis nigricans*) and common crow (*Corvus brachyrhynchos*). Past land use includes a walnut orchard (Origer & Associates 2017). A certified arborist conducted a tree survey on June 8, 2018 and identified several trees that will be subject to the City's Tree Ordinance 17-24. The trees identified include Big leaf maple (*Acer macrophyllum*), Black elderberry (*Samucus nigra*), California bay (*Umbellularia californica*), Coast live oak (*Quercus agrifolia*), northern black walnut (*Juglans hindsii*), valley oak (*Quercus lobata*), and western sycamore (*Plantanus racemose*). Details on the arborist tree survey is provided in the Arborist Report (Appendix C).

The California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS) Rare Plant List were queried for special status species with potential to occur within the vicinity of the Project area. For the purposes of this document, special status are plants or animals that are legally protected under the following:

- Plants and animals that are listed or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA) (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the Federal Endangered Species Act (FESA) (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- Plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);
- Plants and animals that meet the definition of endangered, rare, or threatened under the CEQA (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;
- Plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2018). The California Department of Fish and Wildlife recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, will qualify for State listing, and California Department of Fish and Wildlife, (CDFW) requests their inclusion in CEQA documents;
- Nesting and breeding birds protected under the Migratory Bird Treaty Act (MBTA);

- Animals that are designated as "species of special concern" by the CDFW ;
- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

Table IV-1 summarizes the results of the CNDDDB and CNPS database query and the detailed report is provided in Appendix B. A total of 11 species have potential to occur within the vicinity of the Project site according to the query. Because of past and current land use at the site, including a former walnut orchard and burying of refuse and debris, there is low potential for sensitive plants to occur. The Project site is not within designated critical habitat for California tiger salamander and California red-legged frog.

Table IV-1 Special Status Species Potential to Occur

Common Name	Scientific Name	Status	Blooming Period	Preferred Habitat	Potential to Occur	Notes
<b>Plants</b>						
Sonoma sunshine	<i>Blennosperma bakeri</i>	1B.1	February-April	Valley and foothill grassland, vernal pools	Low	Project area does not provide suitable habitat
congested-headed hayfield tarplant	<i>Hemizonia congesta</i> ssp. <i>Congesta</i>	1B.2	April-November	Valley and foothill grassland	Low	Project area does not provide suitable habitat
Lasthenia burkei	<i>Burke's goldfields</i>	1B.1	April-June	Meadows and seeps	Low	Project area does not provide suitable habitat
Baker's navarretia	<i>Navarretia leucocephala</i> ssp. <i>Bakeri</i>	1B.1	May-July	Cismontane woodland, lower montane coniferous forest, valley and foothill grassland, vernal pools	Low	Project area does not provide suitable habitat
Narrow-anthered California brodiaea	<i>Brodiaea leptandra</i>	1B.2	May-July	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland	Low	Because of past land use, the Project area does not provide suitable habitat
<b>Amphibians/Reptiles</b>						
California tiger salamander	<i>Ambystoma californiense</i>	FT/ST		Vernal pools or seasonal ponds or for breeding and upland refugia including ground squirrel burrows	Low	No burrows were observed during site visit. There is no suitable habitat within migratory distance from the Project site
California red-legged frog	<i>Rana</i>	FT/CSC		Stock ponds, pools, and slow-moving streams.	Low	No suitable habitat within the vicinity of the Project.

Common Name	Scientific Name	Status	Blooming Period	Preferred Habitat	Potential to Occur	Notes
California giant salamander	<i>Dicamptodon ensatus</i>	CSC		wet coastal forests near streams or seeps. Cold, clear streams with rocks or logs	moderate	No suitable habitat within the vicinity of the Project.
Western pond turtle	<i>Emys marmorata</i>	CSC		Slow moving streams and ponds with logs or rocks for basking	Low	There are no aquatic features within the Project boundary.
<b>Birds</b>						
White tailed kite	<i>Elanus leucurus</i>	FP		Found in lower foothills and valleys with scattered oaks and adjacent to streams.	Low	While there are scattered oaks on-site, higher quality habitat occurs offsite. No kite nests were observed during site visit.

**Status:**

FE - Federal Endangered

FT - Federal Threatened

FPE - Federal Proposed Endangered

FPT - Federal Proposed Threatened

FC - Federal Candidate

CE - California Endangered

CT - California Threatened

CR - California Rare

CC - California Candidate

CSC - California Species of Special Concern

FP - California Fully Protected

## **Discussion**

- a) **Less than Significant Impact with Mitigation Incorporation.** The CNDDDB and CNPS databases for the U.S. Geological Survey Santa Rosa 7.5-minute quadrangle was queried for a list of State and Federal special status species with potential to occur within the Project area. The CNDDDB and CNPS query returned a total of 11 species with potential to occur within the vicinity of Project as summarized in Table IV-1. Because of current and past land uses at the Project site, none of the species have the potential to occur within the work area. The Project site is not located within designated Critical Habitat for California tiger salamander. No aquatic breeding habitat for California tiger salamander occurs within migratory distance from the Project site. Santa Rosa Creek, within the vicinity of the Project area, has too high velocity to support salamander breeding. Additionally, there was no upland estivation habitat such as burrows or crevices that will provide suitable upland habitat for California tiger salamander. The Project site is within range for California red-legged frog but there is no suitable aquatic breeding habitat within vicinity of the Project site. Santa Rosa Creek does not provide suitable aquatic breeding habitat for red-legged frog. The closest known occurrence is located over three miles to the south of the Project site (CNDDDB 2018).

The CNPS Rare Plant database was queried to determine the potential for special status plants to occur onsite. The CNPS database revealed that five special status plants with a rare plant ranking of 2B or higher have the potential to occur within the vicinity of the Project site. Because of past and present land use, habitat for sensitive plants does not occur at the Project site. The site is dominated by non-native herbaceous species. The past walnut orchard as well as burning of garbage and debris has likely removed native habitat that could have supported sensitive plants. The Project is not expected to impact sensitive plants.

Trees and shrubs located on the Project site provide suitable habitat for nesting birds and raptors that are protected under the MBTA. Tree removal will occur during the non-nesting season to reduce the potential to destroy migratory bird nests. Prior to vegetation removal, a preconstruction nesting survey will be conducted to ensure no active nests occur within the vegetation removal areas. **Mitigation Measures BIO-1** and **BIO-2** will require that vegetation removal occur outside the nesting season (September 1 through February 1) and that preconstruction nesting surveys will occur prior to vegetation removal. With the implementation of Measures BIO-1 and BIO-2, impacts on sensitive habitats, specifically nesting birds and raptors, will be less than significant.

- b) **Less than Significant Impact.** There are no aquatic resources within the Project site boundary. Santa Rosa Creek is located approximately 150 feet to the southeast of the Project site. Implementation of the Project will not have impacts on the creek. The Project will not impact Santa Rosa Creek or riparian habitat.
- c) **No Impact.** The Project area does not contain any wetlands, or waters of the U.S. The Project will have no impact on wetlands as defined by Clean Water Act Section 404.

Santa Rosa Creek is located approximately 150 feet to the southeast and outside of the work area and no impacts on the creek will occur during construction and operation of the Project. No seasonal wetlands, ponds, or vernal pools occur onsite. In October 2018, confirmation from the U.S. Army Corps of Engineers was provided by San Francisco District North Branch Chief Holly Costa via email that no permit under Clean Water Action Section 404 will be required.

- d) **Less than Significant Impact.** The Project occurs within a rural residential neighborhood adjacent to residential and commercial land use and adjacent to the Santa Rosa Creek trail and Santa Rosa Creek. There are no known native wildlife nursery sites within the vicinity of the Project site. The Project site does not provide a migratory corridor to suitable wildlife habitat. The open space areas associated with the Santa Rosa Creek and trail to the east of the Project site provides wildlife corridors for deer, coyote, and other small mammals. Common wildlife species such as blacktailed deer, raccoon, opossum, striped skunk, and coyote likely use the Santa Rosa Creek trail for migration to suitable wildlife habitat within the vicinity. Construction and operation of the Project will create increased noise and human presence but will not obstruct or interfere with wildlife movement along the trail or within Santa Rosa Creek. Therefore, impacts related to wildlife movement corridors will be less than significant.
- e) **Less than Significant Impact.** Santa Rosa City Code Chapter 17-24 designates valley oaks (*Quercus lobata*) with diameters of 6 inches or greater as heritage trees. The 2018 Arborist Report identified 60 trees that will be subjected to Ordinance 17-24 (Appendix B) of which 58 will be removed. Two existing oak trees (No 24 and 25) located on the eastern side of the property will be retained and incorporated into the landscape plans. The Project will include the planting of 55 trees onsite to offset the loss of trees in compliance with the Tree Ordinance. The Project's Landscape Plan (Figure 3a and 3b) shows the location and species of trees to be planted as replacement trees. To protect trees No 24 and No 25, Mitigation Measure BIO-3, which requires compliance with Mitigation Measure AES-01 will provide protection of trees retained, shall be implemented to protect these two heritage trees during construction. Implementation of Mitigation Measure BIO-3 will reduce the potential to conflict with local policy protecting biological resources to a level less than significant.
- f) **No Impact.** There are no approved Habitat Conservation Plans or Natural Community Conservation Plans within the vicinity of the Project area. Therefore, the Project will not conflict with any adopted regional or state habitat conservation plan.

**Mitigation Measures:**

**Mitigation Measure Bio-1: Preconstruction Nesting Bird Surveys**

In order to avoid impacts to nesting birds, Project activities shall occur outside of the peak avian breeding season which runs from February 1 through September 1. If Project construction is necessary during the nesting season, a qualified bird biologist shall

conduct a survey for nesting birds within three days prior to commencement of construction-related activities. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 200 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No Project construction shall occur within the fenced nest zone until the young have fledged. If identified by the bird biologist, reductions in the nest buffer may be appropriate.

**Mitigation Measure Bio-2: Non-nesting Season Vegetation Removal**

Vegetation removal shall occur between September 1 and February 1. If vegetation removal occurs outside that time, BIO-1 shall apply.

**Mitigation Measure BIO-3: Comply with Mitigation Measure AES-01**

## V. Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>5. CULTURAL RESOURCES—</b>				
<b>Would the project:</b>				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Setting

A Historical Resources Report was prepared by Tom Origer and Associates (Origer & Associates) in 2017. The report provides the information to analyze cultural and historical resources for the Project and serves as the basis for conclusions in this document. Information contained in this section is derived from this report which is considered confidential.

This study included archival research at the Northwest Information Center, Sonoma State University (NWIC File No. 17-0624), examination of the library and files of Tom Origer & Associates, Native American contact, and field inspection of the study area. No historical resources were found within the study area. Documentation pertaining to this study is on file at the offices of Tom Origer & Associates (File No. 2017-101S).

A Sacred Lands File and Native American Contact List was requested from the Native American Heritage Commission. A Sacred Lands File record search was completed by the NAHC for the Area of Potential Effect (APE) with negative results (Origer & Associates 2017). A list of Native American Contacts was provided on September 19, 2017 (Origer & Associates). Tribal representatives were contacted by Origer & Associates by mail on September 8, 2017 (Origer & Associates 2017).

An intensive field survey was conducted by archeologists Julia Franco and Shane Davis on September 5, 2017. The site was surveyed by walking in a zigzag pattern within corridors measuring approximately 15 meters (49.2 feet) wide. Because the parcel at 4200 is developed, no archeological survey was conducted on this parcel (Origer & Associates 2017).

Two hand-auger holes using a 4-inch diameter barrel auger were excavated to examine subsurface soil within the APE. Auger hole 1 was excavated to a depth of 50 centimeters (1.6 feet) and auger hole 2 was excavated to a depth of 88 centimeters (2.9 feet). Both auger holes were excavated to the point of obstruction. No archeological materials were observed (Origer & Associates 2017).

The Project site is located at 4224 Sonoma Highway in Santa Rosa. A house, two sheds, and non-native vegetation were observed within the portion of the study area. Non-native vegetation consists of fruit and nut trees. The residence is a single-story house with a complex roof shape. The house sits on a concrete perimeter foundation, has a mix of stucco and horizontal lapped cladding, boxed eaves, and composition shingle roof. The windows are a mix of fixed, double hung, and sliders which all appear to be original and wood framed. County records indicate that the house dates to 1948. The property owner stated that the west portion of the house is the original construction and dates to the 1920s, and the east portion of the house is an addition that dates to the 1940s (Origer & Associates 2017).

Two outbuildings or sheds occur on the site. Shed 1 is an equipment shed or storage. It is a front-gabled building on a rectangular plan with horizontal wood cladding and corrugated metal over wood shingle roofing. Shed 2 is a drying shed reportedly utilized for the walnut operation. It is a small, gable-front building on a rectangular plan with corrugated metal cladding and roofing. A flat-roofed cinderblock and concrete addition is found at the west elevation of the shed (Origer & Associates 2017).

### **Significance Criteria**

When a project might affect an historical resource, the project proponent is required to conduct an assessment to determine whether the effect may be one that is significant. Consequently, it is necessary to determine the importance of resources that could be affected. The importance of a resource is measured in terms of criteria for inclusion on the California Register of Historical Resources (Title 14 CCR, §4852(a)) as listed below. A resource may be important if it meets any one of the criteria below, or if it is already listed on the California Register of Historical Resources or a local register of historical resources. An important historical resource is one which:

1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. Is associated with the lives of persons important to local, California, or national history.
3. Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of a master or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, eligibility for the California Register requires that a resource retains sufficient integrity to convey a sense of its significance or importance. Seven elements are considered key in considering a property's integrity: location, design, setting, materials, workmanship, feeling, and association.

The OHP advocates that all historical resources over 45 years old be recorded for inclusion in the OHP filing system (OHP 1995:2), although the use of professional judgment is urged in determining whether a resource warrants documentation.

### **Discussion**

- a) **Less than Significant Impact.** Based on research conducted by Tom Origer and Associates, the property at 4224 Sonoma Highway appears to be a rural residential complex with agricultural outbuildings associated with walnut production (Origer & Associates 2017). While the complex is associated with the theme of Sonoma County agriculture, the orchard no longer exists at the site. The extant feature related to walnut production, the drying shed, does not reflect the theme of itself. The complex meets California Register Criterion 1; however, it does not retain sufficient integrity to be eligible for inclusion on the California Register (Origer & Associates 2017). The complex is not likely associated with any people important to the Santa Rosa area, Sonoma County, or California's past; therefore, the buildings on the property will not be eligible for inclusion on the California Register under Criterion 2. The house is unlikely to be eligible for inclusion on the California Register under Criterion 3 as it is architecturally indistinct and has been subject to modifications. According to the cultural resource report there was no evidence that the property contains archaeological remains and the buildings are not eligible for inclusion on the California Register under Criterion 4 (Origer & Associates 2017).

County records indicate that a residence was built on the parcel at 4200 Sonoma Highway in 1947. The residence was subsequently altered and repurposed into a commercial property. Alterations include additions to all four elevations. Aerial photos indicate that the original roofline of the house is visible at the center of the building, however the original building is not visible from the ground. The property at 4200 Sonoma Highway is not likely associated with events or people important to the Santa Rosa area, Sonoma County, or California's past, therefore the buildings on the property will not be eligible for inclusion on the California Register under Criteria 1 or 2 (Origer & Associates 2017). It is unlikely to be eligible for inclusion on the California Register under Criterion 3 as the building is an amalgamation of nine residential and commercial constructions and does not reflect a style of either type of architecture (Origer & Associates 2017). The building does not have the potential to yield important data and is unlikely to be eligible for inclusion on the California Register under Criterion 4 (Origer & Associates 2017).

- b) **Less than Significant Impact.** According to the survey and research conducted by Origer & Associates in 2017, no archaeological resources have been identified as a result of records search and survey of the undeveloped portion of the Project area. Analysis of survey data has determined that no known or suspected CRHR-eligible archaeological resources are present (Origer & Associates 2017).
- c) **Less than Significant with Mitigation Incorporation.** Records search and survey investigations provided no evidence of human remains and none are expected to be present, but there is some potential for ground disturbing activities to disturb currently unknown human remains. Implementation of **Mitigation Measure CUL-01**, which includes standard measures imposed by the City of Santa Rosa and promulgated under Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5 pertaining to the discovery of human remains shall be implemented.

**Mitigation Measures**

**Mitigation Measure CUL-01** In the event of unintended discovery of human remains, the following standard measures imposed by the City of Santa Rosa and promulgated under Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5 pertaining to the discovery of human remains shall be implemented:

- All work in the vicinity of the discovery will be halted until a qualified archeologist can evaluate the find(s) under Section 106 of the National Historic Preservation Act.
- The Sonoma County Coroner shall be contacted to determine that no investigation of the circumstances, manner or cause of death is required and to make recommendations as to the treatment and disposition of the human remains.
- If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.
- The applicant shall retain a City-approved qualified archaeologist to provide adequate inspection, recommendations and retrieval, if appropriate.
- The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American and shall contact such descendant in accordance with state law.
- The applicant shall be responsible for ensuring that human remains and associated grave goods are reburied with appropriate dignity at a place and process suitable to the most likely descendent.

## VI. Energy

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>6. Energy— Would the project:</b>				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **Setting**

Most of the energy consumed in Santa Rosa is produced from traditional sources and delivered to the city through established distribution networks. Pacific Gas and Electric Company (PG&E) provides electrical services and natural gas within the Urban Growth Boundary, and gasoline and other petroleum products are sold through private retailers throughout the city (City of Santa Rosa 2009).

New buildings constructed in California must comply with the standards contained in Title 20, Public Utilities and Energy, and Title 24, Building Standards Code, of the California Code of Regulations (CCR). These efficiency standards apply to new construction of both residential and nonresidential buildings, and both 20 CCR and 24 CCR regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process.

The 2016 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential Standards include improvements for attics, walls, water heating, and lighting

In 2010, the City adopted CALGreen Tier 1 standards which applies to all new buildings and to additions and alterations of residential and non-residential buildings. The Tier 1 standards exceed the basic level of requirements of the CALGreen Building Code. This program supports the City's efforts to reduce greenhouse gases to reach the local, regional, and state targets outlined in the City's Climate Action Plan.

The City adopted a Community Climate Action Plan (CCAP) in 2012 and a Municipal Climate Action Plan (MCAP) in 2013. The CCAP examines community-wide sources of GHG emissions and outlines strategies for reducing these emissions. The MCAP addresses greenhouse gas emissions from the City's municipal operations.

The City of Santa Rosa General Plan addresses energy use and efficiency in all elements by including goals and policies for improving energy efficiency and reducing waste. The General Plan seeks to reduce energy consumption through minimizing vehicle trips and approving land use patterns that support increased density in areas where there is infrastructure to support it, increased opportunities for transit, pedestrians, and bicycles, and through green building and land development conservation strategies.

### **Discussion**

- a, b) **Less than Significant Impact.** Project construction will occur for approximately 14 months and will consume energy through the operation of heavy off-road equipment, trucks, and worker vehicle traffic. Electricity will be used to power tools, lighting, and electric machinery. Operation of the self-storage facility and the 14 residences will consume electricity, water, and natural gas. Electricity and natural gas will be used for lighting, heating, and appliances.

The Project will be required to comply with the applicable measures identified in the CAP *New Construction Checklist* including policies related to energy efficiency as a standard condition of approval. Details on CAP compliance for construction and operation of the Project is provided in Section VII Greenhouse Gases. Compliance with the City of Santa Rosa CAP, including but not limited to compliance with the City's CalGreen Tier 1 Standards and California Energy requirements under Title 24 and installation of real-time energy monitors will ensure the Project will not result in wasteful, inefficient, or unnecessary consumption of energy during construction and operation of the Project.

The Project must comply with California requirements under Title 20 and Title 24 will require the Project to comply with state building energy requirements. These requirements are enforced during the City's permit approval and will reduce impacts on wasteful, inefficient, or unnecessary consumption of energy during operation of the Project. Therefore, impacts related to wasteful, unnecessary energy consumption and compliance with renewable or energy efficiency plans will be less than significant.

**Mitigation Measures:** None required.

## VII. Geology and Soils

<u>Issues (and Supporting Information Sources):</u>	<u>Potentially Significant Impact</u>	<u>Less Than Significant with Mitigation Incorporation</u>	<u>Less Than Significant Impact</u>	<u>No Impact</u>
<b>7. GEOLOGY AND SOILS—</b>				
<b>Would the project:</b>				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?: (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic features	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **Setting:**

A geotechnical study was completed in August 2018 by PRA Group Consulting Engineers (Appendix D). The subject site is situated in the northern part of the San Francisco Bay Area, in the Coastal Range Geologic Province of California. The Coastal Range landscape, especially east of San Francisco, is characterized by a series of rugged, subparallel, northwest-trending mountain ranges and intervening valleys. The site is located within an alluvial fan deposit of either Late Pleistocene or Holocene age (PRA Group 2018). The geotechnical study indicates that there are no mapped landslides at the Project site.

The City of Santa Rosa is located within the San Andreas Fault system, which is 44 miles wide and extends throughout much of the North Bay region. The nearest active fault to the Project site

is the Rodgers Creek Fault Zone, located approximately 1.4 miles to the east. The Project site is not located within the Alquist-Priolo Zone.

A major seismic event on one of the active faults near the City of Santa Rosa could result in violent to moderate ground shaking. Strong ground shaking will be expected from earthquakes generated by nearby faults including the Rodgers Creek Fault (1.4 miles East), Mayacama fault (8.3 miles North), San Andreas Fault (21.3 miles Southwest), and the West Napa fault (17.4 miles Southeast) (PRA Group 2018).

According to the City of Santa Rosa's General Plan Geologic and Seismic Hazards Map, the Project is located within an area that will be subjected to very violent shaking during an earthquake along the Rodgers Fault.

The Project site is relatively flat with no significant changes in slope with the exception of an approximate 10-foot reduction in elevation at the eastern portion of the Project site. Soils at the Project site are mapped as Yolo clay loam 0 to 5 percent slopes.

Field exploration at the site occurred in June 2018 and consisted of placement of six cone penetration tests (CPT) to a maximum depth of 45 feet below ground surface. Results of the tests are including in Appendix D.

### **Discussion**

- a,i) **Less than Significant Impact.** The Project site is not located within the Alquist-Priolo Earthquake Fault Zone and no active faults occur within the Project site. The nearest active fault is the Rodgers Fault located approximately 1.4 miles to the east of the Project site. Because the site is not located within a known active fault, there is low risk of ground rupture as a result of an active fault and impacts will be less than significant.
- a,ii) **Less than Significant Impact.** The Project area is subject to seismic ground shaking in the event of an earthquake. The level of intensity of this shaking will be determined by the magnitude and location of an earthquake; the predominant earthquake will expect to be a magnitude 6.9 at a distance of approximately 7 kilometers (California Geological Survey 1997). The City of Santa Rosa General Plan Figure 12-3 shows that the Project is located within an area that will be subjected to very violent shaking in the event of an earthquake on the Rodgers Fault. The storage facility and residential housing will be designed and constructed in accordance with the seismic requirements of the California Building Code (Title 24) in effect at time of building permit issuance. The severity of ground shaking will not be expected to result in significant structural damage, and thus impacts to Project infrastructure in the event of strong seismic ground shaking will be less than significant.
- a,iii) **Less than Significant Impact.** Liquefaction is associated with fine-grained, loosely packed sands and gravels behave like liquid when subjected to ground shaking. According to the geotechnical report, the site had a low to moderate potential for liquefaction (PRA Group 2018). According to the General Plan, the Project is not located in an area known for liquefaction, subsidence, or lateral spreading. The risk of the Project resulting in substantial adverse effects related to ground failure is low.

- a,iv) **Less than Significant Impact.** Landslides generally occur on slopes steeper than 15 percent or in areas where geologic conditions or soils are prone to instability. The geotechnical study (PRA Group 2018) did not identify any mapped landslides at the Project site. The site is not located in Landslide Complex areas shown on Figure 12-3 of the General Plan. As such, impacts related to landslides will be less than significant.
- b) **Less than Significant Impact with Mitigation Incorporation.** Project construction will include clearing and grubbing of existing vegetation, grading and earthmoving activities that could expose site soils to erosive forces of heavy winds, rainfall, or runoff and could result in the loss of topsoil. During construction, erosion will be controlled through implementation of best management practices (BMPs) and adherence to the Storm Water Pollution Prevention Plan (SWPPP). Section X Hydrology and Water Quality provides details on SWPPP development and implementation of BMPs.

New development projects in the City of Santa Rosa that create or replace 10,000 square feet or more of impervious area are subject to the City's Standard Urban Stormwater Mitigation Plan (SUSMP) requirements. The City of Santa Rosa requires compliance with the LID Technical Design Manual. The Project will be required to comply with the SUSMP and LID Technical Manual as standard conditions of approval.

The Project will be constructed in compliance with the City's Grading and Erosion Control Ordinance, City Code Chapter 19-64 which requires detailed erosion control methods including minimizing soil exposure during rainy season, trapping sediment, using soil capture methods, and regular inspections to ensure erosion control measures are working properly. **Mitigation Measure GEO-01** which requires compliance with the City Code Chapter 10-64 and the preparation of an erosion control plan shall be implemented to reduce impacts related to soil erosion and loss of topsoil to less than significant.

- c) **Less than Significant Impact.** The Project is not located in an area known for liquefaction, subsidence, or lateral spreading. The Yolo series soils are considered well-drained and do not generally occur in areas of liquefaction, subsidence or lateral spreading. The City of Santa Rosa General Plan does not identify the Project area as having potential for liquefaction, subsidence, or lateral spreading. Therefore, impacts related to damage or injury resulting from liquefaction, subsidence, or lateral spreading will be less than significant.
- d) **Less than Significant Impact.** Expansive soils are generally clayey soils that swell when wetted and shrink when dried. Expansive soils located beneath structures can result in cracks in foundations, walls, and ceilings. The soils found within the Project area are Yolo clay loam. The Yolo series consists of moderately deep, well drained soils that formed in material that weathered from soft, calcareous shale and sandstone; Balcom clay loams have a moderate shrink-swell potential. The storage tank and appurtenances will be designed and constructed to account for the site-specific conditions as detailed in the geotechnical report, and therefore the risk to life or property will be less than significant.

- e) **No Impact.** The Project will not include the installation of septic tanks or alternative wastewater disposal systems. Therefore, there will be no impact.
- f) **Less than Significant Impact.** As described in Section V Cultural Resources, two auger holes were excavated during archeological field surveys at the Project site (Origer & Associates 2017). The results of the auger holes did not reveal evidence of archeological materials. Therefore, impacts related to archeological resources will be less than significant.

**Mitigation Measures:**

**Mitigation Measure GEO-01:** Prior to issuance of a grading permit, an erosion control plan along with grading and drainage plans shall be submitted to the Building Division of the City's Department of Planning and Economic Development. All earthwork, grading, trenching, backfilling, and compaction operations shall be conducted in accordance with the City of Santa Rosa's Grading and Erosion Control Ordinance Chapter 19-64 of the Santa Rosa Municipal Code). These plans shall detail erosion control measures such as site watering, sediment capture, equipment staging and laydown pad, and other erosion control measures to be implemented during construction activity on the project site.

## VIII. Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>8. Greenhouse Gases—Would the project:</b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

GHGs are compounds in the Earth’s atmosphere which play a critical role in determining temperature near the Earth’s surface. Regulated GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). GHGs are commonly quantified in the equivalent mass of CO<sub>2</sub>, denoted CO<sub>2</sub>e, which takes into account the global warming potential (GWP) of each individual GHG compound. Based on the 2009 GHG inventory data, prepared by the CARB, California emitted 453 million metric tons (MMT) CO<sub>2</sub>e including emissions resulting from imported electrical power in 2009 and 405 MMT CO<sub>2</sub>e excluding emissions related to imported electrical power.

According to CARB, the potential impacts in California due to global climate change may include loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; more large forest fires; more drought years; increased erosion of California’s coastlines; sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation.

In September 2006, the Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, was signed into law. AB 32 requires that the State reduce its GHG emissions to 1990 levels by 2020. CARB established the 1990 target at 427 MMT CO<sub>2</sub>e. Under AB 32, CARB has primary responsibility for promulgating regulations, programs, and enforcement mechanisms to achieve the GHG reduction target.

## **Discussion**

a & b) **Less Than Significant Impact.** The BAAQMD May 2017 CEQA Guidelines included GHG significance thresholds as follows:

- Compliance with Qualified Greenhouse Gas Reduction Strategy OR
- 1,100 MT of CO<sub>2</sub>e/yr OR
- 4.6 MT CO<sub>2</sub>e /SP/yr (residents + employees)

The City adopted a Climate Action Plan (CAP) on June 5, 2012 and on August 6, 2013 they adopted the Municipal Climate Action Plan. The City developed this CAP to meet the requirements of the BAAQMD's criteria for a Qualified Greenhouse Gas Reduction Strategy. The Project will be subject to the applicable CAP requirements that are included as Appendix E of the CAP and identified on the Climate Action Plan Checklist submitted with the Project applications. To ensure new development projects are compliant with the City's CAP, a *CAP New Development Checklist* was developed. This checklist must be filled out for each new project, subject to discretionary review, to allow new development to find a less than significant impact for GHG emissions during the environmental review process.

The Project will not conflict with any plan adopted for the purposes of reducing emissions of greenhouse gases. The Project will comply with the State of California Tier 1 CALGreen requirements and the City's CAP as demonstrated by the CAP Checklist New Development Checklist, included as Appendix E. All mandatory requirements of the Santa Rosa's CAP New Development Checklist shall be implemented except where the item is not applicable or where a suitable substitution is provided.

The Project incorporates 36 of the measures contained the *CAP New Development Checklist*. These include the following:

- **Policy 1.1.1** - Comply with CALGreen Tier 1 Standards: The Project is designed to comply with State Energy requirements for Title 24, City of Santa Rosa's CALGreen requirements and CALGreen Tier 1 Standards in effect at time of permit submission. Such standards have been incorporated into building placement, site development, building design and landscaping.
- **Policy 1.1.3** – After 2020, all new development will utilize zero net electricity. Building permit applications are anticipated to be drawn prior to 2020 and will be in compliance with the California Building Code.
- **Policy 1.3.1** – Real time Energy Monitors: The Project will include energy monitors to track energy use.
- **Policy 1.4.2**- Comply with the City's Tree Preservation Ordinance (Santa Rosa Code Section 17-24.020). The Project will preserve trees under the City Ordinance to the

extent feasible. Trees that are removed will be replaced in compliance with the Ordinance.

- **Policy 1.4.3** – Provide public and private trees in compliance with the Zoning Code: The Landscape design is in compliance with the Santa Rosa Zoning Code, Santa Rosa Design Guidelines, and Water Efficient Landscape Ordinance.
- **Policy 1.5** – Install new sidewalks and paving with high solar reflectivity materials: All proposed new sidewalks, driveways, and parking areas will be paved with hard materials that contain either color or other enhancements to provide enhanced reflectivity.
- **Policy 2.1.3** - Pre plumb for solar thermal or PV systems: The residences will be constructed to adapt to solar thermal or PV systems.
- **Policy 3.1.2** – Supports implementation of 2018 Bicycle and Pedestrian Master: The Project does support alternative modes of transit through installation of sidewalks that encourage a walkable community and the location within walking distance of public transit. The Project's location provides easy and reliable access to public transportation.
- **Policy 3.2.1** – Provide on-site services such as ATMs or dry cleaning to site users: The Project includes a storage facility and residential homes, but there are no facilities to house an ATM or dry cleaning. These facilities are within walking distance of the Project.
- **Policy 3.2.2** - Improve non-vehicular network to promote walking, biking: The Project is designed to promote walking and biking throughout the subdivision. There is a multi-use path to the east of the Project site. There are bus stops located on Mission Boulevard to the north of the Project site that provide access to travel eastbound and westbound.
- **Policy 3.2.3** - Support mixed use, higher density development near services: The Project includes a commercial storage facility and residential housing and is in compliance with this policy.
- **Policy 3.3.1** – Provide affordable housing near transit: The Project does not provide affordable housing. The site is located less than ¼ mile from Mission Boulevard where there are bus stops and access to transit.
- **Policy 3.5.1** – Unbundle parking from property cost: The project is in compliance with the Parking Ordinance, Zoning Code Table 3-4.
- **Policy 3.6.1** – Install calming features to improve ped/bike experience: The connection to the new sidewalk and Sonoma Highway are designed to improve the pedestrian and bicycle experience. Additionally, the Santa Rosa Creek and trail occur to the east of the site.
- **Policy 4.1.1** – Implement the Bicycle & Pedestrian Master Plan: The Project includes construction of bike lanes and sidewalks along Sonoma Highway supporting the City's Bicycle & Pedestrian Master Plan 2018 Update.

- **Policy 4.1.2** – Install bicycle parking consistent with regulations: Zoning Code Chapter 20-36 requires bicycle parking for commercial and attached housing. The Project provides garages that will be available to house bicycles and will make bicycle parking available for self-storage facility staff in the office or elsewhere.
- **Policy 4.1.3** – Provide bicycle safety training to residents and employees: The self-storage facility will provide information pertaining to bicycle safety training to staff.
- **Policy 4.2.2** – Provide safe spaces to wait for bus arrival: There are bus stops within ¼ miles of the site (at Mission Boulevard) with sidewalks to serve waiting patrons and residents.
- **Policy 4.3.2** – Provide parking for car sharing operations: The project is in compliance with the City's parking requirements.
- **Policy 4.3.3** Consider expanding employee programs promoting transit use. Employees will be encouraged to use public transit
- **Policy 4.3.4** – Provide awards for employee use of alternative commute options: This policy does not apply to residential subdivisions or to small employers. There are no large employers at the Project.
- **Policy 4.3.5** – Require new employers of 50+ provide subsidized transit passes: Not applicable.
- **Policy 4.3.7** –Provide space for additional park and ride lots: The Project is within walking distance to bus stops and public transportation.
- **Policy 4.5.1** – Install facilities for residents that promote telecommuting: All residences will have internet access available. Storage facility staff will need to be onsite
- **Policy 5.1.2** – Install electric vehicle charging equipment: Units with garages will have electric charging equipment in the garages that can be used to charge vehicles.
- **Policy 5.2.1** – Provide alternative fuels at new re-fueling stations: The Project is not a re-fueling station Project, therefore, this policy does not apply.
- **Policy 6.1.3** – Increase diversion of construction waste: The contractor will divert all possible construction waste and prepare a Construction Waste Management Plan for recycling and disposal of construction wastes. The Project will comply with all Construction Waste Management requirements.
- **Policy 7.1.1** – Reduce potable water for outdoor landscaping: The Project will be compliant with the City of Santa Rosa's Water Efficient Landscape Ordinance.

- **Policy 7.1.3** – Install Real time water meters: The City provides the water meters. The City of Santa Rosa has data logging equipment that can collect real time data from City-issued water meters.
- **Policy 7.3.2** - Install dual plumbing in areas of future recycled water: Dual plumbing is not proposed because there is no current opportunity to use recycled water for residential purposes.
- **Policy 8.1.3** – Establish community gardens and urban farms: The Project is a commercial storage facility and multi- family residential development.
- **Policy 9.1.2** – Provide outdoor outlets for charging lawn equipment: The Project will have outdoor outlets to allow for accessible charging locations.
- **Policy 9.1.3** – Install low water use landscapes: Project will be compliant with the City of Santa Rosa’s Water Efficient Landscape Ordinance.
- **Policy 9.2.1** – Minimize construction equipment idling time to 5 minutes or less: The developer will condition contractor agreements to limit construction equipment idling time to 5 minutes or less, consistent with the City’s Standard Measures for Air Quality. This direction will be included under the heading of General Notes on plan sets submitted for building or grading permits.
- **Policy 9.2.2** – Maintain construction equipment per manufacturer’s specifications: The developer will condition contractor agreements to require that all equipment used at the site be maintained in accordance with the manufacturer’s instructions. This direction will be included under the heading of General Notes on plan sets submitted for building or grading permits.
- **Policy 9.2.3** – Limit Green House Gas (GHG) construction equipment by using electrified equipment or alternate fuel: The developer will include provisions in contractor agreements encouraging the use of electrified equipment or equipment using alternative fuels.

## IX. Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>9. HAZARDS AND HAZARDOUS MATERIALS</b>				
<b>Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Setting:**

Regulations governing the use, management, handling, transportation and disposal of hazardous waste and materials are administered by Federal, State and local governmental agencies. The California Department of Toxic Substances Control (DTSC) defines a hazardous material as: “a substance or combination of substances that, because of its quantity, concentration or physical, chemical, or infectious characteristics, may either: 1) cause, or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or 2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of, or otherwise managed.

DTSC, California Environmental Protection Agency, and California Water Resources Control Board (SWRCB) maintain databases of sites that are subject to mandatory or voluntary clean up, contain hazardous, or are permitted to use hazardous waste.

A search of the Project site and vicinity using the DTSC EnviroStor database and the SWRCB GeoTracker database was conducted in April 2018 to identify any known spills or cleanup sites in close proximity to the Project site. There were no hazardous materials spills, cleanup or permitted users identified at the Project site or within one mile of the site (EnviroStor 2018; Geotracker 2018).

A hazardous materials report was prepared by Terracon Consultants in 2018 (Terracon 2018; Appendix F). A hazardous materials survey was conducted at the 4224 Sonoma Highway property and included the interior, exterior, and roofing materials associated with the main house and two out structures (Terracon 2018). The buildings were testing for asbestos containing materials (ACM) and lead-containing paint. The structures were visually inspected using methods presented in the federal Asbestos Hazard Emergency Response Act (AHERA) regulations (40 CFR, Part 763) as a guideline. Bulk samples were collected and analyzed (Terracon 2018). ACM was identified in four samples and one sample that was not tested was assumed to be ACM (Terracon 2018). Eight samples were reported to have laboratory detection limits for lead (Terracon 2018).

### **Discussion**

- a, b) **Less than Significant Impact with Mitigation Incorporation.** In the short term, construction and demolition activities will require the use of certain materials such as fuels, oils, solvents, and glues that in large quantities could pose a potential hazard to the public or environment if improperly used or inadvertently released. Inadvertent release or foreseeable upset of large quantities of these materials into the environment could adversely impact soil, surface waters, or groundwater quality. The contractor will be required to follow manufacturer's recommendations on transportation of, use, storage, and disposal of chemical products used in construction. This direction will be included under the heading of General Notes on plan sets submitted for building or grading permits. In the event that construction requires the storage of potentially hazardous materials, a declaration form will be filed with the Fire Marshall's office and a hazardous materials storage materials permit will be obtained. If the storage of hazardous materials occurs at the site, a Hazardous Materials Inventory Statement will be submitted to the City of Santa Rosa Fire Department for review.

The Hazardous Materials Report identified the potential for ACM and lead-containing paint. Asbestos was detected in four building materials collected and one building material was not sample but assumed to be ACM (Terracon 2018). If not properly handled during demolition, ACM could expose workers to asbestos. Implementation of **Mitigation Measure HAZ-01** which will require the use of a licensed asbestos abatement contractor and training for workers onsite during removal of ACM will reduce impacts to less than significant.

Lead was detected above laboratory detection limits in eight materials tested (Terracon 2018). Demolition of existing structures has the potential to expose workers to lead-containing paint. Implementation of **Mitigation Measure HAZ-02** which will require

implementation of the OSHA Lead in Construction Standard during demolition will reduce impacts to less than significant.

Local, state and federal regulations for the storage and use of hazardous materials will prevent the storage of hazardous materials at the storage facility and residences. The storage facility and residences will not allow the storage of potentially hazardous materials in their respective lease agreements.

- c) **No Impact.** There are no schools within ¼ miles of the Project area. The closest schools are Douglas Whited Elementary School located at 4995 Sonoma Highway approximately 1.1 miles to the east and Herbert Slater Middle School located at 3500 Sonoma Avenue, approximately 1.2 miles to the south of the Project area. Because there are no schools located within ¼ mile of the Project, there will be no impact related to the emission of hazards, hazardous emissions, handling of hazardous or acutely hazardous emissions.
- d) **No Impact.** The Project is located in a residential neighborhood where hazardous materials sites will be unlikely. Regulatory databases, provided by numerous federal, state, and local agencies, included the State Water Resources Control Board's (SWRCB) Geotracker database for leaking underground storage tanks, and the State of California's Cortese list maintained by the DTSC. The Cortese list is a compilation of information from various sources listing potential and confirmed hazardous waste and hazardous substances sites in California. Review of the regulatory databases did not identify any potential hazardous materials site within vicinity of the Project site. The Project site is not listed on the Cortese list pursuant 65962.5 and there are no listed sites within 5 miles of the Project in either the SWRCB or DSTC databases.
- e) **No Impact.** The Project is not located within two miles of an airport or airstrip. The Sonoma County Airport is located approximately 12 miles to the north of the Project area.
- f) **No Impact.** Construction of the new multi-family residences will include access to emergency vehicles via Sonoma Highway and Streamside Drive. The Project site is located on Sonoma Highway and has emergency access onto the site. Site development will not interfere with any adopted emergency plan or evacuation plan. The site development plan includes emergency access to the site including onsite access to accommodate emergency vehicles with adequate roadway width and turning radii.

The City has adopted a Local Hazard Mitigation Plan (October 2016) that identifies the City's capabilities, resources, information, strategies for risk reduction, and critical facilities to reduce vulnerability during disasters (City of Santa Rosa 2016). The Project's components do not conflict or interfere with the measures identified in the plan.

- g) **Less than Significant Impact with Mitigation Incorporation.** The risk of wildfire exists within the Project area and within the vicinity owing to the climate and vegetation communities in Santa Rosa and Sonoma County. Construction of the Project will use machinery and fuels that could increase the likelihood of fire if used improperly. The Project site is located in a low-Fire Hazard area according to California Department of

Forestry and Fire Protection (Cal Fire 2008). All vegetation within the immediate work area will be removed and all fuels used onsite will be used and stored to manufacturers recommendations reducing the risk of these fuels unintentionally starting a fire.

**Mitigation Measure HAZ-03** will require the preparation of a site safety plan that will outline protocols that will be followed in the event of an unintended fire is started during construction. Because vegetation will be limited and fuels will be safely used and stored on site, and a site safety plan will be developed, the risk of loss, injury or death involving wildland fires will be less than significant.

**Mitigation Measures:**

**HAZ-01 Asbestos Containing Material:** Demolition of the existing structures shall be done by a licensed and certified asbestos abatement contractor. All workers shall be properly trained for asbestos removal work.

**HAZ-02 Lead Containing Paint:** Demolition of the existing structures shall be done following OSHA Lead in Construction Standard. The OSHA specified method of compliance includes respiratory protection, protective clothing and equipment, housekeeping, hygiene facilities, medical surveillance, and training, among other requirements.

**HAZ-03 Site Safety Plan:** A Site Safety Plan will be prepared that will outline protocols that will be followed in the event of an unintended fire during construction. The plan will include, but not limited to maps and directions to local hospitals, evacuation routes, and methods to reduce the potential for fire at the site.

## X. Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>10. HYDROLOGY AND WATER QUALITY—</b>				
<b>Would the project:</b>				
a) Violate any water quality standards or waste discharge requirement or otherwise degrade surface or groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) result in a substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

The City of Santa Rosa is located within the Santa Rosa Creek watershed. The headwaters of Santa Rosa Creek is in the Mayacamas Mountains and ultimately drains to the Laguna de Santa Rosa and then to the Russian River. There are no ponds, streams, or other water features within the Project site.

Currently, the site is mostly vegetated and stormwater is typically absorbed and naturally retained onsite. The site is generally flat with a 10 percent slope reduction at the eastern end of the site. Santa Rosa Creek occurs approximately 150 feet to the east of the Project site. There are no

surface waters or other aquatic features on site. The property at 4200 Sonoma Highway is fully developed and no construction will occur on this parcel.

Because the site will include disturbance to greater than one acre, the Project is subject to the Construction General Permit for Stormwater during Construction (2009-0009-DWQ). The Construction General Permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of site-specific best management practices (BMPs) to capture construction-related sediment from leaving the site.

Development projects in the City of Santa Rosa that create 10,000 square feet or more of impervious surface area are subject to the Standard Urban Stormwater Mitigation Plan (SUSMP) requirements. The City requires compliance with the Low Impact Development (LID) Technical Design Manual into site design. LID requirements include draining impervious surfaces to landscaped areas and using bioretention features to capture runoff and encourage infiltration on site. Compliance with the LID Manual is a standard condition of approval.

### **Discussion**

- a) **Less than Significant with Mitigation Incorporation.** The project will involve clearing, grubbing, excavation and grading of the 2.68-acre site located at 4224 Sonoma Highway. Construction of the storage facility and the multi-family residential structures will introduce impervious surfaces. Construction and operation of the Project has the potential to result in increased stormwater runoff that could degrade water quality. Stormwater runoff could contain sediment as well as oils, grease, and concrete that if not managed, could be discharged into surface waters.

To reduce the potential for construction activities to impact water quality, **Mitigation Measure HYDRO-01** which requires the preparation of a SWPPP shall be implemented. Because the Project is greater than one acre in size, a Notice of Intent will be submitted to the North Coast Regional Water Quality Control Board for compliance under the Construction General Permit (Order 2009-0009 DWQ) and a SWPPP will be prepared. The SWPPP will identify site-specific BMPs including but not limited to straw wattles, silt fencing, and graveled entrances. Implementation of Mitigation Measures HYDRO-01 will reduce water quality impacts during construction to less than significant.

During operation, stormwater runoff could degrade water quality. Development of the site will include permanent stormwater quality features. Stormwater will be directed to a series of landscaped bioretention areas that capture and infiltrate stormwater in the designed storm event. The permanent stormwater features will be designed to the City's LID Technical Design Manual as a standard condition of approval. Compliance with the LID Manual will reduce potential stormwater discharges during operation and impacts on water quality to less than significant. Therefore, impacts.

- b, e) **Less than Significant Impact.** Project construction will include excavation that is not expected to reach groundwater levels that will necessitate dewatering activities. The existing on-site well will be abandoned in accordance with permit from the County of

Sonoma. Groundwater will not be used for dust control or otherwise on the Project during construction and will not be used during operations. Since groundwater will not be used during construction or operation, there will be no extraction or depletion of groundwater supplies will occur as a result of the Project.

- c i-iv) **Less than Significant Impact.** The Project will alter the existing drainage patterns onsite and result in an increase of impervious surface; however, the Project will not result in an alteration of a stream or river or result in flooding. The site is relatively flat with a 10 percent rise at the eastern portion of the site. Drainage patterns currently direct flows to the west. The Project will implement the City's LID Technical Manual as a standard condition of approval and install permanent stormwater quality BMPs including bioretention areas that will capture stormwater and discourage substantial erosion and sedimentation off-site. Installation of the bioretention areas will satisfy volume, capture and stormwater treatment requirements and therefore the potential for offsite erosion and sedimentation impacts will be less than significant.
- d) **Less than Significant Impact.** The Project site is not located in a 100-year flood zone and the Project does not involve placement of structures within the 100-year flood zone and will not impede or redirect flood flows within the 100-year flood zone. The Federal Emergency Management Agency (FEMA) Floodplain maps show the site located within an Area of Minimal Flood Hazard Zone X (FEMA 2019). City of Santa Rosa General Plan Figure 12-4 does not show the site as occurring within either the 100 foot or 500-foot flood zone. The Project will have no impacts relating to impeding or redirecting floodflows, and there will be no impact related to placing housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map.

The Project site is located at an approximate elevation of 225.5 NAVD88 and not located within an inundation zone for a levee or dam and will therefore not expose people or structures to flooding as a result of failure of a levee or dam. The Project site is not located in a 100-year flood zone, and there will be no structures or homes placed within a 100-year flood zone. The City's General Plan does not show the Project site as being within the 100-year or 500-year flood zone. Therefore, there will be no impact related to exposing people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

The Project is not located within the tsunami zone according to the Sonoma County Tsunami Inundation Maps (California Emergency Management Agency, 2009). If a tsunami were to occur along the Sonoma coast, the Project site is significantly inland that no impacts will occur as a result of a tsunami.

Seiches occur in a closed body of water such as a large lake or reservoir. The closest large water body is Lake Ralphine, approximately ½ mile to the southeast of the Project site. Because of the distance from Lake Ralphine, there is low probability of impacts on the Project site in the event of a seiche. Similarly, the dam at Lake Ralphine is located on

the southwestern side of the lake. There is a 40 foot rise in elevation along the western bank of the lake that will direct flood flows to the east and away from the Project site. In the event of dam failure, flows will be downgradient from the Project site and the risk of loss, injury, or death at the Project site is low. The City's General Plan Figure 12-4 does not show the Project area as being within a dam inundation zone.

There are no hillsides or mountainous areas adjacent to the Project site that will be subject to mudflows.

**Mitigation Measures:**

**Mitigation Measure Hydro -01:** A Notice of Intent and fees will be submitted to the Regional Water Quality Control Board's Stormwater Multiple Application and Reporting Tracking System for authorization under the Construction General Permit (Order 2009-0009-DWQ). The applicant shall prepare and implement a SWPPP prior to construction. The SWPPP shall address erosion and sediment controls, proper storage of fuels, identification of site-specific BMPs, and use and cleanup of hazardous materials. During construction a monitoring report shall be conducted weekly during dry conditions and three times a day during storms that produce more than 0.50 inch of precipitation.

## XI. Land Use and Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>11. LAND USE AND LAND USE PLANNING—</b>				
<b>Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting:

The Project is located in the City of Santa Rosa, Sonoma County along Sonoma Highway. The site is currently occupied by a single-family home and with various outbuildings. Historical land use at the site includes walnut orchard but the site has not been in production for many years. No evidence of an orchard currently exists on site. The City of Santa Rosa General Plan identifies this property as Retail and Commercial Services. The zoning designation for the site is RR B6 20 and Land Use is designated as RR 20, meaning the density allows one dwelling unit for every 20 acres of land. Properties to the south include residential homes with General Plan Designations of Medium Density Residential (8-18 units per acre). Properties to the north are designated as Retail and Commercial Services. Property to the east is designated as Low Density Residential (2-8 units per acre).

The site is being annexed into the City of Santa Rosa through Sonoma County LAFCO. LAFCO's were created by state law in 1963 to encourage the orderly formation of local government agencies, to preserve agricultural and open space land, and to discourage urban sprawl. Sonoma LAFCO has jurisdiction over changes in local government organization occurring within Sonoma County. Rezoning is one of the applications for the Project. The site will be rezoned to be consistent with the General Plan land use designation. The General Plan land use designation is Retail & Business Services, and the site will be pre-zoned to General Commercial. The General Commercial zoning district is applied to areas appropriate for a range of retail and service land uses that primarily serve residents and businesses throughout the City, including shops, personal and business services, and restaurants. Residential uses may also be accommodated as part of mixed-use projects, and independent residential developments. The CG zoning district is consistent with the Retail and Business Services land use classification of the General Plan.

### Discussion

- a) **No Impact.** The Project involves the demolition of an existing single-family home and construction of a four story storage facility plus office and two multi-family residential

structures comprised of 14 residential units which each include covered parking for one car. Construction and operation of the Project occur in an area that includes residential and commercial land uses similar to those proposed by the Project. The Project is consistent with the land use within the vicinity of the Project and will not physically divide an established community and there will be no impact.

- b) **Less than Significant Impact.** The subject parcels (4200 & 4224 Sonoma Highway) will be rezoned into the CG (General Commercial) zoning district, which is consistent with the City's General Plan land use designation of Retail & Business Services. Once rezoned, both properties will be annexed into the City of Santa Rosa city limits by the LAFCO. Therefore, the Project will be consistent with LUL-A-2 (Annex unincorporated land adjacent to city limits and within the Urban Growth Boundary).

The Project is not located in a Special Purpose Zoning District.

The Project location is not located in the Coastal Zone and there are no specific plans that apply to the Project area.

The Project site is not located within a habitat conservation plan or priority conservation area, and all tree removal will be in compliance with the City's Tree Ordinance, City Code Chapter 17-24.

The project supports General Plan Policy OSC-B-2, which requires that alteration to slopes greater than 10 percent be minimized to the extent practicable and OSC-B-5, which requires a Hillside Development Permit for all new development and land subdivision on slopes greater than 10 percent. As described in Section I Aesthetics, the project is consistent with Hillside Development Standards (Section 20-32.020 B), and has demonstrated compliance for stormwater retention requirements for construction and operation, and is conditioned as such as a standard condition of approval. Because the Project will comply with the City of Santa Rosa ordinances and standard conditions approval, impacts will be less than significant.

**Mitigation Measures:** None required.

## XII. Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>12. MINERAL RESOURCES—Would the project:</b>				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

According to the City of Santa Rosa General Plan and the California Department of Conservation, there are no mineral resources within the vicinity of the Project. There are no active mines within the vicinity of the Project (California Department of Conservation 2019).

### Discussion

a,b) **No Impact.** The Project area does not contain known mineral resources of value and is not an oil or gas-producing resource areas according to the California Department of Conservation California Geologic Survey (2019). The Project involves construction of a self-storage facility and multi-family residences and will not result in the loss of availability of known mineral resources, including mineral resources designated as locally important. Therefore, there will be no impacts on a known mineral resource that will be of value to the region or and residents of the state; and there will be no loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there will be no impact on mineral resources.

**Mitigation Measures:** None required.

### XIII. Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>13. NOISE—Would the project:</b>				
a) Generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundbourne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Setting

##### **General Noise Information**

The General Plan defines noise as any sound that is undesirable because it interferes with speech and hearing or is intense enough to damage hearing or is otherwise annoying. Noise is simply, unwanted sound (City of Santa Rosa 2009). Certain frequencies are given more “weight” during assessment because human hearing is not equally sensitive to all frequencies of sound. The A-weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA. A noise level change of 3 dBA or less is barely perceptible to average human hearing. However, a 5 dBA change in noise level is clearly noticeable. A 10-dBA change is perceived as a doubling or halving of noise loudness, while a 20 dBA change is considered a “dramatic change” in loudness. Table XII-1 provides typical instantaneous noise levels of common activities in dBA.

**Table XII-1**

**Typical Noise Levels**

<b>Common Outdoor Activities</b>	<b>Noise Level (dBA)</b>	<b>Common Indoor Activities</b>
	110	Rock Concert
Jet Fly-over at 1,000 feet	100	
Gas Lawn Mower at 3 feet	90	
Diesel Truck at 50 feet, at 50 miles per hour (mph)	80	Food Blender or Garbage Disposal at 3 feet
Noisy Urban Area,	70	Vacuum Cleaner at 10 feet

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Daytime Gas Lawn Mower at 100 feet		
Commercial Area Heavy Traffic at 300 feet	60	Normal Speech at 3 feet
Quiet Urban Daytime	50	Large Business Office, Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night
	10	Broadcast/Recording Studio (background level)
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation 1998

An individual's sound exposure is a value based on a measurement of the noise that the individual experiences over a specified time interval. A sound level is a measurement of noise that occurs during a specified period of time. However, noise impact evaluations under CEQA are based on the project-related increases to the existing community noise levels.

A community noise environment varies continuously over time with respect to the contributing sources. Within a community, ambient noise levels gradually change throughout a typical day, and the changes can often be correlated to the increase and decrease of transportation noise or to the daytime/nighttime operation of stationary mechanical equipment.

In addition to sound, construction activities also have the potential to create ground vibrations, depending on the kind of equipment and operations involved, and the distances between the construction activities and the nearest sensitive receptors. The effects of groundborne vibrations generated from construction activities are typically imperceptible to most people located outside the immediate proximity of the construction activities. However, high-magnitude vibrations can result in damage to nearby structures within the immediate vicinity of the source.

### Existing Ambient Noise Level

The Project will be located within a commercial and residential neighborhood in Santa Rosa, California. The Project is located adjacent to a single-family residential community, a hardware and lumber store, and Sonoma Highway. The current ambient noise environment is predominately associated with noise from Sonoma Highway and the adjacent hardware and lumber store. The Santa Rosa General Plan shows an acceptable noise exposure level of 60-65 Ldn dBA for residential communities, and 70-75 Ldn dBA for commercial and industrial use.

Arcadis measured ambient noise at the Project site on May 29 through May 31, 2018 (Appendix G). The study consisted of two (2) Quest SoundPro sound level meters placed within the property boundaries that collected sound data for a continuous 48 hours with slow integrating intervals of one minute. Each meter was calibrated directly prior to use and are certified to be in compliance with American National Standards Institute specifications. One meter was placed at the northeastern property boundary adjacent to the lumber and hardware store, and one meter was placed at the southwestern property boundary adjacent to the residential community. The results of the ambient noise measurements were analyzed by noise and acoustical specialist Chris Hulik and are shown in **Table XII-2**.

**Table XII-2**

**Results of Ambient Noise Survey**

Monitoring Location	Date	24-Hr Leq dBA	Ldn dBA
Northeastern	May 29-30	48.7	55.1
	May 30-31	48.8	55.2
Southwestern	May 29-30	45.7	52.1
	May 30-31	42.7	49.1

**Discussion**

- a) **Less than Significant Impact:** Construction during the Project is intended to last for approximately 14 to 16 months, with work planned on Monday through Friday from 7:00AM to 7:00PM, Saturdays from 8:00AM to 5:00PM per City requirements. No work will occur on Sundays and holidays. While temporary, the construction phases may present a significant noise impact at the adjacent residential neighborhood. **Table XII-3** shows sound levels associated with typical construction equipment.

**Table XII-3  
Typical Construction Equipment Noise Levels**

<b>Equipment</b>	<b>Noise Level (dBA) at 50 feet</b>
Backhoe	80
Concrete mixer	85
Pump truck	82
Crane, Mobile	85
Dozer	85
Excavator	85
Generator	82
Grader	85
Man lift	85
Loader	80
Paver	85
Roller	85
Scraper	85
Trucks	80-84

Construction has the potential to increase noise levels above ambient levels identified during the noise measurements taken in 2018. Construction is transient in nature, with equipment type and usage percentages varying from day to day. The increase could be significant in that it could potentially, and temporarily, raise the ambient sound level at the adjacent residential neighborhood by 5 Ldn dBA. Standard conditions of approval to reduce this impact will require that the Project conform to the daytime construction hours, provide a mechanism to address any complaints regarding construction noise, require construction equipment to have properly maintained sound-control devices and muffled exhaust systems, and require that any stationary equipment comply with the Santa Rosa noise regulations. Compliance with the City's standard conditions of approval for noise would reduce construction related noise impacts to less than significant.

Operation of the Project is not expected to increase noise levels above ambient levels. Pursuant to Figure 12-2 of the General Plan, the Project will be located within the 65-70 dBA noise contour, which is within acceptable levels established by the General Plan for the proposed self-storage facility and multi-family residential use. The City's Noise Ordinance identifies a conditionally acceptable exposure level up to 70 dB. Therefore, the proposed project will be sited in a noise environment that is consistent with the acceptable noise levels for commercial businesses and multi-family residential use under both the General Plan and the Noise Ordinance. The new self-storage facility and multi-

family residences will be consistent with the established standards and potential impacts will be less than significant.

**b) Less than Significant Impact.**

**Construction Impacts:** The construction of the Project will include the use of heavy equipment that will generate ground-borne vibrations. Possible sources of vibration may include pile driving, jackhammers, excavators, dump trucks, backhoes, and other grading and earth moving equipment.

According to the Federal Transit Administration (FTA) guidelines, a vibration level of 65 VdB is the threshold of perceptibility for humans. For a significant impact to occur, vibration levels must exceed 80 VdB during infrequent events (FTA 1995). The vibration calculations are based on the FTA published vibration levels provided in Table XII-4.

**Table XII-4**

**Vibration Source Levels for Typical Construction Equipment**

<b>Equipment</b>	<b>Vibration Level (VdB) at 25 feet</b>
Large bulldozer	87
Caisson drilling	87
Loaded trucks	86
Jackhammer	79
Small bulldozer	58

Residential areas adjacent to the Project will be exposed to vibration during Project construction. Table XII-5 provides the approximate vibration velocity level of typical construction equipment in dB (VdB). Construction equipment will be operated within 25 feet of the closest residence's property lines, although the actual residences are removed at least 25 feet from the area where heavy equipment will be used. For a large bulldozer, the vibration level at 50 feet is approximately 44 VdB, which is less than the FTA 80 VdB threshold for infrequent events at residences and buildings where people normally sleep (FTA 2011). For loaded trucks at 50 feet, the vibration level is approximately 43 VdB, which also is under the threshold (FTA 2011).

**Table XII-5**  
**Vibration Source Levels for Typical Construction Equipment**

<b>Equipment</b>	<b>Vibration Level (VdB) at 25 feet</b>	<b>Vibration Level (VdB) at 50 feet</b>
Large bulldozer	87	44
Caisson drilling	87	44
Loaded trucks	86	43
Small bulldozer	58	29

Source: FTA 2011

- c) **No Impact.** The Project is not located within an airport land use plan, nor is it within two miles of a public airport or public use airport. The Sonoma County Airport is 13 miles north of the Project site. Therefore, construction of the Project will not expose workers and operation will not expose residents or customers to excessive noise levels attributable to a public airport or public use airport, and there will be no impact.

**Mitigation Measures:** None required.

## XIV. Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>14. POPULATION AND HOUSING— Would the project:</b>				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

According to General Plan Figure 2-1, the Project site is located within the City of Santa Rosa Urban Growth Boundary (UGB). According to the 2010 census, the population in the City of Santa Rosa was 167,834. Accordingly, to the U.S. Census Bureau, the population estimate for the City in July 2017 in the City of Santa Rosa was 175,269. This represents a 4.4 percent increase in population since the 2010 Census was published. The City's General Plan estimates that population within the City's UGB will be 237,000 by 2035 as shown in Table 2-2 in the General Plan.

According to U.S Census Bureau, Santa Rosa's housing supply increased approximately 18 percent from 2000 to 2013. The General Plan Table 2-2 identifies 71,070 housing units in 2007 and an additional 25,225 will be constructed at buildout by 2035. The Project supports the identified housing need in the General Plan.

### Discussion:

- a) **Less than Significant Impact.** The Project site is currently contains a single-family home but is currently unoccupied. The parcel at 4200 Sonoma Highway does not contain any dwellings and no construction will occur on this parcel. The Project will involve construction of two multi-family structures containing 14 separate dwelling units. The Project will increase the number of residential dwellings but is not expected to increase the population beyond unplanned levels identified in the General Plan. As described above, the General Plan identifies the need for additional dwellings to meet the projected population increase. Additionally, because of the loss of dwellings during the Tubbs Fire, the need for additional residential dwellings has increased since the General Plan was published in 2009.

The workforce necessary to construct the new facilities is anticipated to be derived from the regional area and workers will commute to the Project site on a daily basis. However, because of the current strain on the construction workforce in the area resulting from the

- post-Tubbs Fire rebuild, workers could be derived from outside of the region. Workers could temporarily relocate to the Santa Rosa area during construction of the Project. However, because of the small size and short duration of the Project, it is not expected that workers will result in a substantial increase beyond planned population estimates identified in the General Plan. Minimal new personnel will be hired to operate the new storage facility. Therefore, neither construction nor operation of the Project will result in any population growth in the area requiring the construction of housing.
- b) **No Impact.** The Project involves demolition of a single-family home and construction of two multi-family structures with 14 new residential dwellings. The existing single-family home is unoccupied. Therefore, implementation of the Project will not displace existing housing or people and will not necessitate construction of replacement housing elsewhere. Therefore, the Project will have no impacts on population and housing with regards to displacing people or housing.

**Mitigation Measures:** None required.

## XV. Public Services

<u>Issues (and Supporting Information Sources):</u>	<u>Potentially Significant Impact</u>	<u>Less Than Significant with Mitigation Incorporation</u>	<u>Less Than Significant Impact</u>	<u>No Impact</u>
<b>15. PUBLIC SERVICES— Would the project:</b>				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

Fire protection to the Project site is provided by Santa Rosa Fire Department Stations No. 1 through No. 11. The closest fire station is Santa Rosa Fire Department, Rincon Valley Area Fire Station No. 6, located approximately one mile from the Project site.

Police protection is provided by the City of Santa Rosa Police Department, Beat 1 through Beat 9. The Project site is served by Beat 6 which includes the southeast portion of Santa Rosa and is bordered by Santa Rosa Creek to the north. The police department is located at 965 Sonoma Avenue, approximately 2.7 miles from the Project site.

The Project site is located within Rincon Valley Union Elementary School District and Santa Rosa City High School District. Douglas Whited Elementary School, Brush Creek Montessori School, Madrone Elementary School, Sequoia Elementary School, Rincon Valley Middle School, Herbert Slater Middle School, Village Elementary School, Spring Creek Elementary School, Merryhill Preschool, Montgomery High School and Maria Carrillo High School are located within three miles of the Project site. Douglas Whited Elementary School is a public elementary school located approximately 1 mile from the Project site; Brush Creek Montessori School is a private Preschool through sixth grade school located approximately 1.5 miles from the Project site; and Madrone Elementary School is a public elementary school located approximately 1 mile from the Project site; Sequoia Elementary School is a public elementary school located approximately 1.8 miles from the Project site; Rincon Valley Middle School and Santa Rosa Accelerated Charter School are public middle schools located approximately 2 miles from the Project site; Herbert Slater Middle School is a public middle school located approximately 1.2 miles from the Project

site; Village Elementary School is a public elementary school located approximately 1.5 miles from the Project site; Spring Creek Elementary School is a public elementary school located approximately 1.5 miles from the Project site; Merryhill Preschool is a private pre-school located approximately 1.8 miles from the Project site; and Montgomery High School is a public high school located approximately 2 miles from the Project site.

Parks within the vicinity of the Project area include Howarth Memorial Park, Spring Lake Regional Park, Brush Creek Park, Rinconada Park, and Trailhead Park (The Santa Rosa Creek Trail). These parks are owned by the City of Santa Rosa and Sonoma County.

### **Discussion**

a.i-v) **Less Than Significant Impact.** The Project site is within the UGB (General Plan Figure 2-1) and is well served by existing public services. The Project is estimated to introduce up to 47 new residents housed within the proposed 14 residential dwelling units based on 2.64 persons per household (US Census Bureau 2018). It is expected that with new residential units will result in a slight increase in the need for services from Fire and Police Departments, schools, and parks will occur. However, the increase will be a minimal change that was anticipated in the General Plan 2035 EIR, certified by the Council in 2009, and will not trigger the need for an expansion of services, an increase in staffing, or otherwise affect required service ratios.

General Plan policy PSF-E-1 sets a 5-minute travel time for emergency response within the city. The Project is located within the response radii of one fire station (General Plan Figure 6-3) located at 205 Calistoga Road. There is also a fire station located at 1775 Yulupa Avenue, which is shortly outside of the 5-minute response radii. The Project's addition of vehicle trips to the adjacent grid street network is not expected to cause a reduction in travel speeds that will result in significant delays for emergency vehicles. A 5-minute response time is expected to be achieved due to the redundancy of approach access, the ability of emergency response vehicles to override traffic controls with lights, sirens, and signal preemption, and to travel in opposing travel lanes in congested conditions.

The Project is not expected to result in substantial adverse impacts on other public facilities including schools and parks. Although the introduction of additional residential units may bring more school children to the area, such changes have been previously anticipated under the maximum number of residential units planned for General Plan build out (City of Santa Rosa 2009). The small number of new students will not result in a significant impact at nearby schools. Nearby schools will not experience significant impacts to school enrollment as a result of the Project. Therefore, the Project will have a less than significant impact to area schools.

The Project will not generate a substantial increase in demands that warrant the expansion or construction of new public facilities such as parks. As a standard condition of Project approval, the applicant shall pay all development impact fees applicable to residential development, including, but not limited to Capital Facilities fees, Park fees,

and School impact fees. These funds are expected to be sufficient to offset any cumulative increase in demands to fire and police protection services and ensure that impacts due to increased demand for public services generated by the Project are less than significant.

**Mitigation Measures:** None required.

## XVI. Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>16. RECREATION—Would the project:</b>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

The City of Santa Rosa operates a number of parks and recreational facilities. Of these, Howarth Memorial Park, Spring Lake Park, Brush Creek Park, Rinconada Park, are located in the vicinity of the Project. In addition, portion of a multiuse trail, the Santa Rosa Creek Trail runs along Santa Rosa Creek to the south of the Project site.

Howarth Memorial Park is located at 630 Summerfield Road, and is an 138-acre community park which provides a beautiful lake for fishing and boating, a softball field, tennis courts, picnic areas, unique playground structures, miles of hiking and jogging trails, and an amusement area featuring a miniature train ride, carousel, animal farm and pony ride. Spring Lake Park is located at 393 Violetti Road, and is a popular park featuring trails, a campground, picnic areas, a natural history center, and a summer swimming lagoon. Bush Creek Park, located at 1180 Brush Creek Road, features barbecues, basketball courts, picnic areas, and a playground. Rinconada Park is located 1 at 4459 Yukon Drive; it has barbecues, picnic areas, and a playground. Trailhead Park (The Santa Rosa Creek Trail) runs behind the property between Farmers Lane and Quigg Drive.

### Discussion

a,b) **Less than Significant Impact.** It is anticipated that construction of the Project will use workers derived from the local area and will therefore not result in increased use or deterioration of existing recreational facilities or require the construction of new facilities. However, because of the current post-Tubbs Fire rebuilding effort and strain on local contractors, workers could be derived from outside the region and require the temporary relocation of workers for the Project. If workers were to temporarily relocate to the area to work on the Project, use of parks and recreational facilities will occur. The number of workers will not be expected to be greater than 30 workers and use of parks will not be expected to require expansion of or construction of new recreational facilities. Use of recreational facilities by temporary workers will also not be expected to result in the deterioration of existing recreational facilities.

The Project involves construction of 14 new residences, and it will be expected that occupants will use recreational facilities within the City. Use of the facilities will increase overall recreational use but will not be expected to result in the deterioration or expansion Project and will minimally contribute to the need for overall park and recreational demand. The closest parks are Trailhead Park (The Santa Rosa Creek Trail) and Howarth Park, both within one mile of the Project site.

Development at the Project site will include 14 residential units which will not create a significant increase in use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities will occur or be accelerated. The Project's payment of the City's park in-lieu fees will offset the Project's demand for increased recreational facilities. Construction and operation of the Project will not result in a significant increase in the local population, and thus will not result in increased use of local parks and recreational facilities. The Project does not involve construction of recreation facilities or require the expansion of recreational facilities. Therefore, there will be a less than significant impact on recreational resources.

**Mitigation Measures:** None required.

## XVII. Transportation and Traffic

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>17. TRANSPORTATION AND TRAFFIC—</b>				
<b>Would the project:</b>				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) E Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less Than Significant Impact:** The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10<sup>th</sup> Edition, 2012. The project as currently proposed includes 14 multi-family dwelling units and a 124,000 square foot self-storage facility. The trip generation potential of the planned project was developed using the published standard rates for a Mini-Warehouse (LU #151) for the self-storage facility and Multifamily Housing (LU #220) and is shown in Table XVI-1.

**Table XVI-2  
Trip Generation Summary**

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Self Storage Facility (Mini-Warehouse)	124 ksf	1.51	187	0.10	12	7	5	0.17	21	10	11
Multifamily Housing	14 du	7.32	102	0.46	6	1	5	0.56	8	5	3
<b>Total</b>			<b>289</b>		<b>18</b>	<b>8</b>	<b>10</b>		<b>29</b>	<b>15</b>	<b>14</b>

Note: ksf = 1,000 square feet; du = dwelling unit

Under the policies detailed in the *City of Santa Rosa Standard Guidance for the Preparation of Traffic Impact Analysis* a traffic study is required if a project generates 50

or more peak hour trips. As shown in the table above, the trip generation is well below the 50-trip threshold, so under the City's policies it is reasonable to assume that the project will have a less-than-significant impact on traffic operation due to the low trip generation.

Because the volume of traffic generated during construction will be nominal during peak periods due to the off-peak scheduling of construction work, the project is similarly expected to have a less-than-significant impact on traffic during the construction phase.

There are sidewalks proposed along site's frontage on State Route (SR) 12. Though sidewalk is discontinuous on the south side of SR 12 where the project site is located, the existing 8-foot shoulder accommodates both pedestrian and bicycle traffic and provides separation between motorized vehicles and active modes.

The *Santa Rosa Bicycle and Pedestrian Master Plan 2018* indicates that a Class II bike lane is planned for SR 12 along the site's frontage. While the bike lane does not exist, the 8-foot shoulders currently provide space for cyclists to ride outside the higher-speed vehicle travel lanes. The frontage improvements planned for the project will retain the 8-foot shoulders and not preclude any planned bicycle-related improvements. Based on the site plan prepared by BKF, the existing easement for the multi-use trail along the creek will be retained with the project.

The closest public transit stop is approximately 1,200 feet from the site at the intersection of SR 12/Mission Boulevard; this is within the quarter-mile walking distance typically considered as acceptable for transit access. There are four bus stops, two on each side of SR 12 at Mission Boulevard with pedestrian facilities (sidewalk, pedestrian signal, crosswalks) at the intersection to connect the stops. Sonoma County Transit Routes 30/30X and 34 run Monday through Friday from 5:50 a.m. to 9:00 p.m. and from 7:25 a.m. to 8:12 p.m. on weekends with approximately one-hour headways. These routes provide connections to the Santa Rosa Transit Mall, Glen Ellen, Kenwood, and Sonoma Valley.

Santa Rosa City Bus Route 4/4b also serves these bus stops Monday through Friday from 6:00 a.m. to 8:20 p.m., until 7:50 p.m. on Saturdays, and from 10:00 a.m. to 4:50 p.m. on Sundays, with 30-minute headways on weekdays and one-hour headways on the weekend. This route provides connections to the Santa Rosa Transit Mall, Rincon Valley, and Calistoga Road. Though sidewalks connecting to these stops are discontinuous, the availability of paved shoulders adequately accommodates pedestrian travel and provides an adequate connection to transit services.

- b) **Less than Significant Impact:** CEQA Guidelines § 15064.3, subdivision (b) indicates that land use projects will have a significant impact if the project resulted in vehicle miles traveled (VMT) exceeding an applicable threshold of significance. It further notes that if existing models or methods are not available to estimate the vehicle miles traveled for the project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively.

The City has not yet adopted a policy regarding vehicle miles traveled (VMT) so the project's contribution was estimated for informational purposes. Using the expected daily trips generated for 14 multi-family dwelling units (du) as determined above using the standard trip generation rate, and average distance traveled per daily trip in the project's location as available from the Sonoma County Transportation Authority (SCTA) 2010 *Comprehensive Transportation Plan* (CTP), the estimated VMT for the residential component of the project will be 478.38 vehicle miles traveled. Assuming the self-storage facility will have two employees, and using the SCTA's CTP average VMT per employee, the self-storage facility will be expected to generate a VMT of 22.7 miles. There are no metrics available to estimate travel miles for customers of the self-storage facility. The calculated VMT of the proposed site uses of residences and the self-storage facility employment are shown in Table XVI-2.

**Table XVI-2**  
**VMT Summary**

Unit	Number of Units	Calculated Daily VMT	
		mi/unit	Total
Self-Storage Facility Employee	2	11.34	22.7 miles
Residential Daily Trips (14 du)	102	4.69	478.4 miles
<b>Total</b>			<b>501.1 miles</b>

As noted above, because the City of Santa Rosa has not yet established a criterion against which the project's VMT can be measured, the significance cannot be measured quantitatively. However, given the site's convenient access to regional transit routes as well as pedestrian and bicycle facilities coupled with the proximity of shopping opportunities and restaurants, it is reasonable to assume that the site will have a less-than-significant impact in terms of vehicle miles traveled.

- c) **Less than Significant Impact:** The project must be designed to meet applicable Federal, State and City codes and regulations, and as such, will not be expected to introduce any new hazards in terms of its design. Consideration was also given to sight distance at the new public road on SR 12. At this location the highway is median-divided, limiting access and egress at the site to right-turns in and out only. Sight lines to the west along SR 12, as well as in both directions along the new public road, were evaluated based on criteria contained in the Highway Design Manual, Caltrans. SR 12 has two 12-foot travel lanes and an 8-foot shoulder along the project's frontage. From 15 feet back from the existing edge line, drivers exiting the site will have a clear line of sight for more than 600 feet; this is adequate for an approach speed exceeding 60 mph, which is substantially higher than the 45-mph posted speed limit. Based on the site plan, and

assuming the new road will have similar design speed of 25 mph as the existing Streamside Drive, sight lines along the new project road will be adequate; to limit decreasing anticipated sight lines, any new signage or landscaping to be located near the intersection should be placed outside of the vision triangle of a driver waiting on the minor street. The project will therefore have a less-than-significant impact on safety based on the application of appropriate design standards and availability of adequate sight lines.

- d) **Less than Significant Impact:** The new public street and private driveway have been designed in accordance with the California Fire Code with applicable Santa Rosa City Code amendments. The site roadways will facilitate access to within 150 feet of building exteriors, provide two separate points of access to the site, have 20-foot inside and 40-foot outside turning radius, and allow access for a 26-foot wide aerial fire apparatus to the storage building. The new public street is proposed to be 26 feet wide, with a 24-foot wide section where the 26-foot wide aerial fire apparatus access road leaves the public street. This results in a less-than-significant impact relative to emergency access.

**Mitigation Measures:** None required.

## XVIII. Tribal Cultural Resources

<u>Issues (and Supporting Information Sources):</u>	<u>Potentially Significant Impact</u>	<u>Less Than Significant with Mitigation Incorporation</u>	<u>Less Than Significant Impact</u>	<u>No Impact</u>
<b>18. Tribal Cultural Resources— Would the project:</b>				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Setting

A Historical Resources Report was prepared by Tom Origer and Associates (Origer & Associates) in 2017. The report provides the information to analyze cultural and historical resources for the Project and serves as the basis for conclusions in this document. Information contained in this section is derived from this report which is considered confidential.

This study included archival research at the Northwest Information Center, Sonoma State University (NWIC File No. 17-0624), examination of the library and files of Tom Origer & Associates, Native American contact, and field inspection of the study area. No historical resources were found within the study area. Documentation pertaining to this study is on file at the offices of Tom Origer & Associates (File No. 2017-101S).

A Sacred Lands File and Native American Contact List was requested from the Native American Heritage Commission. A Sacred Lands File record search was completed by the NAHC for the Area of Potential Effect (APE) with negative results (Origer & Associates 2017). A list of Native American Contacts was provided on September 19, 2017 (Origer & Associates). Tribal representatives were contacted by Origer & Associates by mail on September 8, 2017 (Origer & Associates 2017). Tribal representatives contacted included Federated Indians of Graton Rancheria, Kashia Band of Pomo Indians of the Stewarts Point Rancheria, Lytton Band of Pomo Indians, Middletown Rancheria of Pomo Indians, and Mishewal-Wappo Tribe of Alexander Valley (Origer & Associates 2017).

On September 18, 2018, the City of Santa Rosa referred Project plans to Lytton Rancheria and Graton Rancheria in compliance with AB 52. Mitigation measures set forth in the Cultural

Resources discussion above as well as the Tribal measure below have been developed in response to the direct input from tribes.

**Discussion:**

- a, b) **Less than Significant Impact with Mitigation Incorporation:** The NWIC and Sacred Lands file search did not reveal any known historical resources eligible for listing on the California Register of Historical Resources or in any local register. Survey of the site, including two auger holes did not reveal archeological materials (Origer & Associates 2017). The details on the existing structures is provided in Section V Cultural Resources. Accidental discovery could result in potentially significant impact to tribal cultural resources, if not properly mitigated. In order to mitigate potential impacts resulting from the inadvertent discovery of tribal cultural resources, **Mitigation Measure TRI-01** shall be implemented. Mitigation Measure TRI-01 identifies procedures to be followed in the event of an unintended discovery, and reduces

**Mitigation Measure:**

**Mitigation Measure TRI-01:** If a potentially significant tribal cultural resource is encountered, all ground disturbing activities shall halt until the archeologist or Tribal representative can assess the resource. The archeologist or Tribal representative shall be granted stop work authority and shall be provided sufficient time to evaluate the resource and make treatment recommendations. Should a significant tribal cultural resource be identified, the archeologist or Tribal representative or shall prepare a resource mitigation plan and monitoring program to be carried out during all construction activities.

## XIX. Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>19. UTILITIES AND SERVICE SYSTEMS—Would the project:</b>				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the waste water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

a-e) **Less than Significant Impact.** The Project entails demolition of existing facilities, and construction and operation of a new storage facility and two multi-family structures with 14 new residences. Within the City of Santa Rosa, wastewater is collected and treated at the Laguna Treatment Plant. According to the City's General Plan, wastewater treatment is generally sufficient to meet anticipated housing development needs through 2035 (City of Santa Rosa 2009). The addition of the storage facility and residences to the City's wastewater system would not increase wastewater such that new facilities will be required to be constructed or expanded. Additional wastewater can be accommodated by the Laguna Treatment Plant.

#### **Stormwater**

The new storm water infrastructure will be installed as part of the approved Project will include measures to capture increased storm water resulting from development and increased impervious surfaces. As described in Section X Hydrology and Water Quality, the Project will be required to implement LID Manual measures, including bioretention basins and features that will capture and redirect storm water to landscaped areas.

Bioretention basins will be designed to capture the additional storm water to reduce the overall volume of storm water entering the City's system. The Project will be required to comply with the City's Stormwater Ordinance set forth in Municipal Code Chapter 17-12 which established standard requirements and controls over the City's stormwater drainage system. All new development is required to adhere to the Ordinance.

### **Potable Water**

The majority of the City's potable water supply is provided by the Sonoma County Water Agency's (SCWA) system. The SCWA maintains an aqueduct system that delivers water from the Russian River to the City. The SCWA also maintains three groundwater wells that provide water on an as-needed basis during periods of drought or when water supplies from the Russian River are constrained (SCWA, 2016). The City's 2015 Urban Water Management Plan (UWMP) estimates that water demand for the City will be approximately 28,243 acre feet by 2035.

The Project will require new potable water connections to the City's existing water supply system which is sufficient to accommodate the minimal water requirements of the storage facility as well as the 14 new residences. The Project will comply with the City's WELO and include drought tolerant landscaping. The City's General Plan indicates that water supply is not expected to be a constraint (City of Santa Rosa 2009) indicating there is sufficient supply for this anticipated development. The General Plan indicates that the total existing water supply available to the City is approximately 31,810 acre feet per year and that the highest water use to date was in 2001 when 24,300 acre feet were used. The minor amount of potable water required for 14 new residences will not increase the potable water needs beyond what is anticipated by the 2035 General Plan or beyond the capacity of the City's existing water supplies. Compliance with the CALGreen Tier 1 and WELO requirements will reduce the developments potable water needs.

### **Solid Waste**

The Project involves demolition of a single-family home and two outbuildings as well as clearing, grubbing, and grading to support construction of the self-storage facility and multi-family residential structures. During construction, the Project will result in materials being deposited at the local landfill, most likely one of the Central Landfill located on Mecham Road in Petaluma. Solid waste is then transferred to the Redwood Landfill in Marin County or other regional landfills with capacity and authorization to accept construction debris. Demolition and site preparation includes removal of concrete, painted surfaces, universal waste, asphalt, and reservoir structures. All asbestos containing materials and lead containing paint materials will be properly contained and disposed at an appropriate landfill with authorization to accept lead and asbestos containing materials. All solid waste materials will be waste profiled and sent to an appropriate disposal facility. Site preparation includes grubbing and grading and trench installation of subsurface piping will require excavation and off-hauling of excess soil. Approximately 500 cubic yards of materials expected to be removed from the site include vegetation and soil, and concrete. The Project will divert non-hazardous solid waste that

is recyclable or reusable to the extent feasible. It is anticipated that much of this material removed from the Project site can be recycled or repurposed and will therefore not significantly reduce capacity of local landfill. Vegetation and soil may be used at local landfills as daily cover and will therefore not result in decrease in capacity at the local landfill. Because the amount of material is expected to be negligible, will be waste profiled in order to determine an appropriate waste facility, and much of the material is anticipated to be used for alternative daily cover, materials deposited at local landfills will not significantly reduce the capacity of such landfills and impacts related to local landfill capacity is considered less than significant.

The Project includes 14 multi-family residences that will contribute to the generation of solid waste within the City of Santa Rosa. The amount of solid waste is considered minor and consistent with the service needs anticipated in the City's General Plan.

Because the Project will not exceed local capacity and will be in compliance with City requirements, the Project will not conflict with local or state management reduction statutes and impact will be less than significant.

**Mitigation Measures:** None Required.

## XX. Wildfire

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>20. Wildfire— Would the project:</b>				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including down slope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

The City of Santa Rosa is located within an area susceptible to wildland fires with expansive areas of chaparral, woodland, grassland, and scrub vegetation communities as well as steep slopes, and climatic conditions. The Project is located with the City's Urban Growth Boundary (UGB). Figure 12-5 from the 2035 General Plan places the Project site outside of the Very High Fire Hazard Severity Zone and the Wildland-Urban Interface Zone. The surrounding land uses are generally commercial and residential with Santa Rosa Creek and riparian habitat to the east. The project site is categorized as a Non-VHFHZ by CAL FIRE and surrounded by land designated as Non-VHFHZ on all sides. However, the Project is located approximately 0.25 mile from Lake Ralphine and open space areas adjacent to Annadel State Park and to the north, less than 0.50 mile from Brush Creek Road that are designated as Wildland-Urban Interface Zone in the General Plan. According to Figure 12-15 from the General Plan, the Project site is located less than 2 miles from Chanate Road and areas that are designated as Very High Fire Hazard Severity Zone.

In October 2017, the Tubbs Fire (Central LNU Complex) burned approximately 36,807 acres in the northern and eastern portions of the City. Residents were exposed to direct effects of the wildfire, such as the loss of a structure, and to the secondary effects of the wildfire, such as smoke and air pollution. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals) and gases (carbon monoxide, carbon dioxide, nitrogen oxides). Public health impacts associated with wildfire include difficulty in breathing, odor, and reduction in visibility.

**Discussion**

- a) **Less than Significant Impact.** The project site is categorized as a Non-VHFHZ by CAL FIRE, located approximately 0.25 mile from land designated as and located over 1.2 miles from areas designated as having a Very High Fire Hazard Severity Zone. The Project site is located within the UGB and will be included in the City's Emergency Operation Plan. Therefore, in the event of a wildfire the proposed project is not expected to substantially impair an adopted emergency response plan or emergency evacuation plan, and impacts will be less than significant
- b-d) **Less than Significant Impact.** The project site is relatively flat, with a 10 percent slope decrease at the eastern edge of the parcel. As identified in Section VII Geology and Soils, there are no mapped landslides at the Project site. The proposed structures will require a building permit and built in compliance with the California Building Code in affect at the time of Building Permit submittal. The project will install new infrastructure, including utilities and power lines, and will not exacerbate the fire risk.

There are no other factors, such as steep slopes, prevailing winds that will exacerbate fire risk or expose project occupants to the uncontrolled spread of a wildfire, pollutant concentrations from a wildfire, post-fire slope instability, or post-fire flooding. Therefore, impacts will be less than significant.

**Mitigation Measures:** None required.

## XXI. Mandatory Findings of Significance

<u>Issues (and Supporting Information Sources):</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>21. MANDATORY FINDINGS OF SIGNIFICANCE—</b>				
<b>Would the project:</b>				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that would be individually limited, but cumulatively considerable?: (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less than Significant Impact.** The Project will not degrade the quality of the environment or substantially reduce the habitat for listed fish or wildlife species. The Project is located within the City’s UGB and impacts associated with Project development have been anticipated in the City’s 2035 General Plan. Fifty-eight trees will be removed in compliance with the City’s Tree Ordinance as required by Mitigation Measures AES-01 and AES-02. The Project will have a less than significant effect on the environment as described in Section IV. Biological Resources. The Project will not eliminate examples of the major periods of California history or prehistory and impacts on historical resources will be less than significant as described in Section V. Cultural Resources. The Project’s impacts will not substantially degrade the environment and will not, when considered with other projects, result in substantial cumulative impacts.
- b) **Less than Significant Impact.** The Project is consistent with the City’s General Plan and land use designation and is consistent with the surrounding land uses with the intent of the UGB through the development of the parcel at 4224 Sonoma Highway. The Project will comply with the City’s standard conditions of approval. The analysis provided above identifies less than significant impacts or less than significant impacts with mitigation incorporation. The Project’s impacts do not increase the severity of impacts analyzed in the City’s General Plan EIR (City of Santa Rosa 2009b). Therefore, the Project’s cumulative impacts will be less than significant.

- c) **Less than Significant Impact.** The Project will comply with the City’s standard conditions of approval which will ensure that the Project will not result in substantial environmental effects on human beings directly or indirectly. All impacts resulting from the Project will be less than significant. Please refer to the individual resource sections for impact discussions.

On the basis of this initial study:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Susie Murray, Senior Planner

The City of Santa Rosa

Printed Name

For

**A. Report Preparers**

Arcadis, U.S., Inc.

- Lee Miles, AICP, Principal Environmental Planner
- Nicole Redding, Environmental Planner
- Bryan Chen, Senior Environmental Engineer
- Christopher Hulik, INCE, Acoustical Scientist

W-Trans

- Dalene J. Whitlock, PE, PTOE (Traffic & Transportation)

**B. References**

Arcadis, U.S., Inc (Arcadis). 2018. Biological Resource and Habitat Assessment 4224 Highway 12, Santa Rosa, Sonoma County, California. Revised March 31, 2019.

Arcadis. 2019. Certified Arborist Report: 4224 Highway 12, Santa Rosa, CA. May 10, 2019.

Bay Area Air Quality Management District (BAAQMD). 2017a. California Environmental Quality Act Air Quality Guidelines. May.

BAAQMD. 2017b. Final Clean Air Plan 2017. April.

BKF. Initial Storm Water LID Submittal for Recess Storage. July 2018.

California Department of Conservation. Division of Land Resource Protection. Conservation Program Support. Williamson Act Contract Land. 2016. [online resource] Accessed at: [www.conservation.ca.gov/dlrp/lca](http://www.conservation.ca.gov/dlrp/lca). Accessed on 6/1/2018

California Department of Conservation. Division of Land Resource Protection. Farmland Mapping and Monitoring Program. 2016. [online resource] Accessed at [www.conservation.ca.gov/dlrp/fmmp](http://www.conservation.ca.gov/dlrp/fmmp). Accessed on 6/1/2018

California Department of Fish and Wildlife. 2018. California Natural Diversity Database (CNDDDB), RareFind5, California Department of Fish and Wildlife Sacramento. Accessed June 2018.

California Native Plant Society Rare Plant Program, 2018. Inventory of Rare and Endangered Plants of California. Online addition. Website <http://www.rareplants.cnps.org>. Accessed June 2018.

California Department of Toxic Substances Control (DTSC), 2018 Hazardous Waste and Substances Site List (Cortese List), [http://www.dtsc.ca.gov/database/Calsites/Cortese\\_List.cfm](http://www.dtsc.ca.gov/database/Calsites/Cortese_List.cfm), accessed June 2018.

- California State Water Resources Control Board. 2018. Geotracker Database. <https://geotracker.waterboards.ca.gov/>. Accessed May 2018.
- City of Santa Rosa Design Guidelines, September, 2005 (updated in 2010, 2011).
- City of Santa Rosa. November 2009. Santa Rosa General Plan 2035.
- City of Santa Rosa. 2012. Climate Action Plan. Adopted June 5, 2012.
- City of Santa Rosa. 2017. Storm Water Low Impact Development Technical Design Manual.
- City of Santa Rosa, Facilities, (Fire, Police, Schools, Parks). Available online at <https://srcity.org/Facilities>, (accessed July 2018).
- City of Santa Rosa. 2009. City of Santa Rosa 2035 General Plan/Final EIR. Available online at <https://srcity.org/392/General-Plan> , (accessed May 2018).
- City of Santa Rosa. 2015. 2015 Urban Water Management Plan. City of Santa Rosa in conjunction with West Yost Associates and Maddaus Water Management. June 2016.
- City of Santa Rosa, 2017. City of Santa Rosa Zoning Code. Available online at <https://qcode.us/codes/santarosa/>, (accessed May 2018).
- California Department of Transportation (Caltrans), California Scenic Highway Program, 2007. Available online at: [http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/sonoma.htm](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/sonoma.htm), (accessed May 2018).
- PRA Group, Inc. 2018. Geotechnical Study Proposed Self Storage Facility 4224 Highway 12 APN: 032-010-005 Santa Rosa, California. August 9, 2018.
- Terracon Consultants Inc. 2018. Hazardous Materials Survey Report. December 7, 2018.
- Tom Origer & Associates. 2017. Historical Resources Study for the Annexation Prezoning of the Property at 4224 Highway 12 Santa Rosa, Sonoma County, California. September 21, 2017.
- United States Census Bureau (US Census Bureau), Quick facts, Santa Rosa city, California; California. Available online at: [https://www.census.gov/quickfacts/fact/table/ca\\_santarosacitycalifornia/PST045217](https://www.census.gov/quickfacts/fact/table/ca_santarosacitycalifornia/PST045217), (accessed June 2018).
- United States Department of Agriculture. 2018. Web Soil Survey. Natural Resources Conservation Service. Accessed at <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

U.S. Fish and Wildlife Service. National Wetlands Inventory. 2018. Website:  
<https://www.fws.gov/wetlands/Data/Mapper.html>. Accessed June 2018.

U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation (iPaC) Species List for the Santa Rosa U.S.G.S. 7.5 Minute Quadrangle. Accessed June 2018.

## **APPENDIX A**

### CalEEMod Data Sheets

Santa Rosa Recess Storage - Sonoma-San Francisco County, Annual

**Santa Rosa Recess Storage**  
**Sonoma-San Francisco County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.90	1000sqft	0.02	900.00	0
Unrefrigerated Warehouse-No Rail	124.00	1000sqft	2.16	124,000.00	0
Condo/Townhouse	14.00	Dwelling Unit	0.50	32,400.00	40

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	75
<b>Climate Zone</b>	4			<b>Operational Year</b>	2020
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics -

Land Use - site info

Construction Phase - site info

Trips and VMT - site info

Grading - site info

Vehicle Trips - ITE trip generation rates for mini-storage (151) were used. For a conservative analysis, assumed all primary trips, 100% commercial non-residents trips

Construction Off-road Equipment Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Residential_Exterior	21870	12150
tblAreaCoating	Area_Residential_Interior	65610	36450
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblLandUse	LandUseSquareFeet	14,000.00	32,400.00
tblLandUse	LotAcreage	2.85	2.16
tblLandUse	LotAcreage	0.88	0.50
tblTripsAndVMT	WorkerTripNumber	62.00	57.00
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	1.68	1.51

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2476	1.8756	1.5186	2.9700e-003	0.0699	0.0944	0.1643	0.0234	0.0903	0.1136	0.0000	258.0608	258.0608	0.0424	0.0000	259.1201
2020	0.0781	0.5980	0.5177	1.0500e-003	0.0174	0.0285	0.0459	4.7300e-003	0.0273	0.0320	0.0000	90.1208	90.1208	0.0139	0.0000	90.4684
<b>Maximum</b>	<b>0.2476</b>	<b>1.8756</b>	<b>1.5186</b>	<b>2.9700e-003</b>	<b>0.0699</b>	<b>0.0944</b>	<b>0.1643</b>	<b>0.0234</b>	<b>0.0903</b>	<b>0.1136</b>	<b>0.0000</b>	<b>258.0608</b>	<b>258.0608</b>	<b>0.0424</b>	<b>0.0000</b>	<b>259.1201</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2476	1.8756	1.5186	2.9700e-003	0.0577	0.0944	0.1521	0.0177	0.0903	0.1079	0.0000	258.0606	258.0606	0.0424	0.0000	259.1199
2020	0.0781	0.5980	0.5177	1.0500e-003	0.0174	0.0285	0.0459	4.7300e-003	0.0273	0.0320	0.0000	90.1208	90.1208	0.0139	0.0000	90.4683
<b>Maximum</b>	<b>0.2476</b>	<b>1.8756</b>	<b>1.5186</b>	<b>2.9700e-003</b>	<b>0.0577</b>	<b>0.0944</b>	<b>0.1521</b>	<b>0.0177</b>	<b>0.0903</b>	<b>0.1079</b>	<b>0.0000</b>	<b>258.0606</b>	<b>258.0606</b>	<b>0.0424</b>	<b>0.0000</b>	<b>259.1199</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>13.90</b>	<b>0.00</b>	<b>5.77</b>	<b>20.30</b>	<b>0.00</b>	<b>3.91</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-8-2019	8-7-2019	0.8180	0.8180
2	8-8-2019	11-7-2019	0.8217	0.8217
3	11-8-2019	2-7-2020	0.7954	0.7954
4	2-8-2020	5-7-2020	0.3692	0.3692
		<b>Highest</b>	<b>0.8217</b>	<b>0.8217</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7277	1.9600e-003	0.1499	9.0000e-005		6.9400e-003	6.9400e-003		6.9400e-003	6.9400e-003	0.6383	0.4342	1.0725	1.2000e-003	4.0000e-005	1.1149
Energy	3.8100e-003	0.0339	0.0235	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	190.2903	190.2903	7.6200e-003	2.1200e-003	191.1123

Mobile	0.1081	0.5532	1.2727	3.5900e-003	0.2774	4.8200e-003	0.2822	0.0747	4.5500e-003	0.0792	0.0000	329.7519	329.7519	0.0149	0.0000	330.1247
Waste						0.0000	0.0000		0.0000	0.0000	25.1384	0.0000	25.1384	1.4856	0.0000	62.2793
Water						0.0000	0.0000		0.0000	0.0000	9.4374	47.5109	56.9483	0.9715	0.0233	88.1877
<b>Total</b>	<b>0.8396</b>	<b>0.5890</b>	<b>1.4461</b>	<b>3.8900e-003</b>	<b>0.2774</b>	<b>0.0144</b>	<b>0.2918</b>	<b>0.0747</b>	<b>0.0141</b>	<b>0.0888</b>	<b>35.2141</b>	<b>567.9874</b>	<b>603.2014</b>	<b>2.4808</b>	<b>0.0255</b>	<b>672.8189</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7277	1.9600e-003	0.1499	9.0000e-005		6.9400e-003	6.9400e-003		6.9400e-003	6.9400e-003	0.6383	0.4342	1.0725	1.2000e-003	4.0000e-005	1.1149
Energy	3.8100e-003	0.0339	0.0235	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	190.2903	190.2903	7.6200e-003	2.1200e-003	191.1123
Mobile	0.1081	0.5532	1.2727	3.5900e-003	0.2774	4.8200e-003	0.2822	0.0747	4.5500e-003	0.0792	0.0000	329.7519	329.7519	0.0149	0.0000	330.1247
Waste						0.0000	0.0000		0.0000	0.0000	25.1384	0.0000	25.1384	1.4856	0.0000	62.2793
Water						0.0000	0.0000		0.0000	0.0000	9.4374	47.5109	56.9483	0.9715	0.0233	88.1877
<b>Total</b>	<b>0.8396</b>	<b>0.5890</b>	<b>1.4461</b>	<b>3.8900e-003</b>	<b>0.2774</b>	<b>0.0144</b>	<b>0.2918</b>	<b>0.0747</b>	<b>0.0141</b>	<b>0.0888</b>	<b>35.2141</b>	<b>567.9874</b>	<b>603.2014</b>	<b>2.4808</b>	<b>0.0255</b>	<b>672.8189</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
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1	Site Preparation	Site Preparation	5/8/2019	5/10/2019	5	3
2	Grading	Grading	5/11/2019	5/20/2019	5	6
3	Building Construction	Building Construction	5/21/2019	3/23/2020	5	220

**Acres of Grading (Site Preparation Phase): 4.5**

**Acres of Grading (Grading Phase): 3**

**Acres of Paving: 0**

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	57.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Site Preparation - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0323	0.0179	4.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003	0.0000	3.3020	3.3020	1.0400e-003	0.0000	3.3281
<b>Total</b>	<b>2.6300e-003</b>	<b>0.0323</b>	<b>0.0179</b>	<b>4.0000e-005</b>	<b>2.3900e-003</b>	<b>1.2800e-003</b>	<b>3.6700e-003</b>	<b>2.6000e-004</b>	<b>1.1800e-003</b>	<b>1.4400e-003</b>	<b>0.0000</b>	<b>3.3020</b>	<b>3.3020</b>	<b>1.0400e-003</b>	<b>0.0000</b>	<b>3.3281</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0895	0.0895	0.0000	0.0000	0.0896
<b>Total</b>	<b>6.0000e-005</b>	<b>5.0000e-005</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0895</b>	<b>0.0895</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0896</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0323	0.0179	4.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003	0.0000	3.3020	3.3020	1.0400e-003	0.0000	3.3281
<b>Total</b>	<b>2.6300e-003</b>	<b>0.0323</b>	<b>0.0179</b>	<b>4.0000e-005</b>	<b>1.0700e-003</b>	<b>1.2800e-003</b>	<b>2.3500e-003</b>	<b>1.2000e-004</b>	<b>1.1800e-003</b>	<b>1.3000e-003</b>	<b>0.0000</b>	<b>3.3020</b>	<b>3.3020</b>	<b>1.0400e-003</b>	<b>0.0000</b>	<b>3.3281</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0895	0.0895	0.0000	0.0000	0.0896
<b>Total</b>	<b>6.0000e-005</b>	<b>5.0000e-005</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0895</b>	<b>0.0895</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0896</b>

**3.3 Grading - 2019**

**Unmitigated Construction On-Site**



Off-Road	6.0900e-003	0.0682	0.0305	6.0000e-005		3.2200e-003	3.2200e-003		2.9600e-003	2.9600e-003	0.0000	5.5554	5.5554	1.7600e-003	0.0000	5.5993
<b>Total</b>	<b>6.0900e-003</b>	<b>0.0682</b>	<b>0.0305</b>	<b>6.0000e-005</b>	<b>8.8500e-003</b>	<b>3.2200e-003</b>	<b>0.0121</b>	<b>4.5500e-003</b>	<b>2.9600e-003</b>	<b>7.5100e-003</b>	<b>0.0000</b>	<b>5.5554</b>	<b>5.5554</b>	<b>1.7600e-003</b>	<b>0.0000</b>	<b>5.5993</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.2000e-004	1.1700e-003	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2238	0.2238	1.0000e-005	0.0000	0.2240
<b>Total</b>	<b>1.6000e-004</b>	<b>1.2000e-004</b>	<b>1.1700e-003</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.2238</b>	<b>0.2238</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2240</b>

### 3.4 Building Construction - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2059	1.5223	1.2280	2.0100e-003		0.0878	0.0878		0.0841	0.0841	0.0000	168.8522	168.8522	0.0351	0.0000	169.7304
<b>Total</b>	<b>0.2059</b>	<b>1.5223</b>	<b>1.2280</b>	<b>2.0100e-003</b>		<b>0.0878</b>	<b>0.0878</b>		<b>0.0841</b>	<b>0.0841</b>	<b>0.0000</b>	<b>168.8522</b>	<b>168.8522</b>	<b>0.0351</b>	<b>0.0000</b>	<b>169.7304</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-003	0.2346	0.0622	4.8000e-004	0.0115	1.8300e-003	0.0133	3.3200e-003	1.7500e-003	5.0700e-003	0.0000	45.8086	45.8086	3.0400e-003	0.0000	45.8846
Worker	0.0238	0.0180	0.1785	3.8000e-004	0.0360	3.0000e-004	0.0363	9.5900e-003	2.8000e-004	9.8700e-003	0.0000	34.2293	34.2293	1.3900e-003	0.0000	34.2640
<b>Total</b>	<b>0.0327</b>	<b>0.2526</b>	<b>0.2407</b>	<b>8.6000e-004</b>	<b>0.0475</b>	<b>2.1300e-003</b>	<b>0.0496</b>	<b>0.0129</b>	<b>2.0300e-003</b>	<b>0.0149</b>	<b>0.0000</b>	<b>80.0379</b>	<b>80.0379</b>	<b>4.4300e-003</b>	<b>0.0000</b>	<b>80.1487</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2059	1.5223	1.2280	2.0100e-003		0.0878	0.0878		0.0841	0.0841	0.0000	168.8520	168.8520	0.0351	0.0000	169.7302
<b>Total</b>	<b>0.2059</b>	<b>1.5223</b>	<b>1.2280</b>	<b>2.0100e-003</b>		<b>0.0878</b>	<b>0.0878</b>		<b>0.0841</b>	<b>0.0841</b>	<b>0.0000</b>	<b>168.8520</b>	<b>168.8520</b>	<b>0.0351</b>	<b>0.0000</b>	<b>169.7302</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
	Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-003	0.2346	0.0622	4.8000e-004	0.0115	1.8300e-003	0.0133	3.3200e-003	1.7500e-003	5.0700e-003	0.0000	45.8086	45.8086	3.0400e-003	0.0000	45.8846
Worker	0.0238	0.0180	0.1785	3.8000e-004	0.0360	3.0000e-004	0.0363	9.5900e-003	2.8000e-004	9.8700e-003	0.0000	34.2293	34.2293	1.3900e-003	0.0000	34.2640
<b>Total</b>	<b>0.0327</b>	<b>0.2526</b>	<b>0.2407</b>	<b>8.6000e-004</b>	<b>0.0475</b>	<b>2.1300e-003</b>	<b>0.0496</b>	<b>0.0129</b>	<b>2.0300e-003</b>	<b>0.0149</b>	<b>0.0000</b>	<b>80.0379</b>	<b>80.0379</b>	<b>4.4300e-003</b>	<b>0.0000</b>	<b>80.1487</b>

### 3.4 Building Construction - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0675	0.5143	0.4395	7.4000e-004		0.0280	0.0280		0.0268	0.0268	0.0000	61.2551	61.2551	0.0124	0.0000	61.5659
<b>Total</b>	<b>0.0675</b>	<b>0.5143</b>	<b>0.4395</b>	<b>7.4000e-004</b>		<b>0.0280</b>	<b>0.0280</b>		<b>0.0268</b>	<b>0.0268</b>	<b>0.0000</b>	<b>61.2551</b>	<b>61.2551</b>	<b>0.0124</b>	<b>0.0000</b>	<b>61.5659</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5500e-003	0.0779	0.0197	1.7000e-004	4.2100e-003	4.1000e-004	4.6200e-003	1.2200e-003	4.0000e-004	1.6100e-003	0.0000	16.7091	16.7091	1.0200e-003	0.0000	16.7347

Worker	8.0200e-003	5.8300e-003	0.0586	1.3000e-004	0.0132	1.1000e-004	0.0133	3.5100e-003	1.0000e-004	3.6100e-003	0.0000	12.1566	12.1566	4.5000e-004	0.0000	12.1678
<b>Total</b>	<b>0.0106</b>	<b>0.0837</b>	<b>0.0782</b>	<b>3.0000e-004</b>	<b>0.0174</b>	<b>5.2000e-004</b>	<b>0.0179</b>	<b>4.7300e-003</b>	<b>5.0000e-004</b>	<b>5.2200e-003</b>	<b>0.0000</b>	<b>28.8657</b>	<b>28.8657</b>	<b>1.4700e-003</b>	<b>0.0000</b>	<b>28.9025</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0675	0.5143	0.4395	7.4000e-004		0.0280	0.0280		0.0268	0.0268	0.0000	61.2550	61.2550	0.0124	0.0000	61.5658
<b>Total</b>	<b>0.0675</b>	<b>0.5143</b>	<b>0.4395</b>	<b>7.4000e-004</b>		<b>0.0280</b>	<b>0.0280</b>		<b>0.0268</b>	<b>0.0268</b>	<b>0.0000</b>	<b>61.2550</b>	<b>61.2550</b>	<b>0.0124</b>	<b>0.0000</b>	<b>61.5658</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5500e-003	0.0779	0.0197	1.7000e-004	4.2100e-003	4.1000e-004	4.6200e-003	1.2200e-003	4.0000e-004	1.6100e-003	0.0000	16.7091	16.7091	1.0200e-003	0.0000	16.7347
Worker	8.0200e-003	5.8300e-003	0.0586	1.3000e-004	0.0132	1.1000e-004	0.0133	3.5100e-003	1.0000e-004	3.6100e-003	0.0000	12.1566	12.1566	4.5000e-004	0.0000	12.1678
<b>Total</b>	<b>0.0106</b>	<b>0.0837</b>	<b>0.0782</b>	<b>3.0000e-004</b>	<b>0.0174</b>	<b>5.2000e-004</b>	<b>0.0179</b>	<b>4.7300e-003</b>	<b>5.0000e-004</b>	<b>5.2200e-003</b>	<b>0.0000</b>	<b>28.8657</b>	<b>28.8657</b>	<b>1.4700e-003</b>	<b>0.0000</b>	<b>28.9025</b>

**4.0 Operational Detail - Mobile**

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1081	0.5532	1.2727	3.5900e-003	0.2774	4.8200e-003	0.2822	0.0747	4.5500e-003	0.0792	0.0000	329.7519	329.7519	0.0149	0.0000	330.1247
Unmitigated	0.1081	0.5532	1.2727	3.5900e-003	0.2774	4.8200e-003	0.2822	0.0747	4.5500e-003	0.0792	0.0000	329.7519	329.7519	0.0149	0.0000	330.1247

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	9.93	2.21	0.95	18,024	18,024
Condo/Townhouse	81.34	79.38	67.76	182,736	182,736
Unrefrigerated Warehouse-No Rail	187.24	187.24	187.24	546,649	546,649
<b>Total</b>	<b>278.51</b>	<b>268.83</b>	<b>255.95</b>	<b>747,409</b>	<b>747,409</b>

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190

Condo/Townhouse	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190
Unrefrigerated Warehouse-No Rail	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	152.5549	152.5549	6.9000e-003	1.4300e-003	153.1526
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	152.5549	152.5549	6.9000e-003	1.4300e-003	153.1526
NaturalGas Mitigated	3.8100e-003	0.0339	0.0235	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7354	37.7354	7.2000e-004	6.9000e-004	37.9597
NaturalGas Unmitigated	3.8100e-003	0.0339	0.0235	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7354	37.7354	7.2000e-004	6.9000e-004	37.9597

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	262122	1.4100e-003	0.0121	5.1400e-003	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	13.9878	13.9878	2.7000e-004	2.6000e-004	14.0710
General Office Building	14733	8.0000e-005	7.2000e-004	6.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7862	0.7862	2.0000e-005	1.0000e-005	0.7909

Unrefrigerated Warehouse-No	430280	2.3200e-003	0.0211	0.0177	1.3000e-004	1.6000e-003	1.6000e-003	1.6000e-003	1.6000e-003	1.6000e-003	0.0000	22.9614	22.9614	4.4000e-004	4.2000e-004	23.0978
<b>Total</b>		<b>3.8100e-003</b>	<b>0.0339</b>	<b>0.0235</b>	<b>2.1000e-004</b>	<b>2.6300e-003</b>	<b>2.6300e-003</b>	<b>2.6300e-003</b>	<b>2.6300e-003</b>	<b>2.6300e-003</b>	<b>0.0000</b>	<b>37.7354</b>	<b>37.7354</b>	<b>7.3000e-004</b>	<b>6.9000e-004</b>	<b>37.9597</b>

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	262122	1.4100e-003	0.0121	5.1400e-003	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	13.9878	13.9878	2.7000e-004	2.6000e-004	14.0710
General Office Building	14733	8.0000e-005	7.2000e-004	6.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7862	0.7862	2.0000e-005	1.0000e-005	0.7909
Unrefrigerated Warehouse-No	430280	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003	0.0000	22.9614	22.9614	4.4000e-004	4.2000e-004	23.0978
<b>Total</b>		<b>3.8100e-003</b>	<b>0.0339</b>	<b>0.0235</b>	<b>2.1000e-004</b>		<b>2.6300e-003</b>	<b>2.6300e-003</b>		<b>2.6300e-003</b>	<b>2.6300e-003</b>	<b>0.0000</b>	<b>37.7354</b>	<b>37.7354</b>	<b>7.3000e-004</b>	<b>6.9000e-004</b>	<b>37.9597</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	70636	20.5488	9.3000e-004	1.9000e-004	20.6293
General Office Building	16047	4.6683	2.1000e-004	4.0000e-005	4.6866
Unrefrigerated Warehouse-No	437720	127.3378	5.7600e-003	1.1900e-003	127.8367
<b>Total</b>		<b>152.5549</b>	<b>6.9000e-003</b>	<b>1.4200e-003</b>	<b>153.1526</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	70636	20.5488	9.3000e-004	1.9000e-004	20.6293
General Office Building	16047	4.6683	2.1000e-004	4.0000e-005	4.6866
Unrefrigerated Warehouse-No	437720	127.3378	5.7600e-003	1.1900e-003	127.8367
<b>Total</b>		<b>152.5549</b>	<b>6.9000e-003</b>	<b>1.4200e-003</b>	<b>153.1526</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7277	1.9600e-003	0.1499	9.0000e-005		6.9400e-003	6.9400e-003		6.9400e-003	6.9400e-003	0.6383	0.4342	1.0725	1.2000e-003	4.0000e-005	1.1149
Unmitigated	0.7277	1.9600e-003	0.1499	9.0000e-005		6.9400e-003	6.9400e-003		6.9400e-003	6.9400e-003	0.6383	0.4342	1.0725	1.2000e-003	4.0000e-005	1.1149

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0778					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6143					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0323	7.4000e-004	0.0445	9.0000e-005		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.6383	0.2622	0.9004	1.0300e-003	4.0000e-005	0.9385
Landscaping	3.2800e-003	1.2200e-003	0.1055	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1720	0.1720	1.7000e-004	0.0000	0.1763
<b>Total</b>	<b>0.7277</b>	<b>1.9600e-003</b>	<b>0.1499</b>	<b>1.0000e-004</b>		<b>6.9400e-003</b>	<b>6.9400e-003</b>		<b>6.9400e-003</b>	<b>6.9400e-003</b>	<b>0.6383</b>	<b>0.4342</b>	<b>1.0725</b>	<b>1.2000e-003</b>	<b>4.0000e-005</b>	<b>1.1149</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0778					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6143					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0323	7.4000e-004	0.0445	9.0000e-005		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.6383	0.2622	0.9004	1.0300e-003	4.0000e-005	0.9385
Landscaping	3.2800e-003	1.2200e-003	0.1055	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1720	0.1720	1.7000e-004	0.0000	0.1763
<b>Total</b>	<b>0.7277</b>	<b>1.9600e-003</b>	<b>0.1499</b>	<b>1.0000e-004</b>		<b>6.9400e-003</b>	<b>6.9400e-003</b>		<b>6.9400e-003</b>	<b>6.9400e-003</b>	<b>0.6383</b>	<b>0.4342</b>	<b>1.0725</b>	<b>1.2000e-003</b>	<b>4.0000e-005</b>	<b>1.1149</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	56.9483	0.9715	0.0233	88.1877
Unmitigated	56.9483	0.9715	0.0233	88.1877

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.912156 / 0.575055	2.3108	0.0298	7.2000e-004	3.2709
General Office Building	0.15996 / 0.0980402	0.4024	5.2300e-003	1.3000e-004	0.5707
Unrefrigerated Warehouse-No Pail	28.675 / 0	54.2352	0.9364	0.0225	84.3461
<b>Total</b>		<b>56.9483</b>	<b>0.9715</b>	<b>0.0233</b>	<b>88.1877</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.912156 / 0.575055	2.3108	0.0298	7.2000e-004	3.2709
General Office Building	0.15996 / 0.0980402	0.4024	5.2300e-003	1.3000e-004	0.5707
Unrefrigerated Warehouse-No Pail	28.675 / 0	54.2352	0.9364	0.0225	84.3461
<b>Total</b>		<b>56.9483</b>	<b>0.9715</b>	<b>0.0233</b>	<b>88.1877</b>

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	25.1384	1.4856	0.0000	62.2793
Unmitigated	25.1384	1.4856	0.0000	62.2793

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
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Land Use	tons	MT/yr			
Condo/Townhouse	6.44	1.3073	0.0773	0.0000	3.2387
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Unrefrigerated Warehouse-No	116.56	23.6606	1.3983	0.0000	58.6182
<b>Total</b>		<b>25.1384</b>	<b>1.4856</b>	<b>0.0000</b>	<b>62.2793</b>

### Mitigated

Land Use	Waste Disposed tons	Total CO2	CH4	N2O	CO2e
		MT/yr			
Condo/Townhouse	6.44	1.3073	0.0773	0.0000	3.2387
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Unrefrigerated Warehouse-No	116.56	23.6606	1.3983	0.0000	58.6182
<b>Total</b>		<b>25.1384</b>	<b>1.4856</b>	<b>0.0000</b>	<b>62.2793</b>

## 9.0 Operational Offroad

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

### Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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## **APPENDIX B**

Biological Resources Assessment 4224 Highway 12

# MEMO

To:

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From:

Lee Miles, Wildlife Biologist

Date:

March 31, 2019

Arcadis Project No.:

RV009362.0003

Subject:

Revised Biological Resource and Habitat Assessment 4224 Highway 12,  
Santa Rosa, Sonoma County, California

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This memorandum summarizes the biological resources and habitat assessment for the proposed Santa Rosa Recess Project located at 4224 Highway 12, Santa Rosa, Sonoma County, California (Figure 1). The purpose of the analysis is to provide a description of the existing biological resources at the proposed Project site and to identify any potentially significant impacts that could occur to sensitive biological resources from the construction and operation of the proposed storage facility and residential development.

Potential biological resources include common plant and wildlife species and special status plants and animals designated by U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), California Native Plant Society (CNPS), and waters of the U.S. and State regulated by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW.

This evaluation of biological resources in the Project area is based on technical research; field surveys; aerial photograph interpretation; and database review of special-status plants and wildlife, vegetation communities, wildlife habitat, and jurisdictional waters of the U.S. and waters of the State that occur in the Project vicinity.

## PROPOSED PROJECT

American Recess Development Company (ARDC) proposed to construct a 124,000 square foot storage facility and up to 18 single-family homes on approximately 2.68 acres at 4224 Highway 12 in unincorporated Sonoma County. The proposed storage facility will be four stories with each floor comprising approximately 31,000 square feet for a total area of 124,000 square feet. The storage facility will have a 900 square foot office located on the southwestern side of the facility. Up to 18 residential homes will be constructed. Residences will vary in size from approximately 854 square feet to 1,407 square feet. Each home will be two or three-stories, include a covered parking area for one car, and a yard area. Seventeen guest parking spaces will be provided throughout the site and some spaces may be in tandem with the covered spaces for the unit. Construction of the residences would include installation of utility connections including water, sewer, electricity, and natural gas.

## METHODS

### Desktop Analysis and Site Reconnaissance

Arcadis wildlife biologist Lee Miles conducted a reconnaissance-level site visit on April 20, 2018. Prior to conducting the site visit, a desktop analysis was conducted. The California Natural Diversity Database (CNDDB) was queried for the Santa Rosa U.S. Geological Survey 7.5-minute quadrangle for special status species with known occurrences within the vicinity of the Project site. The USFWS's Information for Planning and Consultation (IPac) was queried for the Project parcel to obtain an unofficial USFWS species list. And the CNPS Rare Plant Inventory was queried for the Santa Rosa quadrangle for rare plants with potential to occur within the vicinity of the Project. The National Wetlands Inventory (NWI) was queried to understand the potential for wetlands or waters of the U.S. to occur on the Project site. The results of the queries are provided as attachments to this memorandum.

For the purposes of this document, special status are plants or animals that are legally protected under the following:

- Plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- Plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);
- Plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;
- Plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2001). The California Department of Fish and Wildlife recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFW requests their inclusion in CEQA documents;
- Nesting and breeding birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CDGC) 3501;
- Animals that are designated as "species of special concern" by the CDFW (2014);
- Animal species that are "fully protected" in CDFCs 3511, 4700, 5050, and 5515).

## MEMO

Table 1 summarizes the results of the CNDDDB and CNPS database query. A total of 11 species have potential to occur within the vicinity of the Project site according to the query. Because of past and current land use at the site, including a former walnut orchard and burning of refuse and debris, there is low potential for sensitive plants to occur. The Project site is not within designated critical habitat for California tiger salamander and California red-legged frog.

Table 1 Special Status Species Potential to Occur

Common Name	Scientific Name	Status	Blooming Period	Preferred Habitat	Potential to Occur	
<b>Plants</b>						
Sonoma sunshine	<i>Blennosperma bakeri</i>	1B.1	February-April	Valley and foothill grassland, vernal pools	Low	Project area does not provide suitable habitat
Congested-headed hayfield tarplant	<i>Hemizonia congesta</i> ssp. <i>Congesta</i>	1B.2	April-November	Valley and foothill grassland	Low	Project area does not provide suitable habitat
Lasthenia burkei	<i>Burke's goldfields</i>	1B.1	April-June	Meadows and seeps	Low	Project area does not provide suitable habitat
Baker's navarretia	<i>Navarretia leucocephala</i> ssp. <i>Bakeri</i>	1B.1	May-July	Cismontane woodland, lower montane coniferous forest, valley and foothill grassland, vernal pools	Low	Because of past land use, the Project area does not provide suitable habitat
Narrow-anthered California brodiaea	<i>Brodiaea leptandra</i>	1B.2	May-July	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland	Low	Because of past land use, the Project area does not provide suitable habitat. Known habitat for this species occurs over 0.25 miles to the southeast near
Rincon Ridge Manzanita	<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	1B.1	February-April	Chaparral and cismontane woodland	Low	Project area does not provide suitable habitat. Known from only 10 occurrences in Napa and Sonoma County.
<b>Amphibians/Reptiles</b>						

MEMO

California tiger salamander	<i>Ambystoma californiense</i>	FT/ST		Vernal pools or seasonal ponds or for breeding and upland refugia including ground squirrel burrows	Low	No upland aestivation habitat was observed during site visit. There is no suitable aquatic habitat within migratory distance from the Project site
California red-legged frog	<i>Rana draytonii</i>	FT/CSC		Stock ponds, pools, and slow-moving streams.	Low	No upland aestivation habitat was observed during site visit. There is no suitable aquatic habitat within migratory distance from the Project site
California giant salamander	<i>Dicamptodon ensatus</i>	CSC		wet coastal forests near streams or seeps. Cold, clear streams with rocks or logs	Low	No suitable habitat within the vicinity of the Project.
Western pond turtle	<i>Emys marmorata</i>	CSC		Slow moving streams and ponds with logs or rocks for basking	Low	There are no aquatic features within the Project boundary. Closest known occurrence is approximately 0.25 miles to the south.
<b>Birds</b>						
White tailed kite	<i>Elanus leucurus</i>	FP		Found in lower foothills and valleys with scattered oaks and adjacent to streams.	Low	While there are scattered oaks on-site, higher quality habitat occurs offsite. No kite nests were observed during site visit.

Status:

FE - Federal Endangered  
 FT - Federal Threatened  
 FPE - Federal Proposed Endangered  
 FPT - Federal Proposed Threatened  
 FC - Federal Candidate

CE - California Endangered  
 CT - California Threatened  
 CR - California Rare  
 CC - California Candidate Species  
 CSC - California Species of Special Concern  
 FP - California Fully Protected

## Project Site Survey

Ms. Miles surveyed the Project site on foot with special focus on identification of habitat that could support special status plants or wildlife. Both the Project parcel and adjacent areas were surveyed including the Santa Rosa Creek Trail located to the east of the Project site. No protocol-level or focused surveys for plants or wildlife were conducted. An arborist survey was conducted and is provided under separate cover.

## RESULTS

### Soils

Soils at the Project site are mapped as Yolo clay loam, 0 to 5 percent slopes. This soil is well-drained and generally found at elevations from 0 to 360 above sea level. Mean annual precipitation is 28 to 41 inches and Yolo clay loam is typically found within alluvial fans.

### Topography and Hydrology

The parcel is generally flat with a 10-foot elevational drop at the northeastern portion of the site. The site was previously used as a walnut orchard and has been subjected to human-derived disturbance with may have altered the topography. There was no evidence of surface hydrology, ponding or vernal pools.

### Plant Communities and Habitats

The habitat at the site is dominated by non-native grasses and herbaceous vegetation resulting from past disturbance and use as an orchard. Species observed included ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), slender wild oat (*Avena barbata*), Mediterranean barley (*Hordeum marinum*), broadleaf filaree (*Erodium botrys*), prickly lettuce (*Lactuca serriola*), bristly ox-tongue (*Helminthotheca echioides*), Himalayan blackberry (*Rubus armeniacus*), and birdfoot trefoil (*Lotus corniculatus*). Several native trees occur on site including western sycamore (*Plantanus racemose*), Coast live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*). Species expected to occur within these habitats are those adapted to ruderal vegetation communities and human-induced habitat disturbance including blacktailed deer (*Odocoileus hemonius*), Virginia opossum (*Didelphis marsupialis*) raccoon (*Procyon lotor*), and birds and raptors. The mature trees on site provide suitable nesting for birds and raptors although no nests were observed during the April 20, 2018 survey. Species observed onsite include blacktailed deer, black phoebe (*Sayornis nigricans*) and common crow (*Corvus brachyrhyncos*).

### Waters of the U.S./Waters of the State

The NWI database did not indicate the potential for wetlands or potential waters of the U.S./waters of the State to occur within the Project boundary (Figure 2). The reconnaissance site visit determined that the Project parcel does not contain any waters of the U.S. or waters of the State. No surface water features were observed. The nearest surface water is Santa Rosa Creek located approximately 200 feet to the east and beyond the boundaries of the Project.

### Special Status Species

Because of the past land use at the site, including the former walnut orchard, no formal rare plant surveys were conducted. Because of access issues, the adjacent parcel was surveyed from the perimeter of the parcel. However, this parcel has been developed with existing businesses and the site provides no habitat for plants or animals. The reconnaissance site visit did not reveal the presence of habitats or conditions to support sensitive plants. Currently, the site was dominated by ruderal and non-native herbaceous vegetation. Sensitive plant species identified in Table 1 have low potential to occur and have specific habitat requirements such as meadows, seeps, or vernal pools which are not present within the Project boundary. At the time of the April 20, 2018 survey, evidence of refuse and debris burning was observed on-site providing further likelihood that the site does not provide suitable habitat for special status plants.

### Special Status Wildlife

#### California tiger salamander

California tiger salamanders (*Ambystoma californiense*) occur in grasslands and open oak woodlands that provide suitable aestivation and breeding habitats. California tiger salamanders spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. In Sonoma County, California tiger salamander emerge during the first heavy, warm rains of the year, typically in late November and early December. California tiger salamander typically will migrate to their breeding pools after dark during rainfall. During the spring, summer, and fall months, most known populations of the California tiger salamander throughout this species range in California predominately use California ground squirrel (*Spermophilus beechyi*) burrows. Where ground squirrel burrows are scarce, salamanders will use burrows or holes of other small burrowing mammals or crevices or cracks in upland habitat. Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by California tiger salamander. In such locations, California tiger salamander attach their eggs to rooted, emergent vegetation, and other stable objects in the water. California tiger salamanders have been known to breed in slow moving streams where there is sufficient material for eggs to adhere.

The Project site does not occur within designated critical habitat for California tiger. Aquatic habitat provided by Santa Rosa Creek does not provide suitable breeding habitat for California tiger salamander because flows with Santa Rosa Creek in the vicinity of the Project site are too high for sustainable breeding to occur. The Project site does not provide suitable upland aestivation habitat for California tiger salamander. No burrows, holes, crevices or other subterranean habitat was observed during the April 2018 site visit.

#### California red-legged frog

The California red-legged frog (*Rana draytonii*) is federally listed as threatened (Federal Register, 1996), and is a California species of special concern. The USFWS issued a revised critical habitat designation for the California red-legged frog on March 17, 2010. The Project area does not fall within critical habitat for California red-legged frog.

Historically, the California red-legged frog occurred in coastal mountains from Marin County southward to northern Baja California, and along the floor and foothills of the Central Valley from about Shasta County southward to Kern County (Jennings et al., 1992). Currently, this subspecies generally only occurs in the coastal portions of its historical range; it has been apparently extirpated from the valley and foothills and

from most of Southern California south of Ventura County. California red-legged frogs are usually confined to aquatic habitats such as creeks, streams, and ponds, and occur primarily in areas having pools approximately 3 feet deep, with adjacent dense emergent or riparian vegetation. Adult frogs move seasonally between their egg-laying sites and foraging habitat, but they typically do not move large distances from their aquatic habitat. California red-legged frogs breed from November to March. Egg masses are attached to emergent vegetation and hatch within approximately 14 days. Metamorphosis generally occurs between July and September.

No suitable aquatic or upland aestivation habitat occurs within the Project boundary. Santa Rosa Creek, located approximately 200 feet to the west, may provide suitable aquatic habitat but there are no known occurrences of California red-legged frogs within the vicinity of this reach (CNDDDB 2018).

### **Western Pond Turtle**

The Western pond turtle (*Emys marmorata*) is a California species of special concern. Historically, this turtle had a relatively continuous distribution in most Pacific slope drainages from Klickitat County, Washington, along the Columbia River to Arroyo Santo Domingo, northern Baja California, and Mexico. The known elevational range of the western pond turtle extends from near sea level to about 4,690 feet above sea level. In California, western pond turtles were historically present in most Pacific slope drainages between the Oregon and Mexican borders (Jennings and Hayes, 1994).

Western pond turtle is an aquatic turtle that is found in ponds, lakes, and slow-water streams. Pond turtles are uncommon in high-gradient streams, likely because their local distribution may be limited by water temperatures, current velocity, or food resources. Western pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks (Jennings and Hayes 1994). Habitat quality seems to vary with the availability of aerial and aquatic basking sites; however, western pond turtles often reach higher densities where many aerial and aquatic basking sites are available. Hatchlings require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western pond turtles also require an upland oviposition site in the vicinity of the aquatic site. Suitable oviposition sites must have the proper thermal and hydraulic environment for incubation of the eggs. The thin-shelled eggs of these turtles are suited to development in a dry nest; in an excessively moist nest (irrigated areas), eggs have a high probability of failing. Nests are typically located on a slope that is unshaded to ensure that substrate temperatures would be high enough to incubate the eggs.

Western pond turtles leave the aquatic site to reproduce, aestivate, and overwinter. Western pond turtles may overwinter on land or in water or may remain active in water during the winter season (Jennings and Hayes 1994). Mating, which has been rarely observed, typically occurs in late April or early May, but may occur year-round. Females migrate from the aquatic site to an upland location and deposit from 1 to 13 eggs in a shallow excavation. Females may lay more than one clutch per year, usually during May and June, although some individuals may deposit eggs as early as late April and as late as early August (Jennings and Hayes, 1994).

No suitable aquatic habitat occurs on site and western pond turtle is not expected to occur within the Project boundary. Santa Rosa Creek may provide low-quality pond turtle habitat occurs approximately 200 feet to the west of the Project site. The flow within this reach of the Creek likely provides limited pond

turtle habitat. The nearest known occurrence of Western pond turtle occurs to the southwest of the Project site at the confluence of Santa Rosa Creek and Brush Creek (CNDDDB 2018).

### **Nesting Birds and Raptors**

The Project site native and non-native trees and shrubs that may provide suitable nesting habitat for passerine species and small raptors. No nests or nesting behavior was observed during the April 20, 2018 site visit. Larger raptors, such as red-tailed hawk (*Buteo jamacaicens*), may use the Project site for foraging but are unlikely to nest within the Project boundary because more suitable habitat occurs in the open space areas outside of the Project boundary.

## **CONCLUSIONS**

Based on information from the CNDDDB, CNPS, NWI, iPac databases and the April 20, 2018 site visit, there is low potential for special status species to occur on the Project site. The site does not provide suitable habitat for CTS, CRLF, or Western pond turtle as described in this memorandum. Therefore, impacts on special status species are not anticipated to be less than significant and no mitigation measures are proposed.

The site does not provide suitable habitat for rare plants and no impacts on sensitive plants are anticipated. The native and non-native trees, shrubs, and herbaceous vegetation does provide potential suitable nesting habitat for birds and raptors. While no nests were observed during the April 20, 2018 site visit, the potential for nesting birds is high. Without mitigation to reduce the potential for impacts on nesting and breeding birds protected under MBTA and CFGC 3503 could be significant. However, the following mitigation measures are recommended to reduce potential impacts on nesting and breeding birds to less than significant.

### **Mitigation Measure 1: Preconstruction Nesting Bird Surveys**

In order to avoid impacts to nesting birds, Project activities shall occur outside of the peak avian breeding season which runs from February 1 through September 1. If Project construction is necessary during the bird breeding season, a qualified biologist with experience in conducting bird breeding surveys shall conduct weekly bird surveys for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the Project area would be impacted by the Project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 200 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No Project construction shall occur within the fenced nest zone until the young have fledged. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors and if buffer reduction is necessary, coordination with CDFW will occur.

### **Mitigation Measure 2: Non-nesting Season Vegetation Removal**

Vegetation removal would occur outside of the typical nesting season for birds and raptors within the Project vicinity generally September 1 to February 1. Prior to vegetation removal, Mitigation Measure 1 would be implemented. If nests are observed during the survey, no vegetation removal shall occur until young have fledged.

## REFERENCES

California Department of Fish and Wildlife. 2018. California Natural Diversity Database (CNDDDB), RareFind5, California Department of Fish and Wildlife Sacramento. Santa Rosa U.S. Geological Survey 7.5-minute quadrangle. Accessed June 2018.

California Native Plant Society Rare Plant Program, 2018. Inventory of Rare and Endangered Plants of California. Online addition. Website <http://www.rareplants.cnps.org>. Accessed June 2018.

California Native Plant Society. Inventory of Rare Plants.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game. Rancho Cordova.

Natural Resources Conservation Service. 2018. Web Soil Survey. <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed June 2018.

Stebbins, R.C. 1972. California amphibians and reptiles. University of California Press, Berkeley, CA.

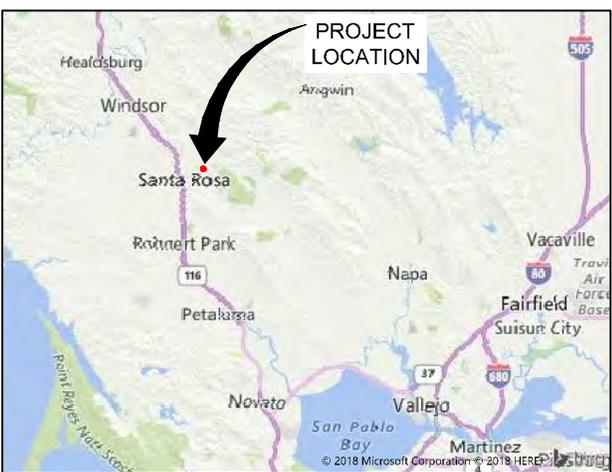
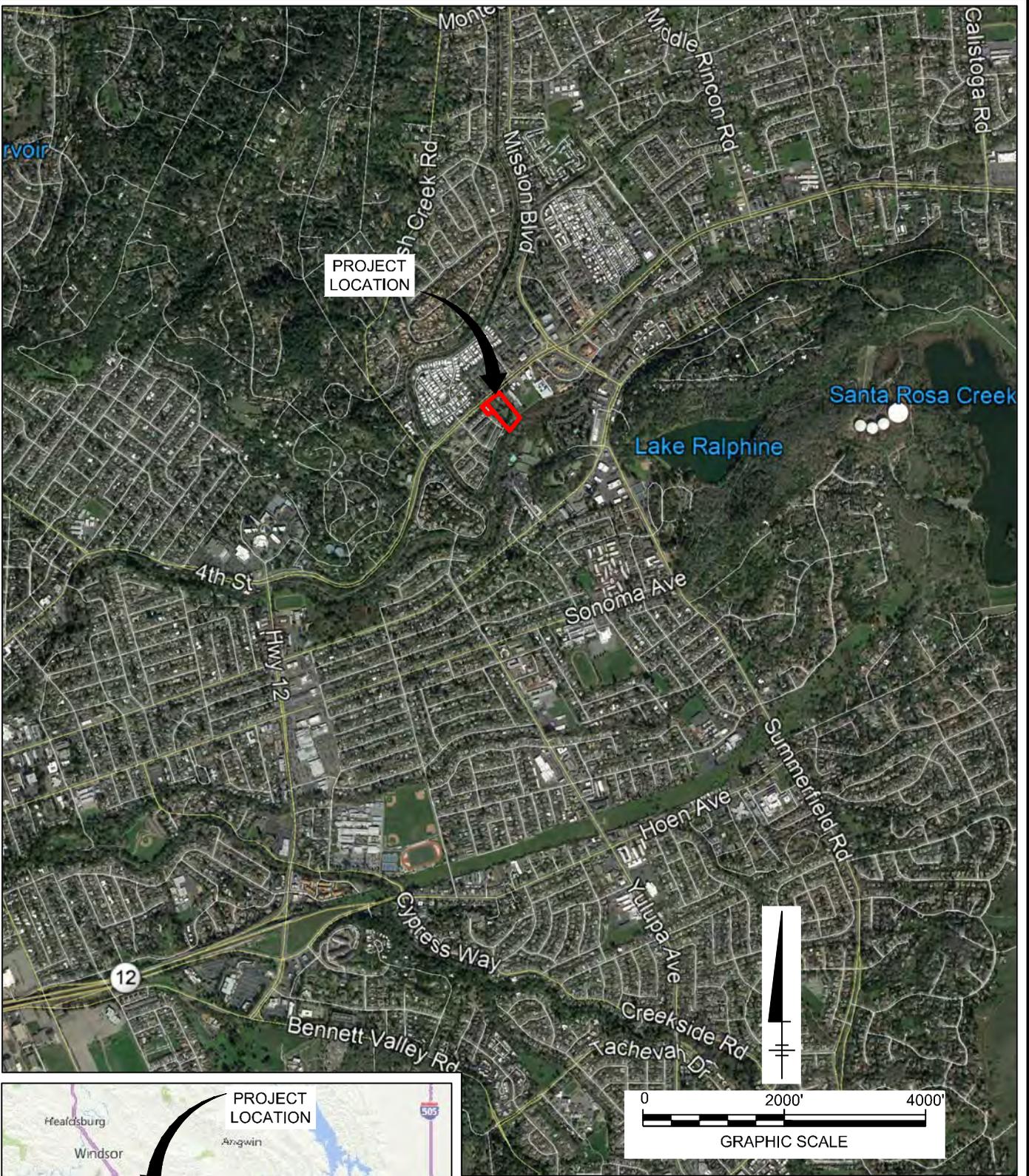
U.S. Department of Agriculture. 2018. Web Soil Survey. Natural Resources Conservation Service. Accessed at <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

U.S. Fish and Wildlife Service. National Wetlands Inventory. 2018. Website: <https://www.fws.gov/wetlands/Data/Mapper.html>. Accessed June 2018.

U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation (iPaC) Species List for the Santa Rosa U.S.G.S. 7.5 Minute Quadrangle. Accessed June 2018.

## REPORT PREPARERS

Lee Miles, AICP is a terrestrial biologist and certified planner with over 18 years of environmental compliance experience in California specializing in linear projects, pipelines, and infrastructure. She has conducted biological surveys for California tiger salamander, California red-legged frog, Foothill yellow-legged frog, San Joaquin kit fox, salt marsh harvest mouse, and nesting birds and raptors. She has conducted wetland delineations in a variety of habitats throughout Northern and Central California. She leads Arcadis's California Environmental Permitting team and her experience also includes developing and managing the preparation of California Environmental Quality Act (CEQA) documents for including initial studies, mitigated negative declarations, Environmental Impact Reports, Mitigation, Monitoring and Reporting Plans, and addendums and CEQA Plus documents. Ms. Miles has extensive experience obtaining regulatory authorizations from U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW). She provides expertise with Clean Water Act Section 404, 401, Endangered Species Act Section 7, 9 and 10, and California Fish and Game Code 1602, 2081, 2080.1 (b)(c). She has prepared Biological Assessments for California red-legged frog, California tiger salamander, San Joaquin kit fox, salt marsh harvest mouse, San Francisco garter snake, Alameda whipsnake, and migratory salmonids.



4224 HIGHWAY 12  
SANTA ROSA, CALIFORNIA

### SITE LOCATION MAP



March 23, 2018

**Wetlands**

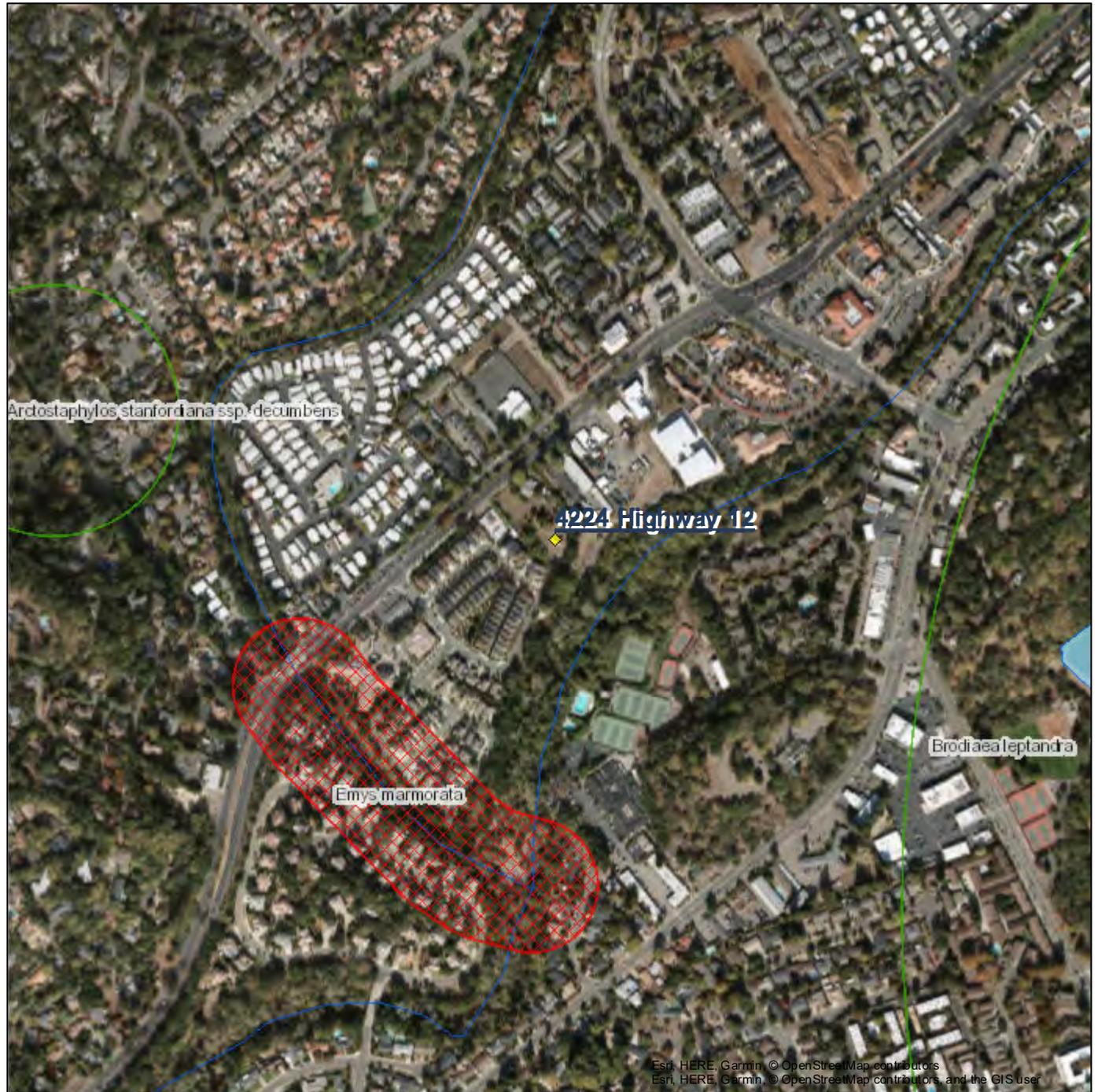
- |   |                                |   |                                   |   |          |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland       |  | Lake     |
|  | Estuarine and Marine Wetland   |  | Freshwater Forested/Shrub Wetland |  | Other    |
|   |                                |  | Freshwater Pond                   |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

# 4224 Hwy 12 Bios Map

## California Natural Diversity Database (CNDDDB) Commercial [ds85]

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)





# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Query Criteria: Quad<span style='color: Red;'> IS </span>(Santa Rosa (3812246))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	85 120	1177 S:28	4	6	8	3	1	6	0	28	27	1	0
<i>Amorpha californica var. napensis</i> Napa false indigo	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	700 700	69 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		86 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	G2 S2	None None		90 90	15 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Arctostaphylos stanfordiana ssp. decumbens</i> Rincon Ridge manzanita	G3T1 S1	None None	Rare Plant Rank - 1B.1	300 800	12 S:4	0	0	1	1	1	1	2	2	3	0	1
<i>Astragalus claranus</i> Clara Hunt's milk-vetch	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	770 770	6 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	890 1,230	50 S:2	2	0	0	0	0	0	2	0	2	0	0
<i>Blennosperma bakeri</i> Sonoma sunshine	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	90 105	25 S:6	0	4	1	0	1	0	1	5	5	1	0
<i>Bombus caliginosus</i> obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	150 150	181 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Bombus occidentalis</i> western bumble bee	G2G3 S1	None None	USFS_S-Sensitive XERCES_IM-Imperiled	100 100	282 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Brodiaea leptandra</i> narrow-anthered brodiaea	G3? S3?	None None	Rare Plant Rank - 1B.2		39 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	G1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	510 800	33 S:2	0	0	1	0	0	1	1	1	2	0	0



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Ceanothus divergens</i> Calistoga ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	800 800	23 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Ceanothus purpureus</i> holly-leaved ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2	475 475	43 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Ceanothus sonomensis</i> Sonoma ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2	475 475	30 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Coturnicops noveboracensis</i> yellow rail	G4 S1S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	283 283	45 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Dicamptodon ensatus</i> California giant salamander	G3 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	350 350	232 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Elanus leucurus</i> white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	120 120	175 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	150 475	1343 S:9	1	1	6	1	0	0	3	6	9	0	0
<i>Fritillaria liliacea</i> fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	150 800	82 S:6	0	2	1	0	2	1	3	3	4	2	0
<i>Hemizonia congesta ssp. congesta</i> congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B.2	442 442	52 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lasthenia burkei</i> Burke's goldfields	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	100 442	34 S:4	0	3	0	0	0	1	0	4	4	0	0
<i>Layia septentrionalis</i> Colusa layia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		57 S:1	0	0	0	0	0	1	0	1	1	0	0



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	180 450	39 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Limnanthes vincularis</i> Sebastopol meadowfoam	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	80 105	45 S:8	1	2	0	2	0	3	3	5	8	0	0
<i>Linderiella occidentalis</i> California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	100 776	434 S:3	0	1	0	0	0	2	2	1	3	0	0
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	740 740	58 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Rana boylei</i> foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	750 750	2054 S:1	1	0	0	0	0	0	1	0	1	0	0
<i>Rana draytonii</i> California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	770 770	1497 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Trifolium amoenum</i> two-fork clover	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	160 160	26 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Trifolium buckwestiorum</i> Santa Cruz clover	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_USDA-US Dept of Agriculture		50 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Trifolium hydrophilum</i> saline clover	G2 S2	None None	Rare Plant Rank - 1B.2	100 100	49 S:2	0	0	0	0	2	0	2	0	0	1	1
<i>Triquetrella californica</i> coastal triquetrella	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	328 328	13 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Valley Needlegrass Grassland</i> Valley Needlegrass Grassland	G3 S3.1	None None		835 835	45 S:1	0	0	0	0	0	1	1	0	1	0	0

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	Fabaceae	perennial deciduous shrub	1B.2	None	None	Apr-Jul	Broadleafed upland forest (openings), Chaparral, Cismontane woodland Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	None	None	Mar-Jun	
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita	Ericaceae	perennial evergreen shrub	1B.1	None	None	Feb-Apr(May)	Chaparral (rhyolitic), Cismontane woodland Chaparral (openings), Cismontane woodland, Valley and foothill grassland
<i>Astragalus claranus</i>	Clara Hunt's milk-vetch	Fabaceae	annual herb	1B.1	CT	FE	Mar-May	Chaparral, Cismontane woodland, Valley and foothill grassland
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	Asteraceae	perennial herb	1B.2	None	None	Mar-Jun	Valley and foothill grassland (mesic), Vernal pools
<i>Blennosperma bakeri</i>	Sonoma sunshine	Asteraceae	annual herb	1B.1	CE	FE	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland
<i>Brodiaea leptandra</i>	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	1B.2	None	None	May-Jul	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest
<i>Calochortus uniflorus</i>	pink star-tulip	Liliaceae	perennial bulbiferous herb		4.2 None	None	Apr-Jun	Closed-cone coniferous forest, Chaparral, Cismontane woodland
<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	1B.1	None	None	Feb-Jun	Chaparral (serpentine or volcanic, rocky)
<i>Ceanothus divergens</i>	Calistoga ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2	None	None	Feb-Apr	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland
<i>Fritillaria liliacea</i>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	None	None	Feb-Apr	Valley and foothill grassland
<i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield	Asteraceae	annual herb	1B.2	None	None	Apr-Nov	Meadows and seeps (mesic), Vernal pools
<i>Lasthenia burkei</i>	Burke's goldfields	Asteraceae	annual herb	1B.1	CE	FE	Apr-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland
<i>Layia septentrionalis</i>	Colusa layia	Asteraceae	annual herb	1B.2	None	None	Apr-May	Chaparral, Cismontane woodland, Valley and foothill grassland
<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	Polemoniaceae	annual herb	1B.2	None	None	Mar-May	Chaparral, Cismontane woodland, Valley and foothill grassland

Limnanthes vinculans	Sebastopol meadowfoam	Limnanthaceae	annual herb	1B.1	CE	FE	Apr-May	Meadows and seeps, Valley and foothill grassland, Vernal pools
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	1B.1	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Polemoniaceae	annual herb	1B.2	CE	FE	May-Jun	Vernal pools (volcanic ash flow)
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)		4.2 None	None	Feb-May	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	1B.1	None	FE	Apr-Jun	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentinite)
Trifolium buckwestiorum	Santa Cruz clover	Fabaceae	annual herb	1B.1	None	None	Apr-Oct	Broadleafed upland forest, Cismontane woodland, Coastal prairie
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	None	None	Apr-Jun	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools
Triquetrella californica	coastal triquetrella	Pottiaceae	moss	1B.2	None	None		Coastal bluff scrub, Coastal scrub

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Project information

### NAME

Santa Rosa Recess Project

### LOCATION

Sonoma County, California



### DESCRIPTION

Development of storage facility and residences.

## Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME	STATUS
------	--------

Northern Spotted Owl *Strix occidentalis caurina*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1123>

## Reptiles

NAME

STATUS

Green Sea Turtle *Chelonia mydas*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6199>

## Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2891>

California Tiger Salamander *Ambystoma californiense*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2076>

## Insects

NAME

STATUS

San Bruno Elfin Butterfly *Callophrys mossii bayensis*

Endangered

There is **proposed** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/3394>

## Crustaceans

NAME

STATUS

California Freshwater Shrimp *Syncaris pacifica*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7903>

## Flowering Plants

NAME

STATUS

Burke's Goldfields <i>Lasthenia burkei</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4338">https://ecos.fws.gov/ecp/species/4338</a>	Endangered
Clara Hunt's Milk-vetch <i>Astragalus clarianus</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/3300">https://ecos.fws.gov/ecp/species/3300</a>	Endangered
Sebastopol Meadowfoam <i>Limnanthes vinculans</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/404">https://ecos.fws.gov/ecp/species/404</a>	Endangered
Showy Indian Clover <i>Trifolium amoenum</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/6459">https://ecos.fws.gov/ecp/species/6459</a>	Endangered
Sonoma Sunshine <i>Blennosperma bakeri</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1260">https://ecos.fws.gov/ecp/species/1260</a>	Endangered
White Sedge <i>Carex albida</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/3063">https://ecos.fws.gov/ecp/species/3063</a>	Endangered

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

Breeds Feb 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

<p><b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a></p>	Breeds Jan 1 to Aug 31
<p><b>Burrowing Owl</b> <i>Athene cunicularia</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9737">https://ecos.fws.gov/ecp/species/9737</a></p>	Breeds Mar 15 to Aug 31
<p><b>California Thrasher</b> <i>Toxostoma redivivum</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jan 1 to Jul 31
<p><b>Common Yellowthroat</b> <i>Geothlypis trichas sinuosa</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/2084">https://ecos.fws.gov/ecp/species/2084</a></p>	Breeds May 20 to Jul 31
<p><b>Golden Eagle</b> <i>Aquila chrysaetos</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a></p>	Breeds Jan 1 to Aug 31
<p><b>Nuttall's Woodpecker</b> <i>Picoides nuttallii</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a></p>	Breeds Apr 1 to Jul 20
<p><b>Oak Titmouse</b> <i>Baeolophus inornatus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a></p>	Breeds Mar 15 to Jul 15
<p><b>Rufous Hummingbird</b> <i>Selasphorus rufus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/8002">https://ecos.fws.gov/ecp/species/8002</a></p>	Breeds elsewhere
<p><b>Song Sparrow</b> <i>Melospiza melodia</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Feb 20 to Sep 5

**Spotted Towhee** *Pipilo maculatus clementae*

Breeds Apr 15 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

**Tricolored Blackbird** *Agelaius tricolor*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

**Wrentit** *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

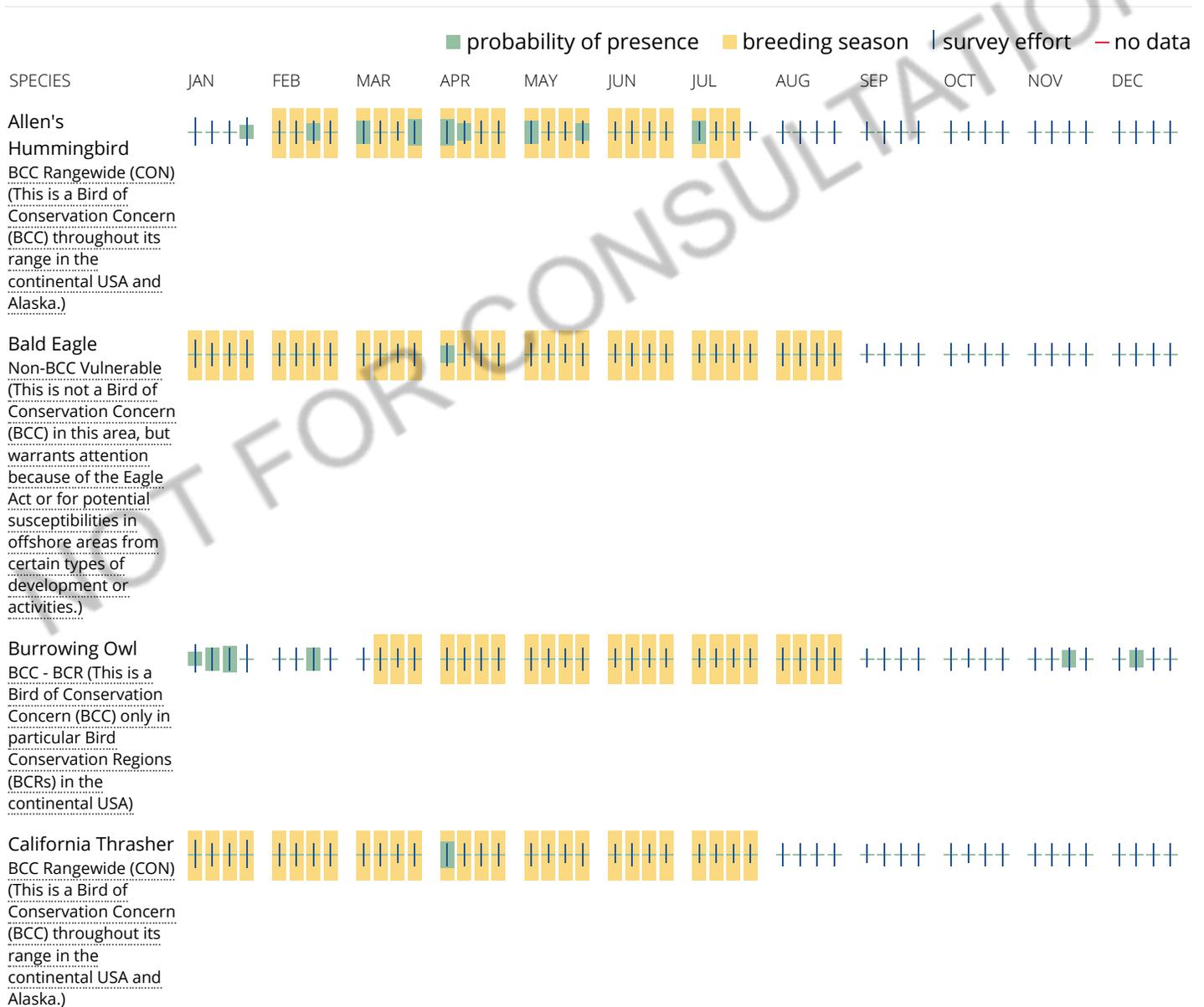
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

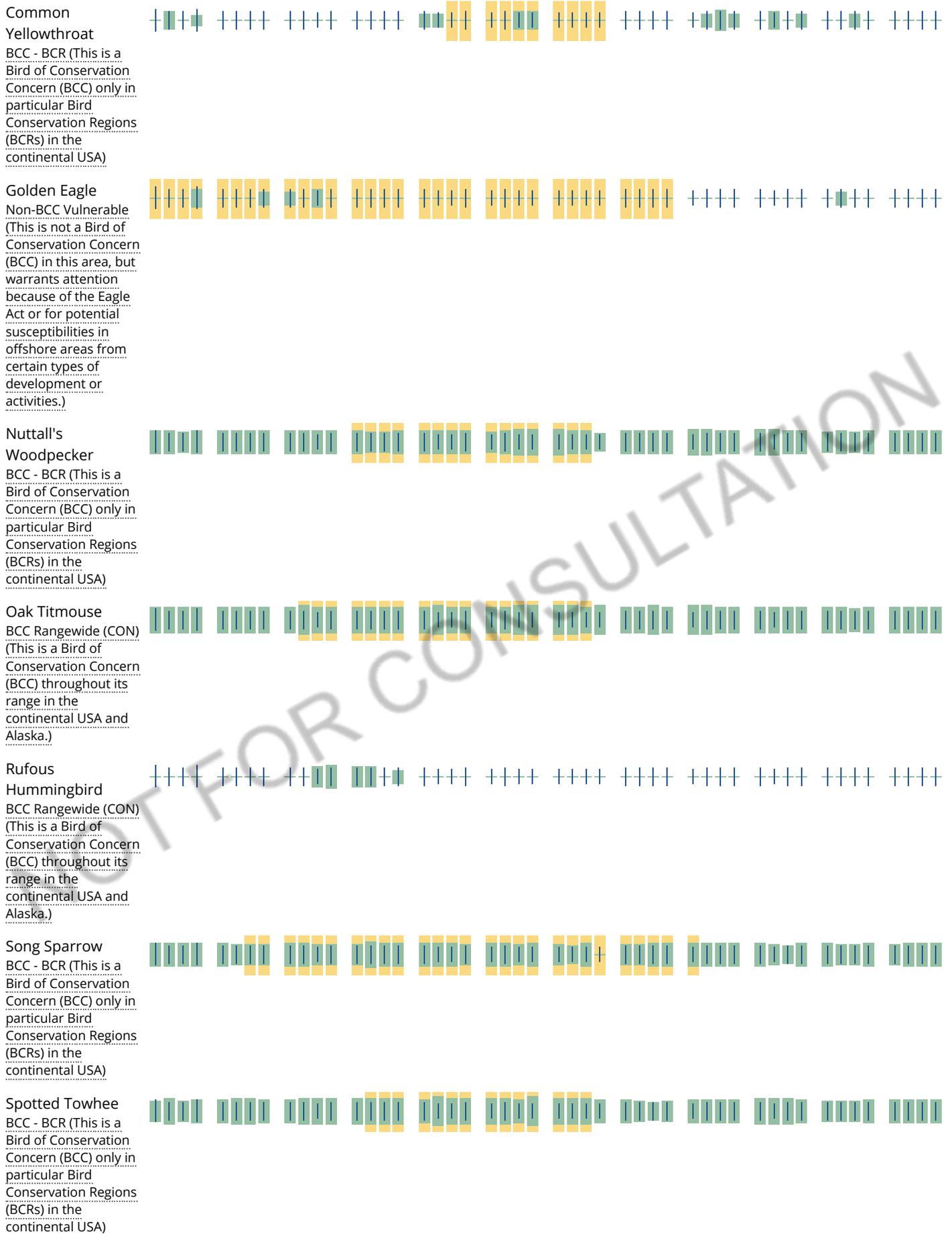
### No Data (-)

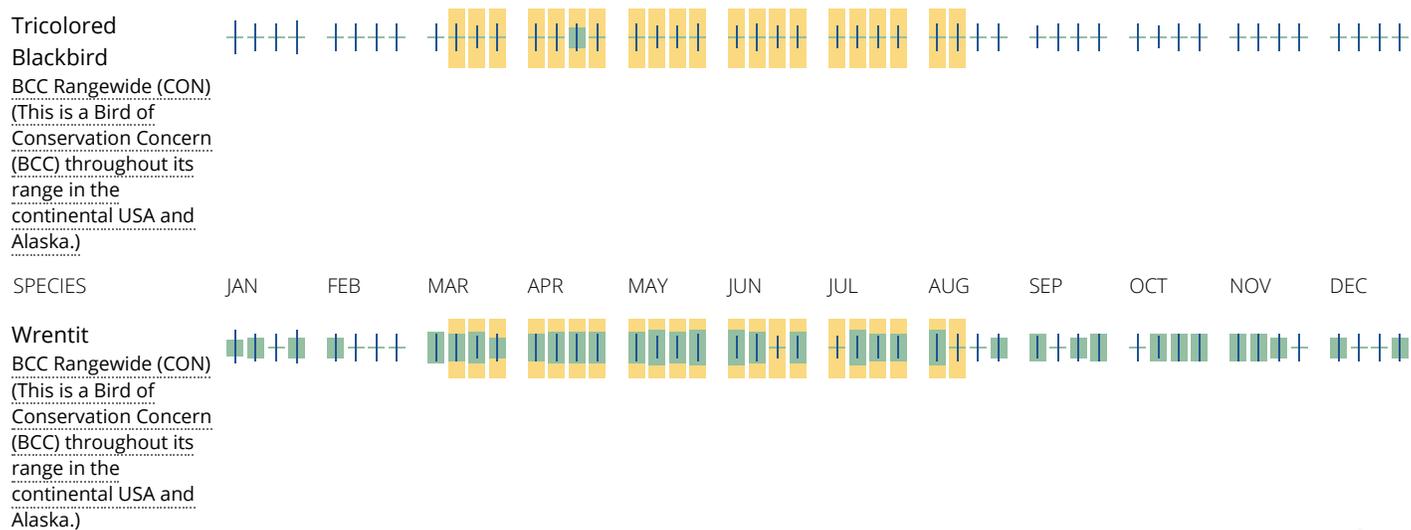
A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential

impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

## **APPENDIX C**

### Arborist Report

# MEMO

To:  
Susie Murray

Copies:  
Lee Miles  
Larry Thom

Arcadis U.S., Inc.  
2300 Clayton Road  
Suite 400  
Concord  
California 94520  
Tel 925 274 1100  
Fax 925 726 0121

From:  
Joshua Tallis

Date:  
May 10, 2019 (updated)

Arcadis Project No.:  
RV009362.0003

Subject:  
Certified Arborist Report: 4224 Highway 12, Santa Rosa, Ca

---

A certified arborist tree survey was completed at 4224 Highway 12, Santa Rosa, California on June 8<sup>th</sup>, 2018 by ISA Certified Arborist Joshua Tallis (#WE-11583A). This report and associated attachments documents the findings of this survey.

## Site Description

The site at 4224 Highway 12, Santa Rosa, California contains a single-family home and several outbuildings on a flat weedy lot. The southeast end of the parcel contains a fence which separates the disturbed northwestern portion (“onsite”) from a southeast facing slope with dense native vegetation (“offsite”; Attachment 1), however both areas are located on the parcel. Further southeast the parcel contains a public pedestrian walkway which is mowed on either side and does not contain trees. This survey does not include trees east of the pedestrian walkway.

## Methodology

1. Identify each tree species.
2. Mark the general location of each tree species subject to permitting on a site map.
3. Measure each trunk circumference at 4.5 feet above surrounding grade using a diameter at breast height (dbh) tape.
4. Evaluate the health and structure of each tree.

### Summary of Findings

On June 8<sup>th</sup>, 2018 Joshua Tallis conducted a survey of 60 trees that are classified as protected or heritage trees and could require permits to remove or disturb under the City of Santa Rosa Tree Ordinance, Chapter 17-24. These trees included one Big Leaf Maple (*Acer macrophyllum*), four California Bay (*Umbellularia californica*), 52 Coast Live Oak (*Quercus agrifolia*), one Northern California Black Walnut (*Juglans hindsii*), and two Valley Oak (*Quercus lobata*). Only native trees greater than four inches diameter at breast height were recorded (Tables 1-5).

Tree species that are exempt from permit requirements under Santa Rosa's tree removal and preservation ordinance were not assessed but locations were documented on Attachment 1. The exempt species observed included Ligustrums, Monterey pine (*Pinus radiata*), Black Elderberry (*Sambucus nigra*; generally a shrub), Western Sycamore (*Platanus racemosa*), and fruit and nut trees (excluding northern California black walnut).

### Proposed Impacts to Native Trees

It is proposed that all but two (Table 1 Trees #24 and #25) native trees at 4224 Highway 12 will be removed and will require replacement.

### Replacement Requirements

All approved native trees removed for development must be replaced at the following calculations based on the Santa Rosa City code Chapter 17-24 and verbal communications with Santa Rosa City Planner Susie Murray.

For every 6-inches dbh of native tree removed there must be two 15-gallon native trees of the same genus planted elsewhere on the site. For heritage trees removed a heritage tree species must be replaced. Based on the species observed at the site it is recommended that all native trees removed be replaced with coast live oak (*Quercus agrifolia*) because it is the predominant tree species growing throughout the site and is expected to have the best survival rate. The diameter of protected tree species with multiple trunks are calculated as the sum of the trunk diameters at breast height.

In addition:

- For every three 15-gallon replacement container tree there can alternatively be one 24-inch box container; or,
- For every five 15-gallon replacement container tree there can alternatively be one 36-inch box container.

To determine the total number of native replacement trees the sum calculated is shown on Table 5 and as calculated below:

The sum of the diameters of all native trees to be removed = 689 inches

$689 \text{ inches} / 6 \text{ inches} = 114.8 \text{ inches} * 2 = \mathbf{230 \text{ 15-gallon trees}}$

### Associated documents

Table 1: Arborist Report Tree Findings

Table 2. Tree Quantity by Species

Table 3. Tree Quantity by Size

Table 4. Heritage Trees

Table 5. Total Diameter of Native Trees

Attachment 1: Tree Location Map

**Table 1**  
**Arborist Report Tree Findings**  
**4424 CA-12, Santa Rosa, CA 95409**  
 Revised May 10, 2019

Tree #	Species	Trunk Diameter (In.)	General Condition	Structural Integrity	Recommendations
2	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Excellent	Excellent	To be removed for construction
3	Coast Live Oak/ <i>Quercus agrifolia</i>	7"	Excellent	Good	To be removed for construction
4	Valley Oak/ <i>Quercus lobata</i>	5"	Excellent	Good. Light competition causes tree to lean.	To be removed for construction
5	Coast Live Oak/ <i>Quercus agrifolia</i>	8.5"	Good	Good. Light competition causes tree to lean.	To be removed for construction
6	Coast Live Oak/ <i>Quercus agrifolia</i>	12"	Good	Good	To be removed for construction
7	Coast Live Oak/ <i>Quercus agrifolia</i>	7.5"	Good	Good	To be removed for construction
8	Coast Live Oak/ <i>Quercus agrifolia</i>	16"	Excellent	Good. Relatively straight trunk.	To be removed for construction
9	Coast Live Oak/ <i>Quercus agrifolia</i>	7.5"	Good	Poor. Leaning due to light competition.	To be removed for construction
10	Coast Live Oak/ <i>Quercus agrifolia</i>	10.5"	Good	Poor. Leaning due to light competition.	To be removed for construction
11	Coast Live Oak/ <i>Quercus agrifolia</i>	9"	Good	Good. Leaning due to light competition.	To be removed for construction
12	Coast Live Oak/ <i>Quercus agrifolia</i>	10"	Good	Good. Leaning due to light competition.	To be removed for construction
13	Big Leaf Maple/ <i>Acer macrophyllum</i>	7"	Poor	Poor. Cracked trunk and leaning due to light competition.	To be removed for construction
14	Coast Live Oak/ <i>Quercus agrifolia</i>	15"	Excellent	Excellent	To be removed for construction
15	Coast Live Oak/ <i>Quercus agrifolia</i>	11"	Good/Excellent	Excellent	To be removed for construction
16	Coast Live Oak/ <i>Quercus agrifolia</i>	30"	Good/Excellent	Excellent	To be removed for construction
17	Coast Live Oak/ <i>Quercus agrifolia</i>	9"/11"/12"	Good	Poor	To be removed for construction
18	Coast Live Oak/ <i>Quercus agrifolia</i>	14"	Good	Good/Poor. Light deprived.	To be removed for construction
19	Coast Live Oak/ <i>Quercus agrifolia</i>	5"/5"/5"/5"/5"	Good	Good	To be removed for construction
20	Coast Live Oak/ <i>Quercus agrifolia</i>	8"	Good/Poor.	Good. Light deprived.	To be removed for construction
21	Coast Live Oak/ <i>Quercus agrifolia</i>	12"/16"/9"/14"	Good	Good	To be removed for construction
23	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Good	Poor. Leaning.	To be removed for construction
24	Coast Live Oak/ <i>Quercus agrifolia</i>	10"	Good	Good	To be maintain and protected during construction
25	Coast Live Oak/ <i>Quercus agrifolia</i>	12"	Good	Good/Poor. Has some injury.	To be maintain and protected during construction

**Table 1**  
**Arborist Report Tree Findings**  
**4424 CA-12, Santa Rosa, CA 95409**  
 Revised May 10, 2019

Tree #	Species	Trunk Diameter (In.)	General Condition	Structural Integrity	Recommendations
26	Coast Live Oak/ <i>Quercus agrifolia</i>	7"	Good	Good	To be removed for construction
27	Coast Live Oak/ <i>Quercus agrifolia</i>	25"	Good	Good	To be removed for construction
28	Coast Live Oak/ <i>Quercus agrifolia</i>	10"	Good	Good	To be removed for construction
29	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Good	Poor	To be removed for construction
30	Coast Live Oak/ <i>Quercus agrifolia</i>	9"	Good	Good	To be removed for construction
31	Coast Live Oak/ <i>Quercus agrifolia</i>	14"/5"/5"	Good	Good/Poor. One trunk injured and oozing.	To be removed for construction
32	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Good	Good	To be removed for construction
34	California Bay/ <i>Umbellularia californica</i>	8"	Good	Good	To be removed for construction
35	California Bay/ <i>Umbellularia californica</i>	10"	Good	Good	To be removed for construction
36	California Bay/ <i>Umbellularia californica</i>	7"/7"/7"/5"/10"/7"	Good	Good	To be removed for construction
37	California Bay/ <i>Umbellularia californica</i>	4"	Good	Good	To be removed for construction
38	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Good	Good	To be removed for construction
39	Coast Live Oak/ <i>Quercus agrifolia</i>	11"	Good	Good	To be removed for construction
43	Coast Live Oak/ <i>Quercus agrifolia</i>	4.5"	Good	Good	To be removed for construction
44	Coast Live Oak/ <i>Quercus agrifolia</i>	4.5"	Good	Good	To be removed for construction
45	Valley Oak/ <i>Quercus lobata</i>	4"	Good	Good	To be removed for construction
46	Coast Live Oak/ <i>Quercus agrifolia</i>	10"	Good	Good	To be removed for construction
48	Coast Live Oak/ <i>Quercus agrifolia</i>	10"	Good/poor	Multi-stem close together.	To be removed for construction
49	Coast Live Oak/ <i>Quercus agrifolia</i>	6"/6"/6"	Good	Good	To be removed for construction
51	Coast Live Oak/ <i>Quercus agrifolia</i>	4"/6"/5"/5"/5"	Good	Good	To be removed for construction
52	Coast Live Oak/ <i>Quercus agrifolia</i>	5"/6"/6"	Good	Good	To be removed for construction
53	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Good	Good	To be removed for construction

**Table 1**  
**Arborist Report Tree Findings**  
**4424 CA-12, Santa Rosa, CA 95409**  
 Revised May 10, 2019

Tree #	Species	Trunk Diameter (In.)	General Condition	Structural Integrity	Recommendations
54	Coast Live Oak/ <i>Quercus agrifolia</i>	8"	Good	Good	To be removed for construction
55	Coast Live Oak/ <i>Quercus agrifolia</i>	4"	Good	Good	To be removed for construction
57	Coast Live Oak/ <i>Quercus agrifolia</i>	10"	Poor	Poor. Tree is fallen but alive. Portions have been cut off. Tree should be removed.	To be removed for construction
58	Northern California Black Walnut/ <i>Juglans hindsii</i>	5"	Good	Good	To be removed for construction
59	Coast Live Oak/ <i>Quercus agrifolia</i>	6"	Excellent	Good	To be removed for construction
60	Coast Live Oak/ <i>Quercus agrifolia</i>	4"	Excellent	Good	To be removed for construction
61	Coast Live Oak/ <i>Quercus agrifolia</i>	5"	Good	Good	To be removed for construction
62	Coast Live Oak/ <i>Quercus agrifolia</i>	4"	Good	Good	To be removed for construction
63	Coast Live Oak/ <i>Quercus agrifolia</i>	7"/11"	Good	Good	To be removed for construction
64	Coast Live Oak/ <i>Quercus agrifolia</i>	14"	Good	Good	To be removed for construction
65	Coast Live Oak/ <i>Quercus agrifolia</i>	20"	Good	Good, but can't access tree well to assess health.	To be removed for construction
66	Coast Live Oak/ <i>Quercus agrifolia</i>	8"	Good	Good/Poor. Leaning due to light competition.	To be removed for construction
67	Coast Live Oak/ <i>Quercus agrifolia</i>	7"	Good	Good	To be removed for construction
68	Coast Live Oak/ <i>Quercus agrifolia</i>	9"/11"	Good	Good	To be removed for construction
69	Coast Live Oak/ <i>Quercus agrifolia</i>	6"/3"	Good	Good	To be removed for construction

Table 2. Tree Quantity by Species	
Species	Quantity
Big Leaf Maple/ <i>Acer macrophyllum</i>	1
California Bay/ <i>Umbellularia californica</i>	4
Coast Live Oak/ <i>Quercus agrifolia</i>	52
Northern California Black Walnut/ <i>Juglans hindsii</i>	1
Valley Oak/ <i>Quercus lobata</i>	2
Total	60

Table 3. Tree Quantity by Size*	
DBH	Quantity
4 to <6"	16
6 to <12"	25
12 to <18"	7
18+"	12
Total	60

\*Multi-trunk trees based on sum of trunk diameters

Table 4. Heritage Trees	
Species	Diameter at Breast Height
Coast Live Oak/ <i>Quercus agrifolia</i>	30
Coast Live Oak/ <i>Quercus agrifolia</i>	25
Coast Live Oak/ <i>Quercus agrifolia</i>	20

Table 5. Total Diameter of Native Trees	
Species	Sum of Diameters at Breast Height (Inches)
Single Trunk Trees	367
Multi-Trunk Trees (all trunk diameters)	269
Heritage Trees	75
<b>Total:</b>	<b>711</b>

# Google Maps 4224 California 12, Santa Rosa, CA

Numbers Reference Native Trees with diameter of four inches at breast height or greater.

Tree species exempt from permit requirements in Santa Rosa:

- Ligustrum Species
- Monterey Pine
- Fruit and nut trees
- Western Sycamore



## **APPENDIX D**

### Geotechnical Study

**GEOTECHNICAL STUDY  
PROPOSED SELF STORAGE FACILITY  
4224 HIGHWAY 12  
APN: 032-010-005  
SANTA ROSA, CALIFORNIA  
for  
AMERICAN RECESS  
PROJECT NO. GA-114/G407-01  
AUGUST 9, 2018**



No. GA-114/G407-01  
August 9, 2018

Mr. Larry Thom  
American Recess  
85 Keystone Avenue, Suite E  
Reno, Nevada 89503

Subject: **GEOTECHNICAL STUDY**  
Proposed Self Storage Facility  
4224 Highway 12  
APN: 032-010-005  
Santa Rosa, California

Dear Mr. Thom:

As requested, we have performed a Geotechnical Study for the planned self storage facility at the subject site in Santa Rosa, California. We understand that the proposed project will consist of constructing three new structures including a four-story, self-storage building with a total 124,000 square feet of floor space, and two additional buildings for residential purposes at the approximately 2.68 acre site. The accompanying report presents the results of our exploration, our conclusions and recommendations. In our opinion, the site is suitable for the proposed improvements provided the recommendations in this report are incorporated into the design and followed during construction.

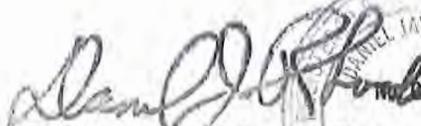
The recommendations submitted here are subject to our review of Site Grading Plans, Foundation Plans, and observation and testing of the grading operations, in addition to the observations of foundation excavations. We reserve the right to submit supplemental recommendations during construction or site development based on changed field conditions.

If you have questions, please contact this office at your convenience.

Very truly yours,

PRA Group, Inc.

Joseph J. Ambrosino  
Associate

  
Daniel J. Rhoades, P.E. Exp. \_\_\_\_\_  
Principal  
G.E.-716, Exp. 06/30/19  
jja/data/prag/g40701.GS



**The PRA Group, Inc.**

▲ WASTE MANAGEMENT ▲ ENVIRONMENTAL ▲ CIVIL ▲ GEOTECHNICAL ▲ GROUNDWATER ▲ GEOLOGY ▲  
3496 BUSKIRK AVENUE, SUITE 100 PLEASANT HILL CA 94523  
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- Figure 1 - Site Location Map
- Figure 2 - Site Plan with CPT Probe Locations
- Figure 3 - Area Geologic Map
- Figure 3a - Liquefaction Susceptibility Map

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- Appendix A CPT Subsurface Exploration
- Appendix B Recommended Grading Specifications

## **INTRODUCTION**

### **Purpose**

The purpose of this study was to evaluate the soil and geologic characteristics relevant to the design of the proposed structures and related improvements. General foundation engineering design and Geotechnical recommendations are provided based on the physical characteristics of the subsurface materials and the Geotechnical limitations created by the site's surface features.

### **Site Location and Description**

The site, which consists of one parcel of land, is located at the southeast side of Highway 12, approximately 1,000 feet southwest of Mission Boulevard, in Santa Rosa, California (see Figure 1, Site Location Map). It is bordered on the northeast by a hardware store, on the southeast by a foot trail and open space, and on the southwest by a commercial building advertizing for pet grooming and a single family home subdivision. Streamside Drive is currently stubbed out at the northeast corner of that subdivision for a future extension into the subject site. A creek is located within the open space area along the southeast side of the site. The generally rectangularly shaped property currently includes one single family house and three out buildings (two sheds and a kiln immediately adjacent to the southeastern-most shed). A groundwater well was observed just off the southern corner of the kiln

A driveway provides access to the northeast side of the residence. A gate is also located where the property fronts Sonoma Highway. Several landscape trees are scattered across the site along with an abandoned vehicle and multiple areas of scattered piles of debris.

The northwestern 3/4's of the site has a slight slope toward the northwest while the remaining portion of the site slopes toward the southeast. Separating these two

areas is a moderate, eastward facing, approximately 5 to 10-foot tall downslope. We could not confirm if the slope was a fill slope or a natural slope undercut by an overflow of the creek located approximately 200 feet to the east. The surface conditions varied across the site, including areas of thick bushes, ivy, gravel, soil and dried grass.

### **Proposed Development**

We understand that the new development will consist of three new structures including a four-story, self-storage building, which includes the facilities office, with a total 124,000 square feet of floor space, and two additional buildings for residential purposes at the approximately 2.68 acre site. An emergency water supply well for the City of Santa Rosa is planned near the eastern corner of the site. There will be six residential units in one building and five in the second building with each unit having a single parking space. Parking stalls and landscaping are also planned. Access to the site would be from Highway 12 and Streamside Drive (see Figure 2).

Please contact our office if the conditions of the project change. We may need to revise our recommendations if changes occur in the configuration of the proposed development, the type of construction, or the proposed loads.

### **Scope**

The scope of work for the proposed development, as described in our Proposal dated April 16, 2018, included the following: researching soil and Geotechnical data, advancing six exploratory CPT probes (four were actually planned), sampling and laboratory testing (Plasticity Index testing), analyzing the soil data compiled during the exploration, and reporting our findings and recommendations. This study did not include assessments for toxic substances or soil or groundwater contamination.

## **SITE SETTING**

### **General Geologic Setting**

The subject site is situated in the northern part of the San Francisco Bay Area, in the Coastal Range Geologic Province of California. The Coastal Range landscape, especially east of San Francisco, is characterized by a series of rugged, subparallel, northwest-trending mountain ranges and intervening valleys. The site is located within an alluvial fan deposit of either Late Pleistocene or Holocene age (McLaughlin et al, 2008 & Sowers, et al, 1998). Predominantly gravel, sand, and silt are deposited upon gently sloping, relatively undissected alluvial surfaces (see Figure 3, Area Geology Map). The site was regionally mapped as within an area with alluvial thickness that ranged from 0 to 50 feet in thickness (Huffman and Armstrong, 1980). Underlying this fan deposit is volcanic bedrock of Tertiary age.

There were no landslides mapped at the site area. The site is regionally mapped within, "Areas of greatest relative stability due to the low slope inclination," (Huffman and Armstrong, 1980, Plate 2B). The site is relatively flat for the majority of the lot, except for the rear-most portion that represents a terrace deposit that slopes down to a drainage channel.

### **Seismic Considerations**

The subject site lies within the northern portion of the San Francisco Bay Area, a region of high seismic activity. The probability is very high for a major earthquake to occur in the Bay Area within the economic lifetime of the proposed structures. Several active and potentially active faults occur in the region. Geologic references indicate that no fault trace designated active or potentially active passes through the subject property (McLaughlin et al, 2008). According to the California Geologic Survey (CGS), the nearest fault designated as active is the Rodgers Creek Fault, capable of a moment magnitude of 7.3 earthquake, approximately 1.4 miles

southwest of the site. Other active or potentially active Bay Area faults that could also cause ground shaking at the site, and their respective moment magnitude earthquake include:

<b>Fault</b>	<b>Distance, miles</b>	<b>Moment Magnitude</b>
Maacama (south)	8.3	7.4
West Napa	17.4	6.6
San Andreas	21.3	8.0
Collayomi	22.3	6.6
Hunting Creek - Berryessa	23.1	7.0
Green Valley - Concord	26.0	6.9
Hayward	31.5	7.3

Rather rough quantitative measurement of the dynamic characteristics of an earthquake can be estimated for the proposed structures. This estimate is based upon the attenuation method advanced by Boore, Joyner and Fumal (1997). A maximum moment magnitude on the Rodgers Creek fault would result in an estimated random peak acceleration value at the site of approximately 0.46g. This peak value represents a single moment acceleration. Ploessel and Slosson (1974) indicate that the repeatable high ground acceleration value would be approximately 65 percent of the peak ground acceleration value.

The local building codes and current California Building Code (CBC) recommendations reflect the design parameters for mitigation of earthquake conditions. The appropriate code should be utilized for minimum design standards based upon the particular features of the structures and the recommended minimum seismic load factors.

The project site will be susceptible to ground shaking and potential ground failure during a major earthquake on the faults listed above; also, ground shaking may occur during an earthquake on other nearby faults. Ground rupture tends to occur along lines of previous fault rupture or tectonic creep. Because no known faults (active or otherwise) cross the site, this hazard is low. The seismic risk to a structure depends on the distance from the epicenter; the characteristics of the earthquake; the geologic, groundwater, and soil conditions underlying the structure and its vicinity; and the nature of the construction.

The U. S. Geological Survey estimated that the probability of a magnitude 6.7 or greater earthquake in the Bay Area in the time period 2014 to 2043 is 72 percent. In that same time period, the probability of a 6.7 magnitude or greater earthquake is 33% on the Rodgers Creek-Hayward fault, 22% on the San Andreas fault, and 16% on the Huntington Creek-Green Valley-Concord fault.

## **SITE EXPLORATION AND LABORATORY TESTING**

### **Site Exploration**

Field exploration of the site was conducted on June 19, 2018, and consisted of a site reconnaissance and the advancement of six exploratory Cone Penetration Test probes (CPT) to a maximum depth of approximately 45' feet below existing grade. Please see Figure 2, Site Plan with CPT Probe Locations, for their approximate locations.

The CPT probes were advanced with a 30-ton CPT truck rig (C15) provided by California Push Technologies, Inc. Logs describing the material encountered in the probes are created by the CPT app as the probes are advanced and are presented in Appendix A.

### **Laboratory Testing**

Laboratory testing was conducted on two bulk samples obtained with hand sampling equipment at a depth of approximately 1' below grade adjacent to CPT-4 and CPT-5 to obtain the Plasticity Indices and classification of the soil. The Plasticity Index was determined to be 12 and 14, respectively, which indicate a low expansive soil.

## **SUBSURFACE CONDITIONS**

### **Subsurface Soil**

Appendix A includes a colorized summary of each probe log with some of the sounding data presented graphically, followed by a complete table of sounding data recorded. The strengths of the materials encountered in the CPT probes are indicated by standard penetration blow counts corrected for energy ratio and overburden pressure [SPT (N1)60], and by shear strength [Su(qc)] in tons per square foot (tsf).

In general, all six CPT probes encountered alternating layers of loose to very dense sand and soft to very stiff silty clay and sand/silt mixtures. The stiffness and densities of these soils generally increased with depth. All six probes were terminated under drilling refusal conditions which would represent the underlying volcanic bedrock of the region.

For a complete description of the subsurface conditions encountered in the CPT probes, please refer to Appendix A.

### **Groundwater**

Groundwater was encountered at approximately 21' in CPT-1, CPT-2, CPT-4 and CPT-6 at the time of our subsurface exploration. Groundwater levels would be expected to fluctuate due to variations in rainfall and future site conditions.

### **Liquefaction Potential**

Liquefaction occurs when loose, saturated, granular deposits or low plasticity cohesive deposits lose strength in response to increased pore pressure during cyclic seismic loading. A regional assessment of liquefaction susceptibility for the central San Francisco Bay region prepared by the U.S. Geological Survey (Witter et al, 2006) determined a moderate potential for liquefaction at the site area, which Witter et. al., had mapped as Holocene age alluvium, where groundwater levels are between 10 and 30 feet below grade. A separate study by Sowers et. al., (1998) mapped the site area as having a low to moderate susceptibility for liquefaction (See Figure 3A, Liquefaction Susceptibility Map). The moderate susceptibility was assigned where groundwater level was within 10 feet of the ground surface, and low to very low elsewhere.

### **DISCUSSION**

Based upon the site geology and the materials disclosed in the exploratory CPT probes, our site reconnaissance, laboratory testing and analysis, our findings indicate that the upper soil layers at the site are underlain by low expansive silty sand with a low shrink/swell potential which would be expected to have a low potential to adversely affect on building foundations. An existing east-facing downslope is located at the eastern end of the site, over which is the five unit residential building planned for construction (referred to as, "Residential Type 2). It is unknown if this slope is natural or a graded slope constructed by a previous owner. Another concern is a transition that occurs between two geologic units at the east end of the site. This transition may occur under or adjacent to the planned five unit residential building and could lead to differential foundation movement if the soil is not properly mitigated. Other areas of cut/fill transition areas may also occur under the planned buildings. Based on this, we have recommended grading mitigation measures to reduce the potential for adverse effects on the planned structures. Based on the soil conditions at the site, we recommend that the

proposed structures be supported on conventional footings with concrete slab-on-grade floors.

Mitigation of the existing slope near the rear of the property and the differential soil conditions will require both subexcavation of the pad and reconstruction of the entire slope. Within the area of the building, we anticipate the keyway to have a minimum width of 20 feet. Recommendations for keying and benching are provided later in this report.

The planned demolition of the foundations that support the existing buildings is anticipated to leave voids where the concrete footings are removed. Similarly, where large trees are located, the removal of the root balls will create moderately large voids with multiple roots still in the ground. After removal of all loose soil and tree roots, these excavations will require backfilling with properly compacted fill placed in accordance with the grading recommendations presented in this report.

### **CONCLUSIONS**

The following conclusions are based on the results of our study for the proposed development.

It is our opinion, based on an analysis of the data and information obtained from the site exploration, laboratory testing, and Geotechnical evaluation of our experience and knowledge of the soil conditions in this area, the site is geotechnically suitable for the proposed development provided the recommendations contained herein are incorporated into the project designs and adhered to during construction. The principal adverse Geotechnical factors affecting the development of the site are the potentially strong shaking due to earthquakes, anticipated soil types within the limits of the footprints of the planned structures, especially the rear residential building and the presence of a potentially undocumented fill slope near the eastern end of the site. The recommendations presented herein are intended to reduce the risks

associated with these factors and to minimize their effects. The following conclusions are based on the results of our study of the subject site.

1. It is our opinion, that the proposed storage facility is feasible from a Geotechnical engineering standpoint provided the recommendations contained herein are followed.
2. Seismically induced ground shaking with minor structural damage may occur within the economic life of the development.
3. It is our opinion, that a low liquefaction hazard exists at the subject site. This opinion is based on soil types encountered in our CPT probes.
4. Our laboratory testing and observations indicate that the near surface, silty sandy soil is characterized as low in expansion potential.
5. Due to the presence of variable soil conditions across the pads, we recommend that the building pads plus 5' beyond the footprint of the structures be subexcavated a minimum of 3', the exposed upper foot of the subgrade be scarified a minimum of 1', moisture conditioned and recompacted per the grading recommendations presented later in this report. All footings must be underlain by a minimum of 12" of compacted soil.
6. Due to the Geotechnical conditions encountered at the site and the findings of this report, it is our opinion, that the proposed structures be supported on a conventional spread footing foundation with concrete slab-on-grade floors. Use of this foundation system is contingent on the grading and foundation recommendations presented in this report.

## RECOMMENDATIONS

### Geotechnical Hazards

Risk of Geotechnical hazards will always exist due to uncertainties of geologic conditions and the unpredictability of seismic activity in the Bay Area. However, in our opinion, based on available data, there are no indications of Geotechnical hazards that would preclude use of the site for the proposed development. The proposed structures should be designed to meet current California Building Code (CBC) requirements to limit potential damage from ground shaking.

### Seismic Criteria

The California Building Code standards requires the Geotechnical Engineer to provide supplemental seismic data for consideration by the Design Engineer. Determination of these seismic parameters required the use of seismic programs provided by the United States Geologic Survey (USGS) and the determination of the site soil classification. These values are calculated using the referenced USGS "Earthquake Hazards Program, Seismic Design Values for Buildings," website. This data is useful for engineers determining how a structure will react to ground motions from an earthquake.

### SEISMIC CRITERIA

<u>SEISMIC CRITERIA</u>	<u>Value</u>
Site Class	D
$S_s$ Short Period 0.2-second Spectral Acceleration	1.403g
$S_1$ 1.0 Second Spectral Acceleration	0.6
Site Coefficient $F_a$	1.00
Max. Short Period Spectral Response Acceleration	
$SM_s = F_a \times S_s$	1.403g
Damped Design Spectral Response - Short Period	
$SD_s = 2/3 \times SM_s$	0.935g

## **Grading**

Final grading plans were not provided as part of this study, however a review of the preliminary site plan indicates that in order to develop this site, moderate to major cuts and fills are anticipated with a considerable amount of earthwork anticipated for remediation of the existing slope near the back of the site, including construction of a drained keyway and subexcavation of the soil within the building pad area for the five unit structure planned over the slope. We also recommend that the remaining building pad areas be subexcavated a minimum of 3 feet, moisture conditioned to a minimum 3 percent over optimum moisture content and recompacted to a minimum 90 percent relative compaction in order to create uniform building pads. Grading should be in general conformance with the recommendations presented below and in the attached Recommended Grading Specifications (see Appendix B).

After stripping areas to be graded, the exposed subgrade should be scarified to a depth of approximately 12-inches, moisture-conditioned as directed by the Geotechnical Engineer and then recompacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557 test methods. Following subgrade recompaction, fill placement as required to achieve final pad grade elevation will be placed at a minimum 90 percent relative compaction.

For compaction specifications, the upper 12 inches of subgrade in the street sections must be moisture conditioned to 2 percent over the optimum moisture content and compacted to a minimum of 95 percent relative compaction in accordance with ASTM D6938. All other areas of fill must be placed at a minimum of 3 percent over the optimum moisture content and a minimum of 90 percent relative compaction for the low to moderate fill soils.

If any trees are removed due to planned fill placement, the root ball area must be sub-excavated a minimum of 2 feet beneath the root ball to remove all loose soil

and roots in an excess of 1 inch in diameter. If this area is located within a foundation area, it must be treated as a transitional lot, as described above, subexcavated a minimum of two feet, moisture conditioned to a minimum of 3 percent over optimum moisture content and recompacted to a minimum 90 percent relative compaction in order to create a uniform building pad.

On-site soil generated by site grading may be used as fill provided that the soil is free of deleterious and organic materials and that it has been approved for use as fill by our Geotechnical Engineer or the engineer's representative. Samples of any proposed import fill planned for use on this project must be granular, having a maximum PI of 15, with particle size not exceeding 1-inch and submitted to our Geotechnical Engineer or the engineer's representative for approval and appropriate testing no less than 4 working days before the expected delivery to the jobsite. A representative sample of the fill should be tested to determine the above properties, and a compaction curve, in order to be approved by the Geotechnical Engineer or the engineer's representative prior to importing to the project.

All grading must be observed by a representative of our firm. It is especially important that our representative be present during removal of trees and the stripping and scarification process to observe whether undesirable materials or below grade structures are encountered.

#### **Keyway Construction**

A drained keyway will be required to reconstruct the existing slope that runs north to south near the rear of the site. Due to lack of adequate elevation differences, the subdrain within the keyway may have to be placed at an elevation that is higher than the bottom of the keyway. The keyway must extend a minimum depth of 3 feet into competent, approved non-yielding soil and be sloped at a minimum gradient of 5 percent into the hillside for the recommended minimum 20-foot width of the keyway.

Due to the potential presence of weak colluvial soils at the surface, keyway depths would be anticipated to be greater than 5 to 7 feet.

Compacted fill placed within the keyways must be compacted to at least 95 percent relative compaction at a minimum moisture content of 3 to 5 percent over optimum based on ASTM D1557 test methods. Compacted fill placed above the keyways or in benched areas must be compacted to at least 90 percent of the maximum dry density. The gradient of the exposed outboard surface of the fill slope is not to exceed a slope gradient of 3:1 (horizontal:vertical).

Subdrains will be required to provide drainage for the keyways and should be installed at the heel of the inboard keyway wall. We do not anticipate the development to include any fill slopes exceeding 30 feet in vertical height, however, if such slopes are planned, bench excavations and subdrains must be installed at a minimum of 20-foot intervals in vertical height as construction of the fill progresses up the slope. The subdrains should consist of a perforated 6-inch diameter ABS SDR 35 or equivalent pipe installed on a bed of and surrounded by CalTrans Class II permeable drain rock. Pipe perforations must be placed downward. Drainage of the system will be accomplished with unperforated pipe extending from the subdrain pipe to an acceptable outlet system to be approved by the Geotechnical Engineer. All subdrain and drain pipe must be placed to fall at least 1 percent toward the outlet side for adequate flow to final discharge. Cleanouts for the subdrain system are also required at least every 200 feet.

Generally, sliver fills less than 5 feet in depth which lie on a slope of 5:1 (horizontal to vertical) or greater will not require the construction of a full keyway. In such cases, benching-in as the fill is brought up should be sufficient. This will involve excavating a minimum 18-inch deep keyway at the toe of the fill and will require benching-in approximately every 18 inches of height. The keyway and benches should be sloped a minimum 5 percent into the hillside and extend a minimum of

12 feet in width. Compaction requirements remain the same, however, a drainage system may be omitted. The Geotechnical Engineer may modify these recommendations based upon field conditions encountered during grading.

### **Foundations**

As stated, we understand that the new development will consist of constructing three new structures including a four-story, self-storage building, which includes the facilities office, with a total 124,000 square feet of floor space, and two additional buildings for residential purposes. An emergency water supply well for the City of Santa Rosa is planned near the eastern corner of the site. Structural loads for this type of construction are expected to be light to moderate depending on building spans.

Based upon the nature of the proposed structures and the results of this Geotechnical Study and this report, the buildings can be supported on a foundation system consisting of conventional continuous strip foundations interconnected with isolated interior column footings, with a minimum 5" thick concrete slab-on-grade floor system. Geotechnical design criteria should be implemented at the discretion of the Structural Engineer based upon his review and designed in conformance with current industry standards and the Geotechnical recommendations of this report. If a foundation system other than that recommended is desired, this office should be called for supplemental recommendations. Such recommendations would be presented as an addendum to this report. Footings should be designed according to the criteria in Table I. Additional recommendations for a continuous footing foundation are discussed below.

## Spread Footing Foundation Recommendations

**TABLE I**  
**SPREAD FOOTING FOUNDATION DESIGN CRITERIA**

Wall Footings (Continuous)-One Story	
Width	Minimum 18 inches
Embedment*	Minimum 18 inches
	-Two Story & Greater
Width	Minimum 36 inches
Embedment*	Minimum 24 inches
Column Footings (Isolated)	
Width	Minimum 36 inches
Embedment*	Minimum 24 inches
Allowable Bearing Capacity**	2500 pounds per square foot
Coefficient of Sliding Friction	0.40

\* Footing embedment depth is measured from the lowest adjacent interior soil pad grade to the bottom of the footing.

\*\* The allowable bearing capacity is for dead plus live loads. The bearing capacity may be increased by 1/3 for wind or seismic loads.

An equivalent fluid weight of 350 pcf can be used to evaluate the passive resistance that can be developed on the foundation elements. The upper one foot of soil should be excluded from passive pressure computations unless it is confined by pavement or a concrete slab.

The reinforcement of the footings and the design criteria for stiffening elements should be designed by a Structural Engineer. The interior load-bearing footings should be connected to the exterior footings to provide a more rigid foundation system to resist seismic loads and to reduce the potential for differential settlement between the interior and exterior foundations. Differential settlement is currently anticipated at a maximum of 1 inch over a 40-foot span for exterior continuous footings and the interior spread footings.

The excavations for footings must be cleaned of loose material and debris prior to placement of concrete. All footing excavations must be observed by a representative of our firm to confirm the minimum depth of the footings, the suitability of the foundation and to observe the competence of the material in the excavations.

Should you desire to use a foundation system different from that recommended, this office should be contacted for supplemental recommendations. Such recommendations will be forwarded by an addendum to this report, and may include a structural slab, pier and grade beams or comparable foundation system.

#### **Concrete Slabs-on-Grade Floor**

We recommend that the minimum slab-grade floor thickness be 5 inches and reinforced with the minimum of No. 4 reinforcing bars spaced at 16 inches on-center, or with an alternate reinforcement system as required by the project Structural Engineer. In general, the reinforcement should be supported by concrete dobbies to attain its greatest efficiency in minimizing the cracking of the slab. The slab should be tied to the exterior foundation or placed as a cap slab tied into the foundation system to prevent displacement between the slab and the foundation supports.

If moisture vapor transmission through the slab is objectionable, we recommend that at a minimum, a vapor retarder membrane of 10 mil minimum thickness be placed on the rock and overlain by 2 inches of clean sand to assist in the proper curing of the slab. The membrane should be placed in accordance with the manufacturer's specifications. Any punctures or damage to the membrane that may

occur must be repaired in accordance with the manufacturer's specifications. If a vapor barrier is desired, a membrane of 20 mil minimum thickness (such as Stego, or equivalent) is required. Some moisture transmission should be expected where a membrane vapor barrier is not utilized.

Recommendations presented in the American Concrete Institute should be complied with for all concrete placement and curing operations. Improper curing techniques and/or excessive slump (water-cement ratio) could cause excessive shrinkage, cracking, or curling.

#### **Concrete Driveways**

The driveway should be a minimum thickness of five inches and be underlain by a 4-inch thick cushion of "pea gravel" or Class II Aggregate Base Rock placed upon a 12-inch deep section of moisture conditioned subgrade. Extending the edge of the slab 6 to 8-inches into the ground would assist in preventing moisture variation at the outer edge of the slab and help prevent soil and slab movement. Reinforcement of the concrete slabs shall be as directed by the Project Structural Engineer. Crack control joints should be utilized as designated by the Structural Engineer.

#### **Miscellaneous Flatwork**

Exterior flatwork should be designed as follows:

1. It is recommended that the exterior slab-on-grade flatwork be a minimum thickness of 4-inches and be structurally independent of the foundation to provide freedom of movement due to soil volume changes.
2. Reinforcement of the concrete and construction of crack control joints shall be as directed by the Project Structural Engineer.

3. Ponding of storm or irrigation water adjacent to the exterior slabs should be prevented by use of area drains or liberal surface drainage to a suitable controlled discharge point.

**Retaining Walls**

We anticipate that the planned improvements may require the construction of retaining walls at the site. The proposed design should be reviewed by our firm to confirm that the retaining wall configuration is compatible with the assumed parameters. Table II presents our design criteria recommendations for any retaining walls and applies to walls up to 6 feet in height. Design pressures are based on the soil strength and potential expansion pressure and are expressed as equivalent fluid pressures. Walls greater than 6 feet will be considered on a case by case basis.

**TABLE II**  
**RETAINING WALL DESIGN CRITERIA**

<b>Gradient of Backfill</b>	<b>Equivalent Fluid Weight (pcf)</b>	<b>Passive Resistance* (pcf)</b>	<b>Coefficient of Friction</b>
Level	45	350	0.4
3:1 to Level	55	350	0.4
Steeper than 3:1 (Maximum 2:1)	65	350	0.4

\*Commences a minimum of 1 foot below lowest adjacent grade.

Structural retaining walls should be supported upon footings in conformance with the *Foundations* section of this report. Where uniform subsoil conditions are not present, supplemental recommendations will be provided. The retaining wall design should be performed by the project Structural Engineer.

All retaining walls should be free draining with a 4-inch diameter perforated pipe (SDR 35 or equivalent) placed upon 1-inch of CalTrans Class 2 permeable drain rock at the base of the wall and a minimum of 6 inches below any cold joint or where potential seepage through the wall would be objectionable. The trench and pipe should be sloped a minimum of 1 percent and discharged into a suitable outlet. A 12-inch wide minimum section of CalTrans permeable material should then be backfilled to within 1 foot of the surface then capped with compacted soil up to the finish surface. Where surface drainage is toward the walls, a surface interceptor discharge concrete lined swale is required. Discharge of the retaining wall drainage at the site can be provided by a gravity flow system due to the adequate elevation change across the property.

Any wall that is incorporated into the foundation of a building or restrained at the top should be designed with a 100-psf uniform lateral surcharge load in addition to the lateral earth pressures given above. Parking, storage, basements or other surcharge loads must also be considered.

To reduce the potential for moisture transmission through the retaining wall, where the retaining wall is used as part of a building or where moisture transmission would be objectionable, it is recommended that the appropriate face be hot-mopped in accordance with the manufacturer's specifications and an impermeable membrane be placed over the hot-mopped surface to protect the surface from damage during

drain rock placement. It is important that the surface drainage controls also be installed to reduce the potential for moisture transmission. Where a retaining wall forms part of the building, deflection calculations or allowance for wall movement must be included in the final planning for the structure.

### **Utility Trenches**

Utility trenches that parallel the sides of the buildings should be placed so that they do not extend below a line sloped down and away at a slope of 2H:1V (horizontal to vertical) from the bottom outside edge of the perimeter foundations (i.e., the base of the grade beam systems or the base of exterior footings for the reinforced mat system).

All trenches should be backfilled with native materials compacted uniformly to the relative compaction specified in Appendix B. If local building codes require use of sand as the trench backfill, all utility trenches entering the building must be provided with an impervious seal of either cohesive soil or lean concrete where the trench passes under the building perimeter. The impervious plug must extend 4 feet into, and out of, the building perimeter. Jetting of trench backfill is not recommended as it may result in an unsatisfactory degree of compaction.

### **Drainage**

Surface water must not be allowed to pond adjacent to building foundations. To preclude drainage problems, we recommend roof stormwater control for the proposed facilities. It will be necessary to direct all water collected from roof downspouts into closed conduits that lead to acceptable discharge points away from the structures.

A positive slope gradient of 5 percent down and away from the building perimeter should be applied to the finished subgrade (inclusive of topsoil). This slope should extend no less than 5 feet away from the outside building perimeter. Drop inlet facilities with drainage swales should be provided to remove runoff from around the structures where concrete walks or asphalt pavements do not abut the foundations and non drainage recessed planter areas are located.

Plants should not be placed immediately adjacent to the structures. If vegetation must be planted adjacent to the buildings, plants that require very little moisture should be used. Sprinkler heads should not be placed where they could saturate foundation soil.

### **Pavements**

We recommend selecting the pavement section after earthwork construction for the subject project has been completed and samples of the subgrade soil can be analyzed for R-value. For planning purposes, with the silty sandy soils present, it is recommended that a preliminary section consisting of 4-inch asphaltic concrete underlain by 12-inches of CalTrans Class 2 Aggregate Base be considered. This preliminary section is based on assumed use and not an actual wheel load analysis or traffic study.

This preliminary pavement section is subject to modification based on the results of R-value tests performed on the subgrade soils after grading is completed.

To perform to its greatest efficiency, the pavement section requires the following construction criteria:

- a. Remove organic and deleterious materials from all pavement subgrade. Areas of existing asphaltic concrete section that are disturbed from existing tree roots may require additional subexcavation and recompaction, and even the placement of subgrade stabilization geo-fabric in order to provide a stable subgrade.
- b. Moisture-condition the upper 12 inches of subgrade soil and compact it to a minimum relative compaction of 95 percent and to a moisture content of 2 to 4 percent over the optimum moisture content. All pavement subgrade should be stable with no "pumping" at the time the base rock is placed.
- c. Use only good quality materials of the type and minimum thickness specified. All base rock should meet the *Standard Specifications* of the State of California for Class 2 baserock and should be angular in shape.
- d. Compact the baserock uniformly to a minimum relative compaction of 95 percent.
- e. Place the asphalt concrete only during periods of fair weather when the free air temperature is within the prescribed limits as set forth by the Asphalt Concrete Institute.
- f. Compact all trench backfill under the pavement to reduce fill settlement and minimize pavement damage that may result from such settlement. Mechanical compaction is recommended because material placed by jetting or ponding will probably not attain satisfactory densities.

- g. Provide adequate drainage or V-ditch systems to prevent surface water from migrating into the subgrade pavement soil from behind curb-and-gutter sections. For areas where pavement abuts landscaping, we recommend extending the concrete curb to the bottom of the base rock layer to form a cut-off wall to prevent water from migrating into the base rock.

### **Construction During Fall and Winter Seasons**

Wet weather may raise the moisture content of the soil well above optimum conditions and earthwork construction may be difficult or impossible. Supplemental recommendations will be provided by our Geotechnical Engineer or the Engineer's representative in the field, if appropriate.

### **Miscellaneous**

Our exploratory probes did not encounter any other buried items such as leaching fields, wells, storage tanks, etc., however, such items are anticipated at the site. Where such items are encountered during grading or during excavations of foundations, our firm must be notified immediately to provide recommendations for proper procedures. Also, this study did not include investigations for toxic substances or groundwater contamination of any type. If such conditions are encountered during site development, additional studies will be required.

### **Plan Review**

Before submitting design drawings and construction documents to the appropriate local agency for approval, copies of the documents must be reviewed by our firm to ensure that the recommendations in this report have been effectively incorporated.

**Construction Observations**

A representative of this firm must be present during grading and foundation excavation to observe that the work performed is in conformance with the specifications and recommendations provided in this report. We will also perform testing as necessary to evaluate the quality of the materials and their relative compaction. Records will be maintained of our site visits and test results. At the completion of site grading and foundation excavation, we will submit a summary of our observation and test results along with any necessary supplemental recommendations.

To assure that our personnel are at the site when needed, we require that you notify us at least 2 working days before the task begins.

## **LIMITATIONS**

This report has been prepared for the exclusive use of American Recess, and its consultants for specific application to the proposed development. If changes occur in the nature, design location, or configuration of the proposed development, the conclusions and recommendations contained here shall not be considered valid. Changes must be reviewed by our firm.

The analysis, opinions, conclusions and recommendations submitted in this report are based in part on the referenced materials, site visit and evaluation, and subsurface exploration. The nature and extent of variation among exploratory borings may not become evident until construction. If variations appear, it will be necessary to re-evaluate or revise recommendations made in this report.

The recommendations in this report are contingent on conducting an adequate testing and monitoring program during construction of the proposed development. Unless the construction monitoring and testing program is provided by or coordinated with our firm, PRA Group, Inc. will not be held responsible for compliance with design recommendations presented in this report and other supplemental reports submitted as part of this report.

Our services have been provided in accordance with generally accepted Geotechnical engineering practices. No warranties are made, express or implied, as to the professional opinions or advice provided. Recommendations contained in this report are valid for a period of 2 years; after 2 years they must be reviewed by this firm to determine whether or not they still apply.

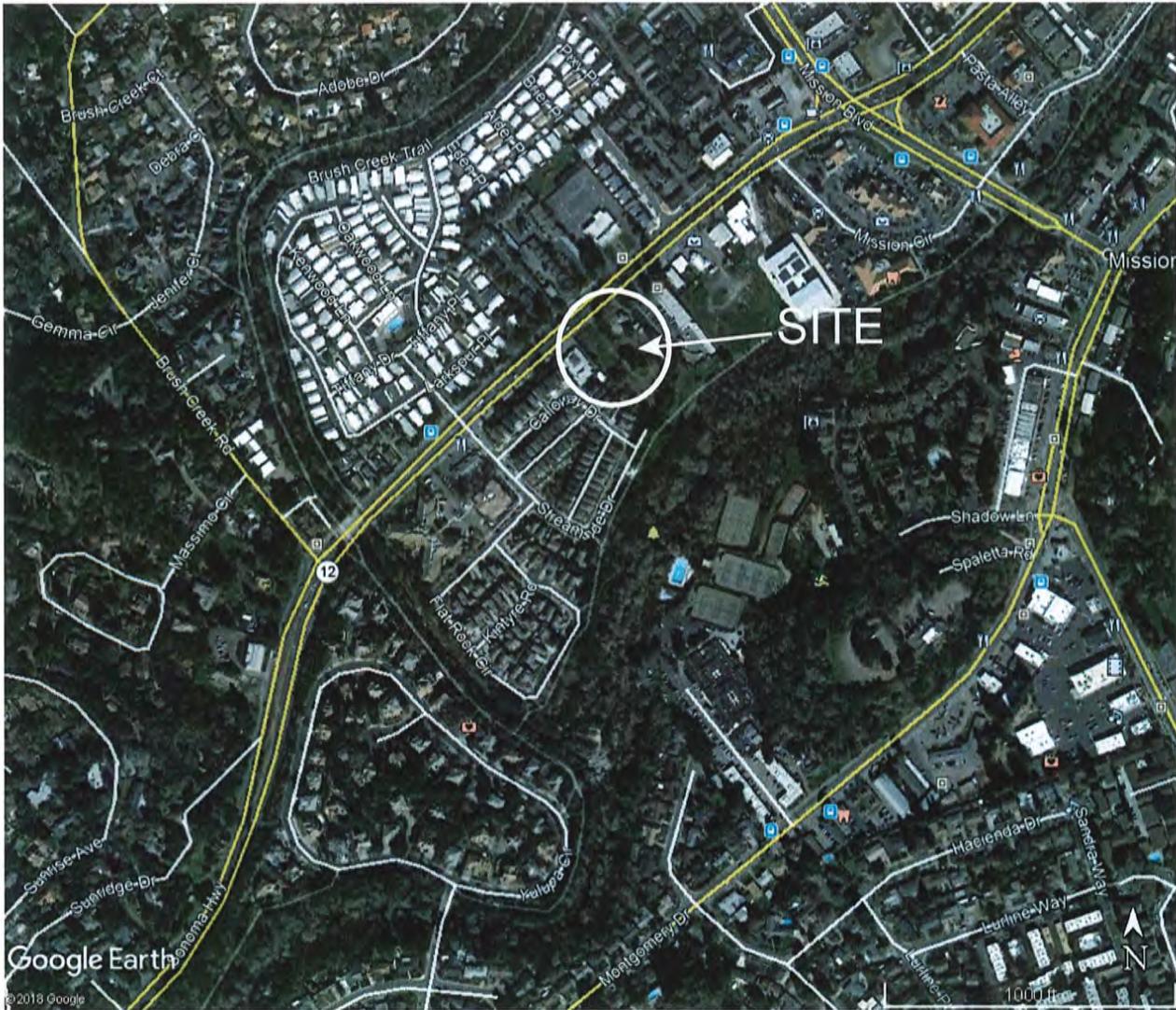
## REFERENCES

- ASCE, 2015, Minimum Design Loads for Buildings and Other Structures: ASCE Standard ASCE/SEI 7-05.
- Boore, D. M., Joyner, W. B., and Fumal, T. E., 1997, Equations for Estimating Horizontal Response Spectra and Peak Accelerations From Western North American Earthquakes: A Summary of Recent Work: Seismological Research Letters, vol. 68, num 1, Pa. 128-153.
- California Department of Conservation, Division of Mines and Geology, February 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.
- CalTrans, 2012, Fault Database
- Graymer, R. W., Jones, D. L., Brabb, E. E., 1994, Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California: A Digital Database: U. S. G. S. Open File Report 94-622.
- Huffman, M. E., and Armstrong, C. F., 1980, Geology for Planning in Sonoma County: California Division of Mines and Geology Special Report 120.
- Ploessel, M.R. and Slosson, J.E., 1974, Repeatable High Ground Accelerations From Earthquakes - Important Design Criteria: California Geology, September.
- McLaughlin, R. J., Langenheim, V. E., Sarna-Wojcicki, A. M., Fieck, R. J., McPhee, D. K., Roberts, C. W., McCabe, C. A., and Wan, Elmira, 2008, Geologic and Geophysical Framework of the Santa Rosa 7.5' Quadrangle, Sonoma County, California: USGS Open File Report 2008-1009.
- Sowers, J. M., Noller, J. S., and Lettis, W. R., 1998, Maps Showing Quaternary Geology and Liquefaction Susceptibility, Napa, California, 1:100,000 Quadrangle: A Digital Database: U. S. G. S. Open File Report 98-460.
- U. S. Geological Survey, 2003, Seismic Design for Buildings (interactive web site).
- Witter, C. M., Knudsen, K. L., Sowers, J. M., Wentworth, C. M., Koehler, R. D., and Randolph, C. E., 2006, Maps of Quaternary Deposits and Liquefaction

Susceptibility in the Central San Francisco Bay Region, California: U. S. G.  
S. Open File Report 2006-1037

Working Group on Northern California Earthquake Potential, 2015, Uniform  
Californian Earthquake Rupture Forecast: USGS, Southern California  
Earthquake Center, and California Geologic Survey.

**FIGURES**



SCALE: As shown.

DATE AUGUST 2018  
 JOB NO. G407-01  
 DWG NO. G40701.FIG1  
 DRAWN  
 CHK'D JJA  
 APP'D DJR

**PRA GROUP, INC.**

Consultants in the Applied Earth Sciences

**SITE LOCATION MAP**

4224 HIGHWAY 12  
 SANTA ROSA, CA

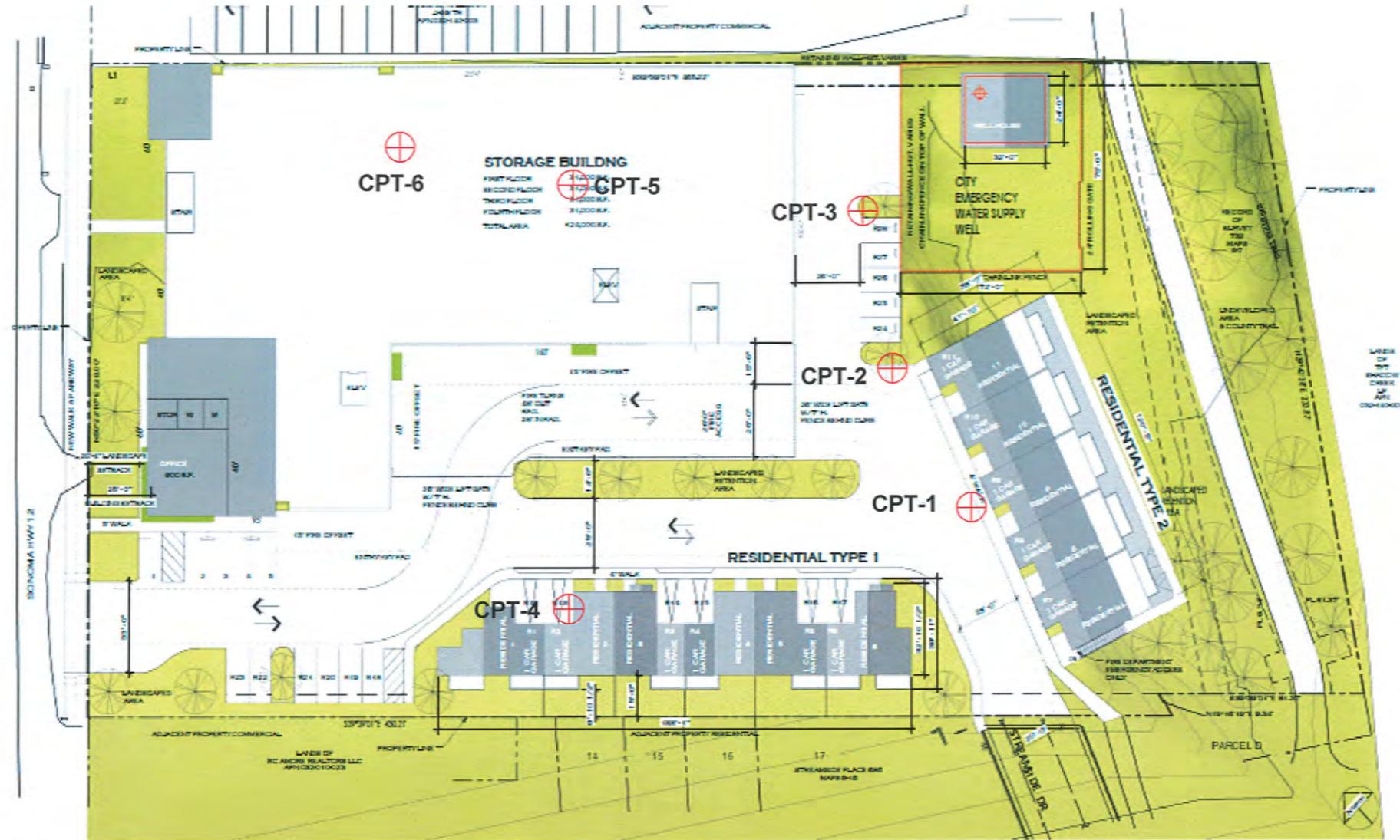
CLIENT

AMERICAN RECESS

FIGURE NO.

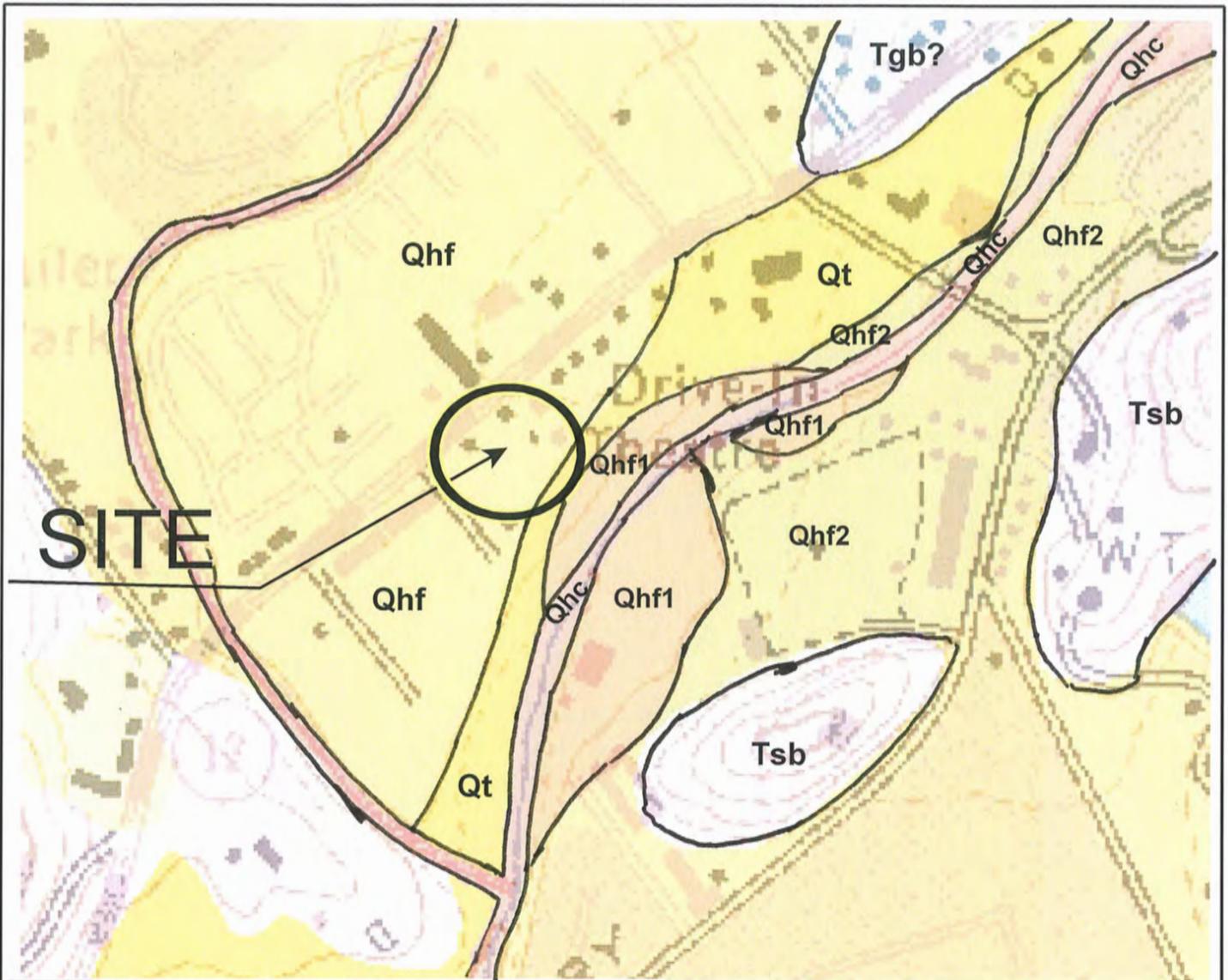
1

REV. NO.



⊕ Indicates approximate location of CPT probe.  
CPT-6

NOTES	DATE	AUGUST 2018	<b>PRA GROUP, INC.</b> Geotechnical, Environmental & Materials Testing <b>SITE PLAN WITH CPT PROBE LOCATIONS</b> PROPOSED SELF STORAGE FACILITY SANTA ROSA, CALIFORNIA CLIENT AMERICAN RECESS	FIGURE NO.
	JOB NO.	G407-01		2
	DWG. NO.	G407-01.FIG2		
	DRAWN	JJA		REV. NO.
	CHK'D			
	APP'D	DJR		



- Qhc** Channels (Holocene)—Incise older deposits
- Qhf** Alluvial fan and fluvial terrace deposits, undivided (Holocene)—Gravel, sand and silt, derived primarily from Pleistocene and older sedimentary and igneous units, including older Tertiary to Pleistocene non-marine gravel, late Tertiary volcanic rocks, and Mesozoic bedrock units of the Franciscan Complex, Coast Range ophiolite and Great Valley sequence. Unit may be further subdivided into the following units.
- Qhf<sub>1</sub>** Young Holocene alluvial fan and fluvial terrace deposits—Inset into old Holocene alluvial fans and fluvial terraces and pre-Holocene deposits
- Qhf<sub>2</sub>** Old Holocene alluvial fan and fluvial terrace deposits (Holocene?)—Inset into older Holocene and pre-Holocene deposits
- Qt** Alluvial deposits, undivided (Holocene and Pleistocene)—Includes undivided Holocene and Pleistocene terrace deposits
- Tsb** Andesite, basaltic andesite and basalt

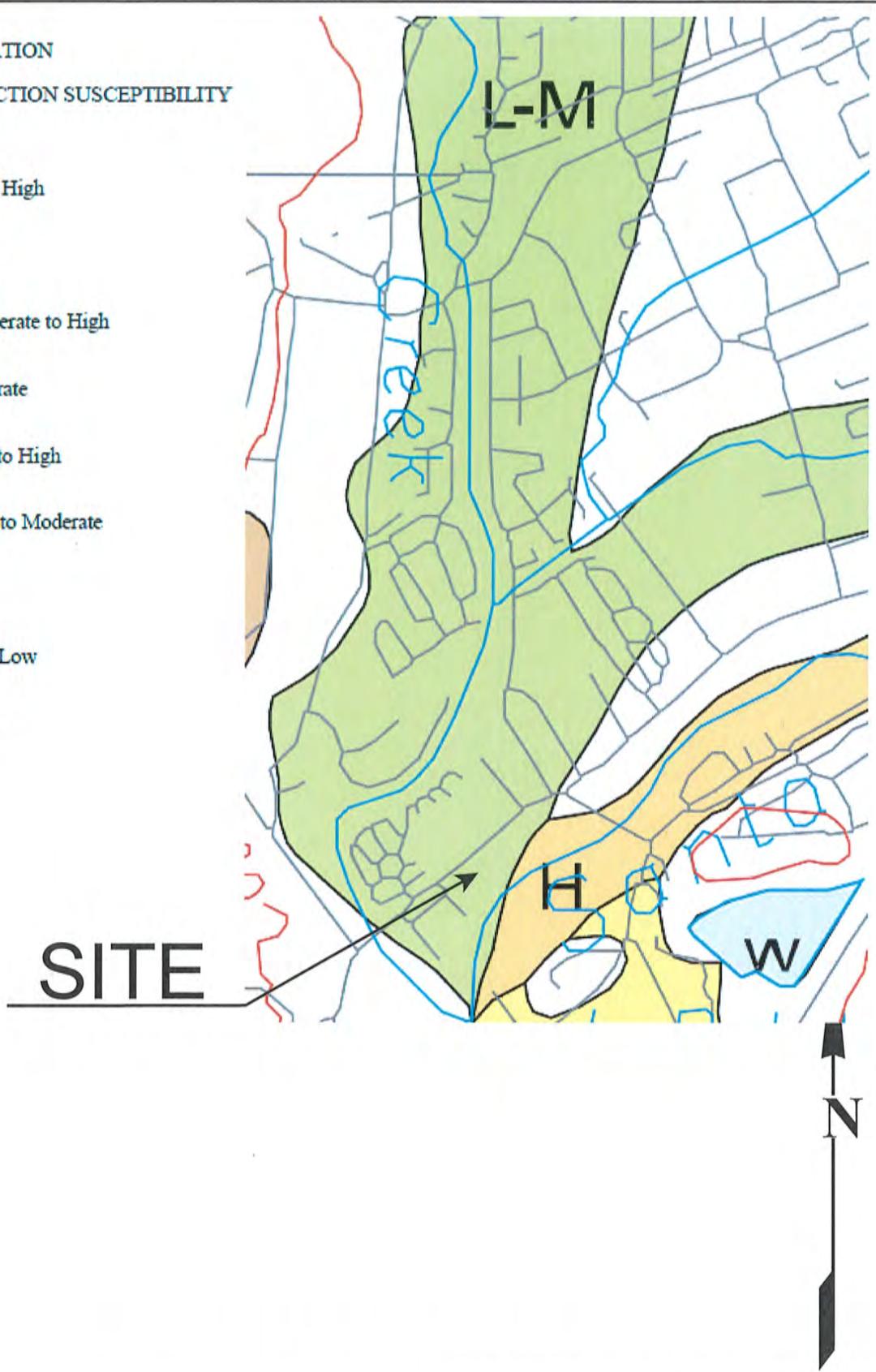


NOTES SOURCE: MCLAUGHLIN et al (2008)	DATE	AUGUST 2018	 <b>PRA Group</b> CONSULTING ENGINEERS <b>AREA GEOLOGIC MAP</b> 4224 HIGHWAY 12 SANTA ROSA, CALIFORNIA	FIGURE NO.
	JOB NO.	G407-01		3
	DWG NO.	G40701FIG 3		REV. NO.
	DRAWN	IDA		
	CHK'D	DJR		
APP'D	DJR	CLIENT	AMERICAN RECESS	

EXPLANATION

LIQUEFACTION SUSCEPTIBILITY UNITS

-  VH Very High
-  H High
-  M-H Moderate to High
-  M Moderate
-  L-H Low to High
-  L-M Low to Moderate
-  L Low
-  VL Very Low
-  w Water



NOTES

SOURCE:  
SOWERS et al (1998)

DATE AUGUST 2018

JOB NO. G407-01

DWG NO. G40701FIG 3A

DRAWN IDA

CHK'D DJR

APP'D DJR



**PRA Group**  
CONSULTING ENGINEERS

**LIQUEFACTION SUSCEPTIBILITY MAP**

4224 HIGHWAY 12  
SANTA ROSA, CALIFORNIA

CLIENT

AMERICAN RECESS

FIGURE NO.

3A

REV. NO.

**APPENDIX A**

**CPT SUBSURFACE EXPLORATION  
PRESENTATION OF SITE INVESTIGATION RESULTS  
DATED JUNE 19, 2018**

## PRESENTATION OF SITE INVESTIGATION RESULTS

### Self Storage and Residential Complex

*Prepared for:*

Purcell Rhoades and Associates

CPT Inc. Job No: 18-56099

Project Start Date: 19-Jun-2018

Project End Date: 19-Jun-2018

Report Date: 22-Jun-2018



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## Self Storage and Residential Complex

### Introduction

The enclosed report presents the results of the site investigation program conducted by CPT Inc. for Purcell Rhoades and Associates at 4224 Sonoma Hwy, Santa Rosa, CA. The program consisted of six cone penetration tests (CPT).

### Project Information

Project	
Client	Purcell Rhoades and Associates
Project	Self Storage and Residential Complex
CPT Inc. project number	18-56099

An aerial overview from Google Earth including the CPT locations is presented below.



Rig Description	Deployment System	Test Type
CPT track rig (GPT2)	20 ton rig cylinder	CPT

Self Storage and Residential Complex

Coordinates		
Test Type	Collection Method	EPSG Reference
CPT	Consumer grade GPS	32610

Cone Penetration Test (CPT)	
Depth reference	Depths are referenced to the existing ground surface at the time of each test.
Tip and sleeve data offset	0.1 meter This has been accounted for in the CPT data files.
Additional plots	Expanded range plots, advanced CPT plots with $I_c$ (PKR 2009), $S_u$ (Nkt), $\Phi$ and N160 and Soil Behavior Type (SBT) scatter plots are included in the data release package.

Cone Penetrometers Used for this Project						
Cone Description	Cone Number	Cross Sectional Area (cm <sup>2</sup> )	Sleeve Area (cm <sup>2</sup> )	Tip Capacity (bar)	Sleeve Capacity (bar)	Pore Pressure Capacity (psi)
443:T1500F15U500	443	15	225	1500	15	500
Cone 443 was used for all CPT soundings.						

CPT Calculated Parameters	
Additional information	<p>The Normalized Soil Behavior Type Chart based on <math>Q_{tn}</math> (SBT <math>Q_{tn}</math>) (Robertson, 2009) was used to classify the soil for this project. A detailed set of calculated CPT parameters have been generated and are provided in Excel format files in the release folder. The CPT parameter calculations are based on values of corrected tip resistance (<math>q_t</math>) sleeve friction (<math>f_s</math>), and pore pressure (<math>u_2</math>).</p> <p>Soils were classified as either drained or undrained based on the <math>Q_{tn}</math> Normalized Soil Behavior Type Chart (Robertson, 2009). Calculations for both drained and undrained parameters were included for materials that classified as silt mixtures (zone 4).</p>

### Limitations

This report has been prepared for the exclusive use of Purcell Rhoades and Associates (Client) for the project titled "Self Storage and Residential Complex". The report's contents may not be relied upon by any other party without the express written permission of CPT Inc. CPT Inc. has provided site investigation services, prepared the factual data reporting, and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to CPT Inc. by the Client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

## CONE PENETRATION TEST

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The cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd. of Richmond, British Columbia, Canada.

CPT Inc.'s piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and a geophone sensor for recording seismic signals. All signals are amplified down hole within the cone body and the analog signals are sent to the surface through a shielded cable.

The penetrometers are manufactured with various tip, friction and pore pressure capacities in both 10 cm<sup>2</sup> and 15 cm<sup>2</sup> tip base area configurations in order to maximize signal resolution for various soil conditions. The specific piezocone used for each test is described in the CPT summary table presented in the first appendix. The 15 cm<sup>2</sup> penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm<sup>2</sup> piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross sectional area (typically 44 mm diameter over a length of 32 mm with tapered leading and trailing edges) located at a distance of 585 mm above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a 60 degree apex angle.

All piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u<sub>2</sub>" position (ASTM Type 2). The filter is 6 mm thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. Our calibration criteria also meet or exceed those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

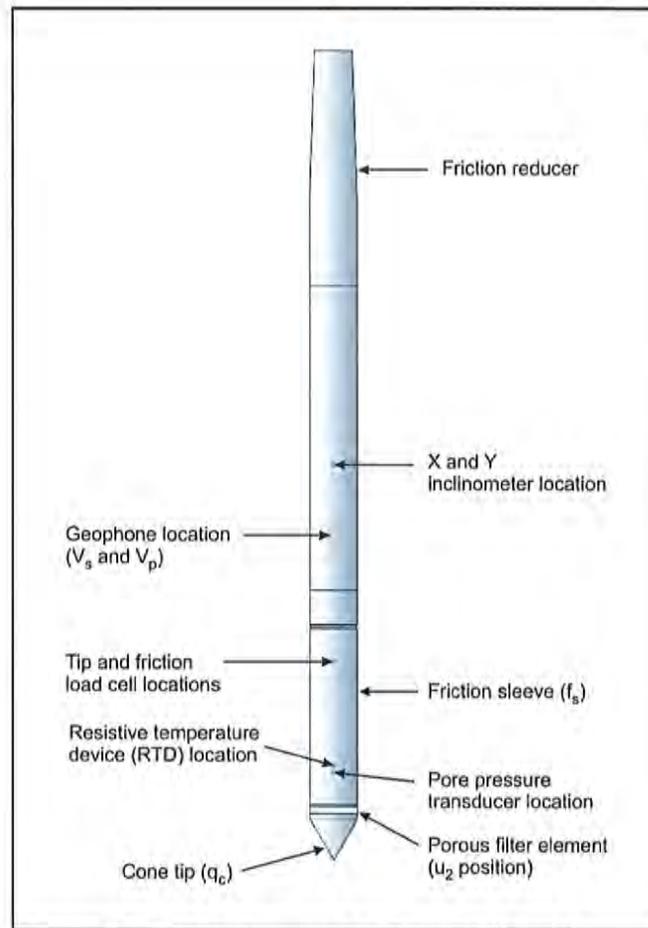


Figure CPTu. Piezocone Penetrometer (15 cm<sup>2</sup>)

The data acquisition systems consist of a Windows based computer and a signal conditioner and power supply interface box with a 16 bit (or greater) analog to digital (A/D) converter. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording intervals are either 2.5 cm or 5.0 cm depending on project requirements; custom recording intervals are possible. The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance ( $q_c$ )
- Sleeve friction ( $f_s$ )
- Dynamic pore pressure ( $u$ )
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to CPT Inc.'s CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with either glycerin or silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of 2 cm/s, within acceptable tolerances. Typically one meter length rods with an outer diameter of 1.5 inches are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to CPT Inc.'s cone penetration testing procedures:

- Each filter is saturated in silicone oil or glycerin under vacuum pressure prior to use
- Recorded baselines are checked with an independent multi-meter
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of the piezocone data and associated calculated parameters for this report are based on the corrected tip resistance ( $q_t$ ), sleeve friction ( $f_s$ ) and pore water pressure ( $u$ ). The interpretation of soil type is based on the correlations developed by Robertson (1990) and Robertson (2009). It should be noted that it is not always possible to accurately identify a soil type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance ( $q_c$ ) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance ( $q_t$ ) according to the following expression presented in Robertson et al, 1986:

$$q_t = q_c + (1-a) \cdot u_2$$

where:  $q_t$  is the corrected tip resistance  
 $q_c$  is the recorded tip resistance  
 $u_2$  is the recorded dynamic pore pressure behind the tip ( $u_2$  position)  
 $a$  is the Net Area Ratio for the piezocone (0.8 for CPT Inc. probes)

The sleeve friction ( $f_s$ ) is the frictional force on the sleeve divided by its surface area. As all CPT Inc. piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure ( $u$ ) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

## CONE PENETRATION TEST

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The friction ratio ( $R_f$ ) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of files with calculated geotechnical parameters were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the methods used is also included in the data release folder.

For additional information on CPTu interpretations and calculated geotechnical parameters, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

## PORE PRESSURE DISSIPATION TEST

The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure ( $u$ ) with time ( $t$ ).

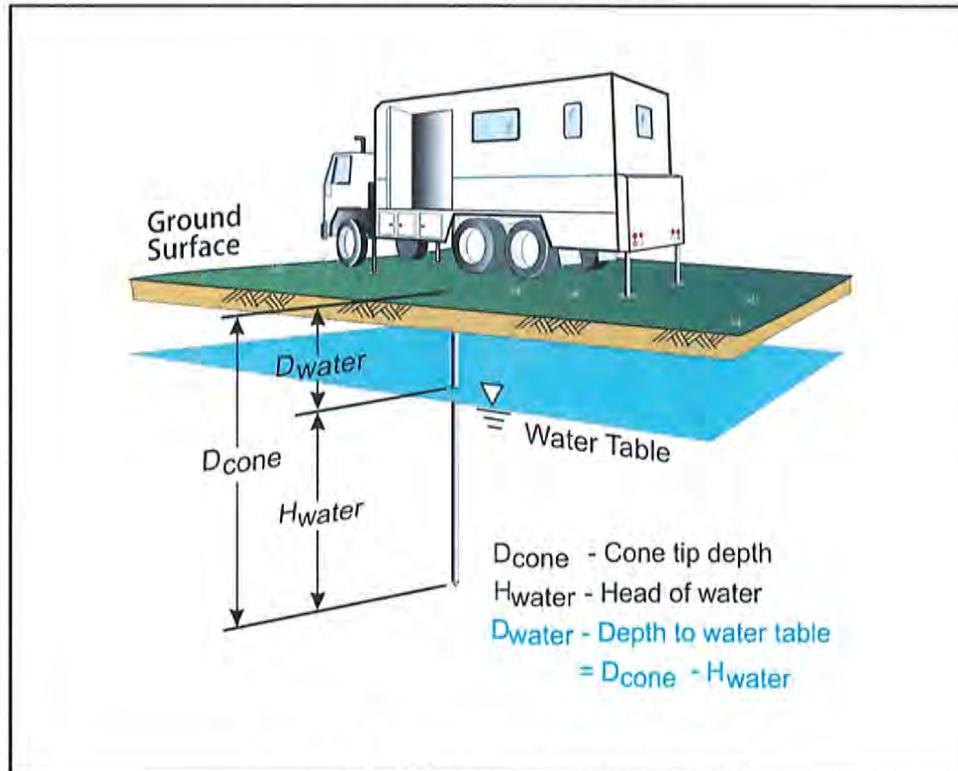


Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

## PORE PRESSURE DISSIPATION TEST

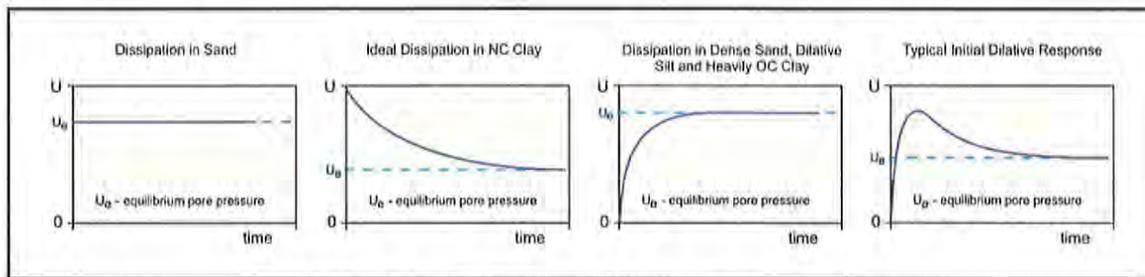


Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure ( $u_{eq}$ ) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve of Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as  $t_{100}$ . In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to  $t_{100}$ . A theoretical analysis of pore pressure dissipations by Teh and Housby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor ( $T^*$ ) may be used to calculate the coefficient of consolidation ( $c_h$ ) at various degrees of dissipation resulting in the expression for  $c_h$  shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

- $T^*$  is the dimensionless time factor (Table Time Factor)
- $a$  is the radius of the cone
- $I_r$  is the rigidity index
- $t$  is the time at the degree of consolidation

Table Time Factor,  $T^*$  versus degree of dissipation (Teh and Housby, 1991)

Degree of Dissipation (%)	20	30	40	50	60	70	80
$T^* (u_2)$	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time ( $t_{50}$ ) corresponding to a degree of dissipation of 50% ( $u_{50}$ ). In order to determine  $t_{50}$ , dissipation tests must be taken to a pressure less than  $u_{50}$ . The  $u_{50}$  value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as  $u_{100}$ . To estimate  $u_{50}$ , both the initial maximum pore pressure and  $u_{100}$  must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure ( $u$  at  $t_{100}$ ) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly ( $u_{100}$ ), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of  $c_h$  (Teh and Housby, 1991),  $t_{50}$  values are estimated from the corresponding pore pressure dissipation curve and a rigidity index ( $I_r$ ) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining  $t_{50}$ . In cases where the time to peak is excessive,  $t_{50}$  values are not calculated.

Due to possible inherent uncertainties in estimating  $I_r$ , the equilibrium pore pressure and the effect of an initial dilatory response on calculating  $t_{50}$ , other methods should be applied to confirm the results for  $c_h$ .

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

## REFERENCES

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- ASTM D5778-12, 2012, "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils", ASTM, West Conshohocken, US.
- Burns, S.E. and Mayne, P.W., 1998, "Monotonic and dilatatory pore pressure decay during piezocone tests", *Canadian Geotechnical Journal* 26 (4): 1063-1073.
- Burns, S.E. and Mayne, P.W., 2002, "Analytical cavity expansion-critical state model cone dissipation in fine-grained soils", *Soils & Foundations*, Vol. 42(2): 131-137.
- Jones, G.A. and Van Zyl, D.J.A., 1981, "The piezometer probe: a useful investigation tool", *Proceedings, 10<sup>th</sup> International Conference on Soil Mechanics and Foundation Engineering*, Vol. 3, Stockholm: 489-495.
- Lunne, T., Robertson, P.K. and Powell, J. J. M., 1997, "Cone Penetration Testing in Geotechnical Practice", Blackie Academic and Professional.
- Mayne, P.W., 2013, "Evaluating yield stress of soils from laboratory consolidation and in-situ cone penetration tests", *Sound Geotechnical Research to Practice (Holtz Volume) GSP 230*, ASCE, Reston/VA: 406-420.
- Mayne, P.W., 2014, "Interpretation of geotechnical parameters from seismic piezocone tests", *CPT'14 Keynote Address*, Las Vegas, NV, May 2014.
- Mayne, P.W. and Peuchen, J., 2012, "Unit weight trends with cone resistance in soft to firm clays", *Geotechnical and Geophysical Site Characterization 4*, Vol. 1 (Proc. ISC-4, Pernambuco), CRC Press, London: 903-910.
- Robertson, P.K., 1990, "Soil Classification Using the Cone Penetration Test", *Canadian Geotechnical Journal*, Volume 27: 151-158.
- Robertson, P.K., 2009, "Interpretation of cone penetration tests – a unified approach", *Canadian Geotechnical Journal*, Volume 46: 1337-1355.
- Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", *Proceedings of InSitu 86*, ASCE Specialty Conference, Blacksburg, Virginia.
- Robertson, P.K., Sully, J.P., Woeller, D.J., Lunne, T., Powell, J.J.M. and Gillespie, D.G., 1992, "Estimating coefficient of consolidation from piezocone tests", *Canadian Geotechnical Journal*, 29(4): 551-557.
- Sully, J.P., Robertson, P.K., Campanella, R.G. and Woeller, D.J., 1999, "An approach to evaluation of field CPTU dissipation data in overconsolidated fine-grained soils", *Canadian Geotechnical Journal*, 36(2): 369-381.
- Teh, C.I., and Houlby, G.T., 1991, "An analytical study of the cone penetration test in clay", *Geotechnique*, 41(1): 17-34.

## APPENDICES

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The appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- Expanded Range Cone Penetration Test Plots
- Advanced Cone Penetration Test Plots
- Soil Behavior Type (SBT) Scatter Plots
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

# Cone Penetration Test Summary and Standard Cone Penetration Test Plots



Job No: 18-56099  
Client: Purcell Rhoades and Associates  
Project: Self Storage and Residential Complex  
Start Date: 19-Jun-2018  
End Date: 19-Jun-2018

### CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface <sup>1</sup> (ft)	Final Depth (ft)	Northing <sup>2</sup> (m)	Easting (m)	Refer to Notation Number
CPT-01	18-56099_CP01	19-Jun-2018	443:T1500F15U500	21.2	24.11	4256467	528202	3
CPT-02	18-56099_CP02	19-Jun-2018	443:T1500F15U500	21.2	35.93	4256482	528203	3
CPT-03	18-56099_CP03	19-Jun-2018	443:T1500F15U500		18.21	4256497	528211	4
CPT-04	18-56099_CP04	19-Jun-2018	443:T1500F15U500	21.2	45.36	4256494	528160	
CPT-05	18-56099_CP05	19-Jun-2018	443:T1500F15U500		19.52	4256523	528193	4
CPT-06	18-56099_CP06	19-Jun-2018	443:T1500F15U500	21.2	23.62	4256541	528181	3

1. The assumed phreatic surface was based on pore pressure dissipation tests, unless otherwise noted. Hydrostatic conditions were assumed for the calculated parameters.

2. Coordinates were acquired using consumer grade GPS equipment in datum: WGS 1984 / UTM Zone 10 North.

3. The assumed phreatic surface was based on the adjacent sounding CPT-04.

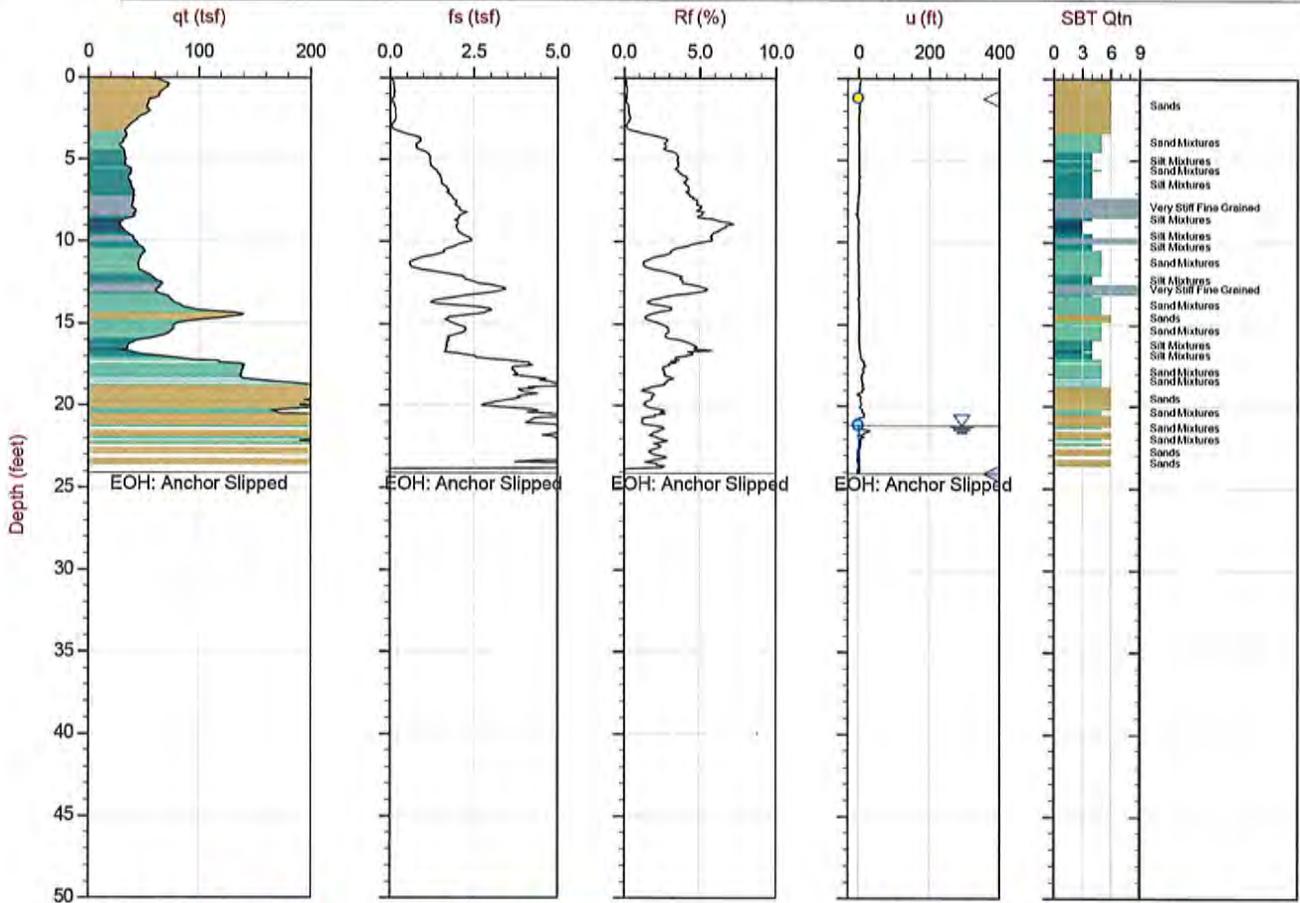
4. No phreatic surface detected.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 09:57  
 Site: Self Storage and Residential Complex

Sounding: CPT-01  
 Cone: 443:T1500F15U500



Max Depth: 7.350 m / 24.11 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP01.COR  
 Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256467m E: 528202m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq   ● Assumed Ueq   ◁ Dissipation, Ueq achieved   — Hydrostatic Line

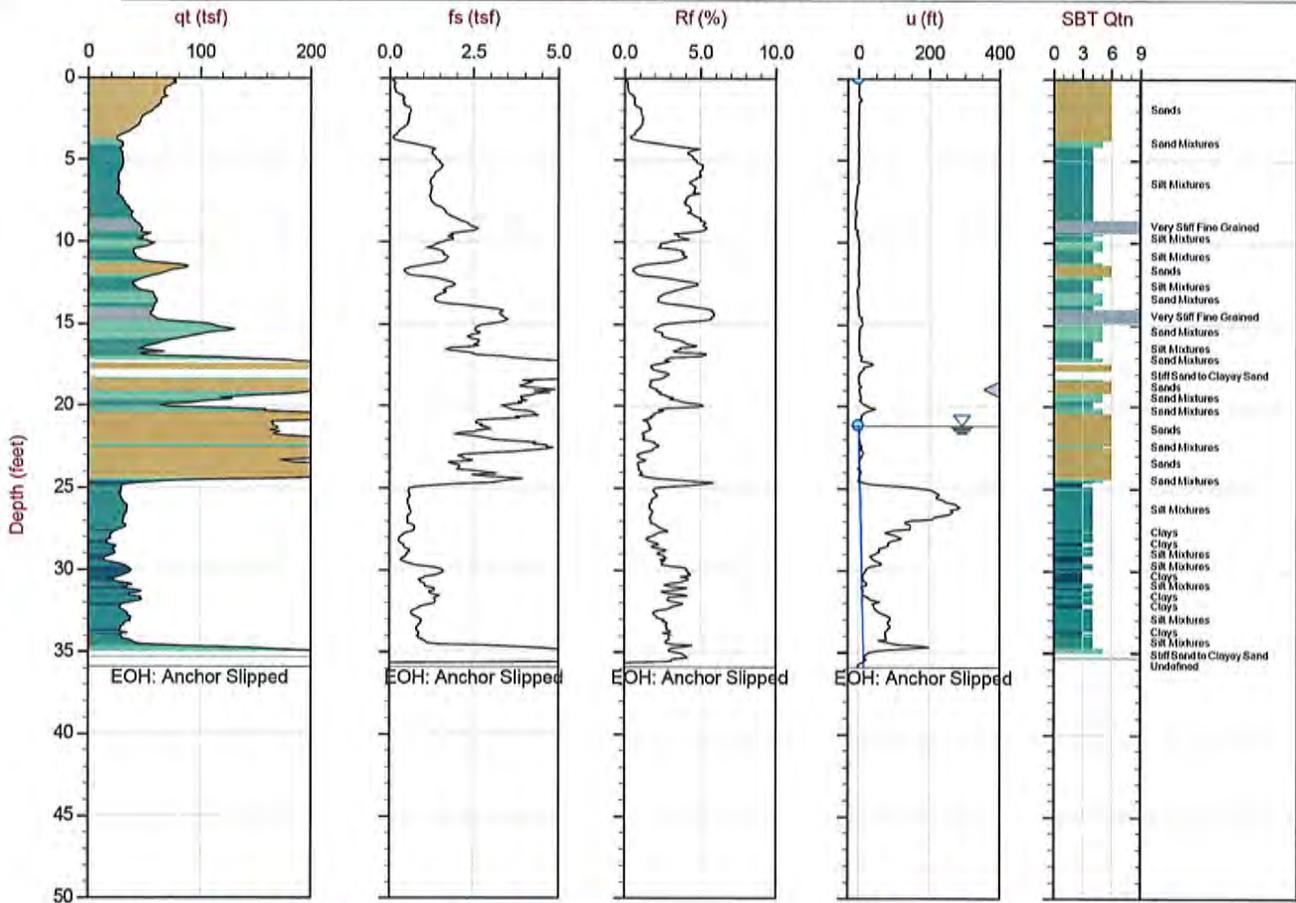
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 10:44  
 Site: Self Storage and Residential Complex

Sounding: CPT-02  
 Cone: 443:T1500F15U500



Max Depth: 10.950 m / 35.92 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP02.COR  
 Unit Wt: SBTQIn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256482m E: 528203m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ● AssumedUeq ◁ Dissipation, Ueq achieved — Hydrostatic Line

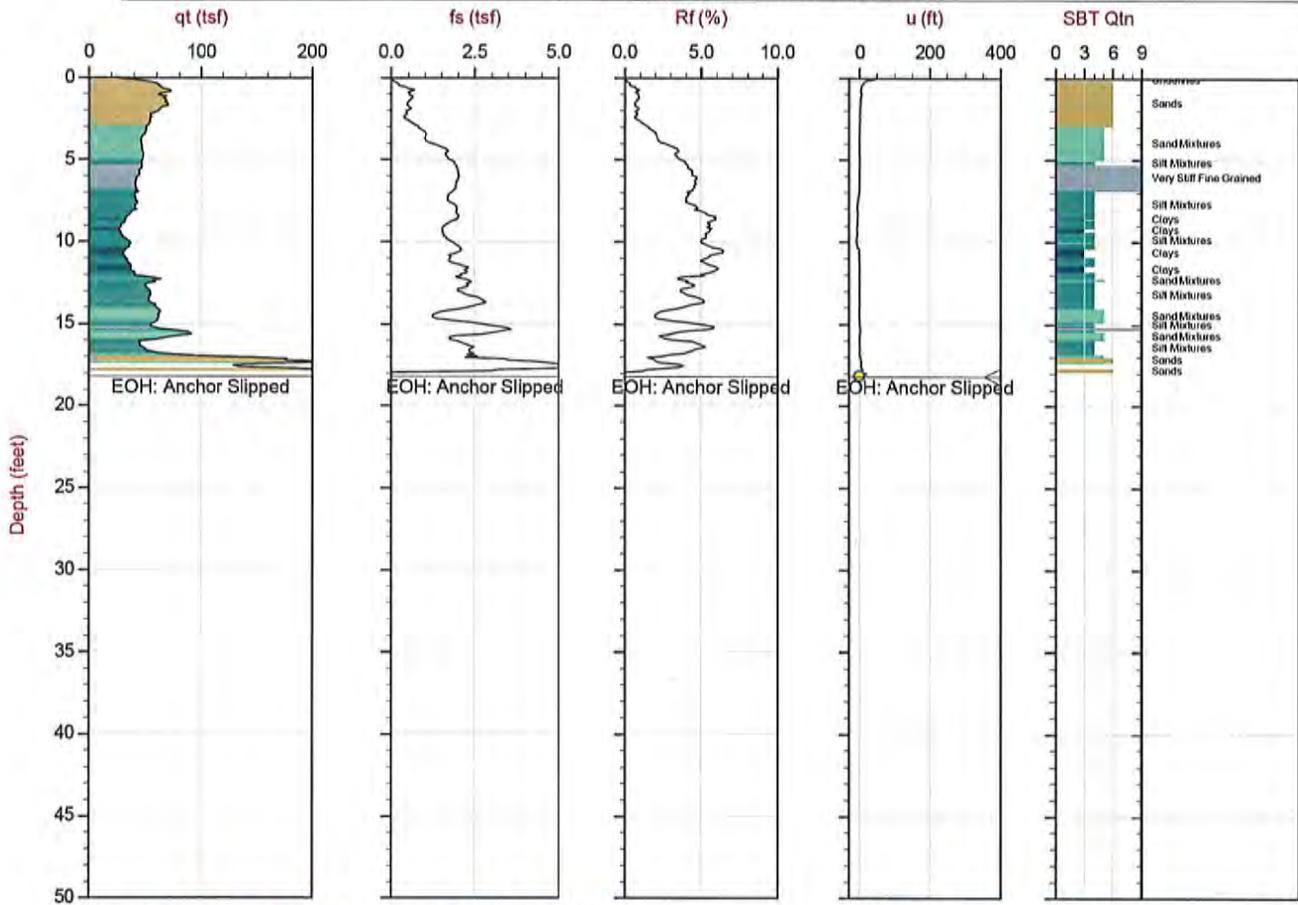
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 11:26  
 Site: Self Storage and Residential Complex

Sounding: CPT-03  
 Cone: 443:T1500F15U500



Max Depth: 5.550 m / 18.21 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP03.COR  
 Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256497m E: 528211m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ○ Assumed Ueq ◁ Dissipation, Ueq achieved — Hydrostatic Line

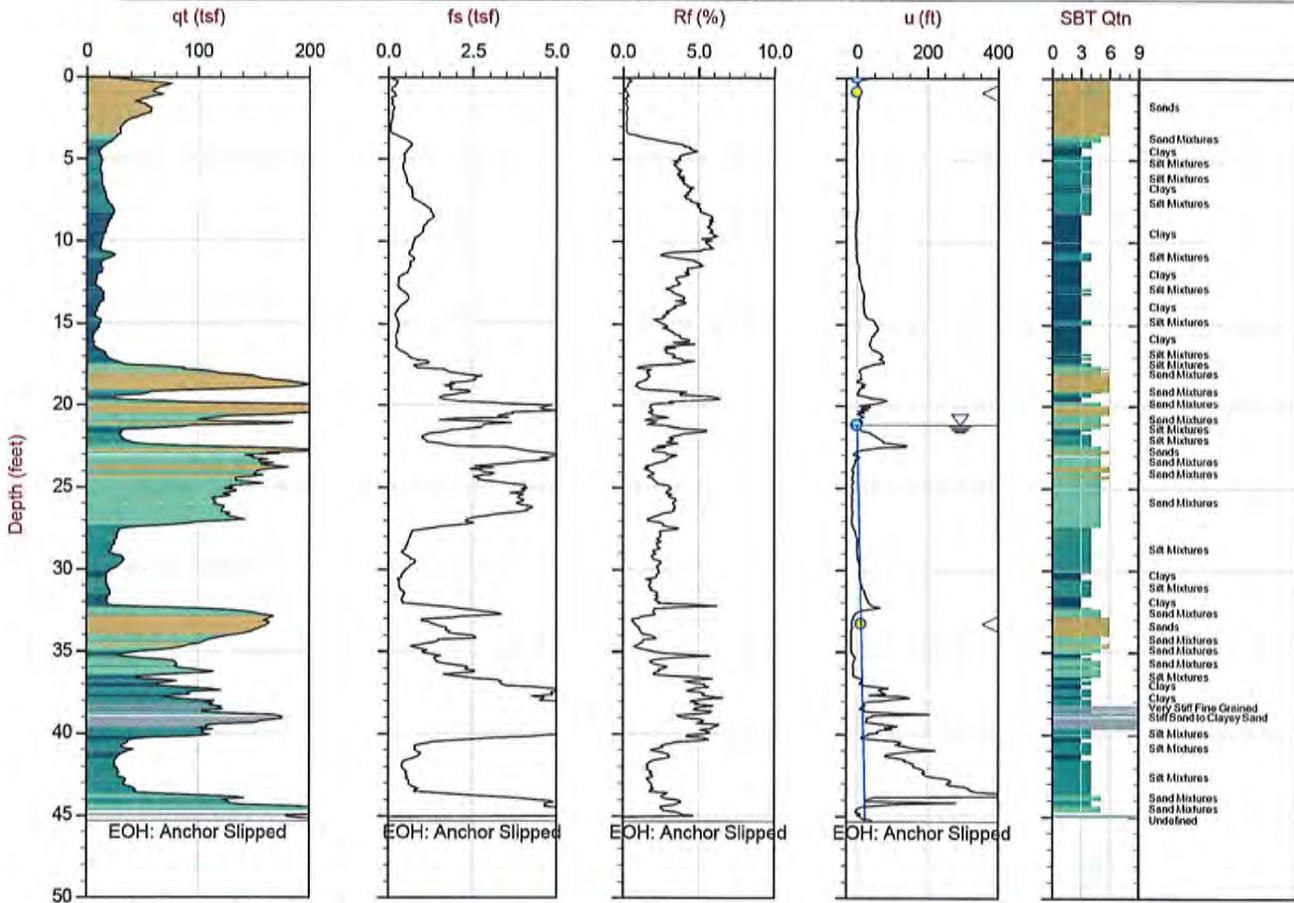
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
Date: 2018-06-19 12:16  
Site: Self Storage and Residential Complex

Sounding: CPT-04  
Cone: 443:T1500F15U500



Max Depth: 13.825 m / 45.36 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 18-56099\_CP04.COR  
Unit Wt: SBTQIn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10 N N: 4256494m E: 528160m  
Sheet No: 1 of 1

Overplot Item: ● Ueq   ● Assumed Ueq   ◁ Dissipation, Ueq achieved   — Hydrostatic Line

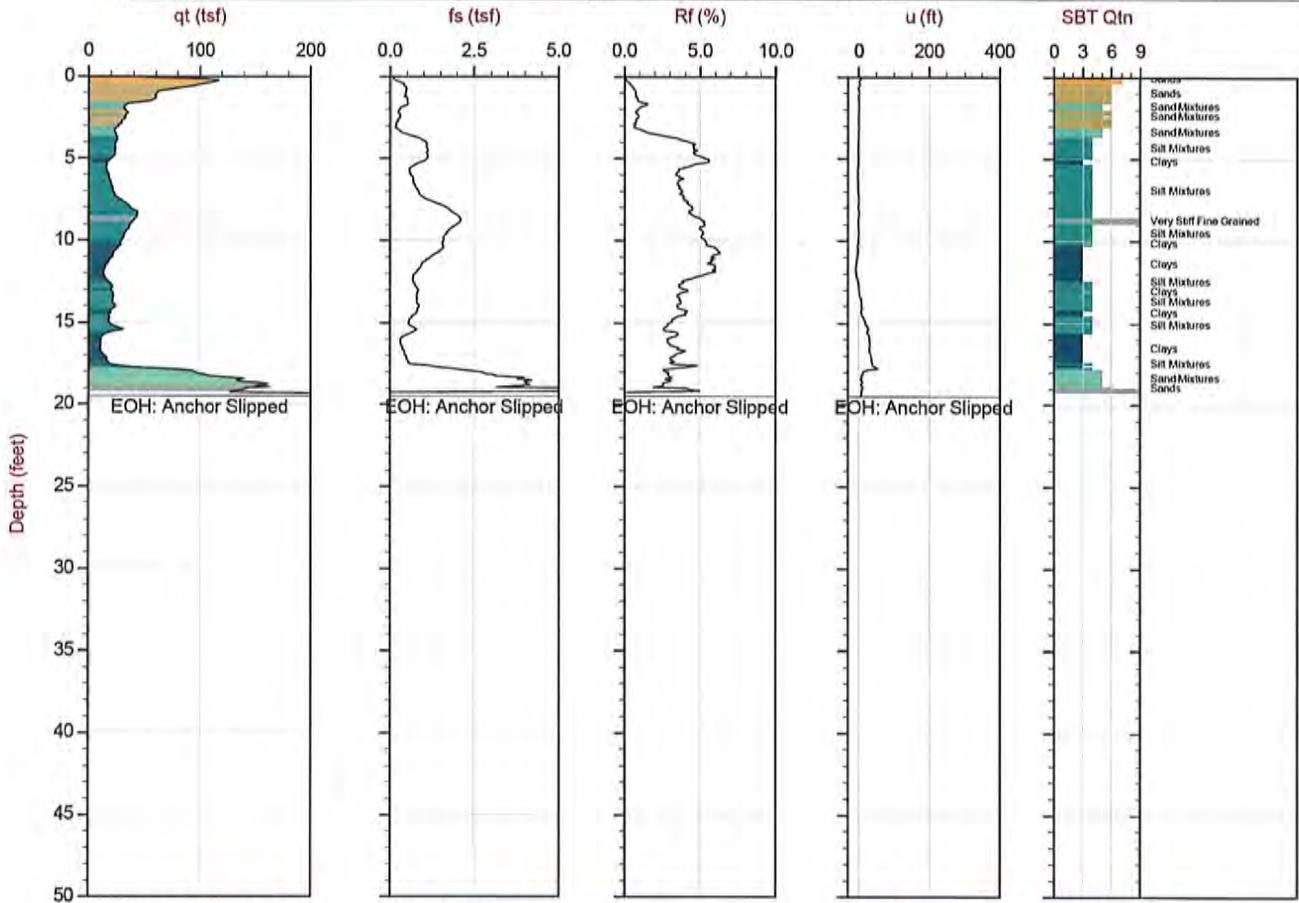
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 13:12  
 Site: Self Storage and Residential Complex

Sounding: CPT-05  
 Cone: 443:T1500F15U500



Max Depth: 5.950 m / 19.52 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP05.COR  
 Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256523m E: 528193m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ● Assumed Ueq ◁ Dissipation, Ueq achieved — HydrostaticLine

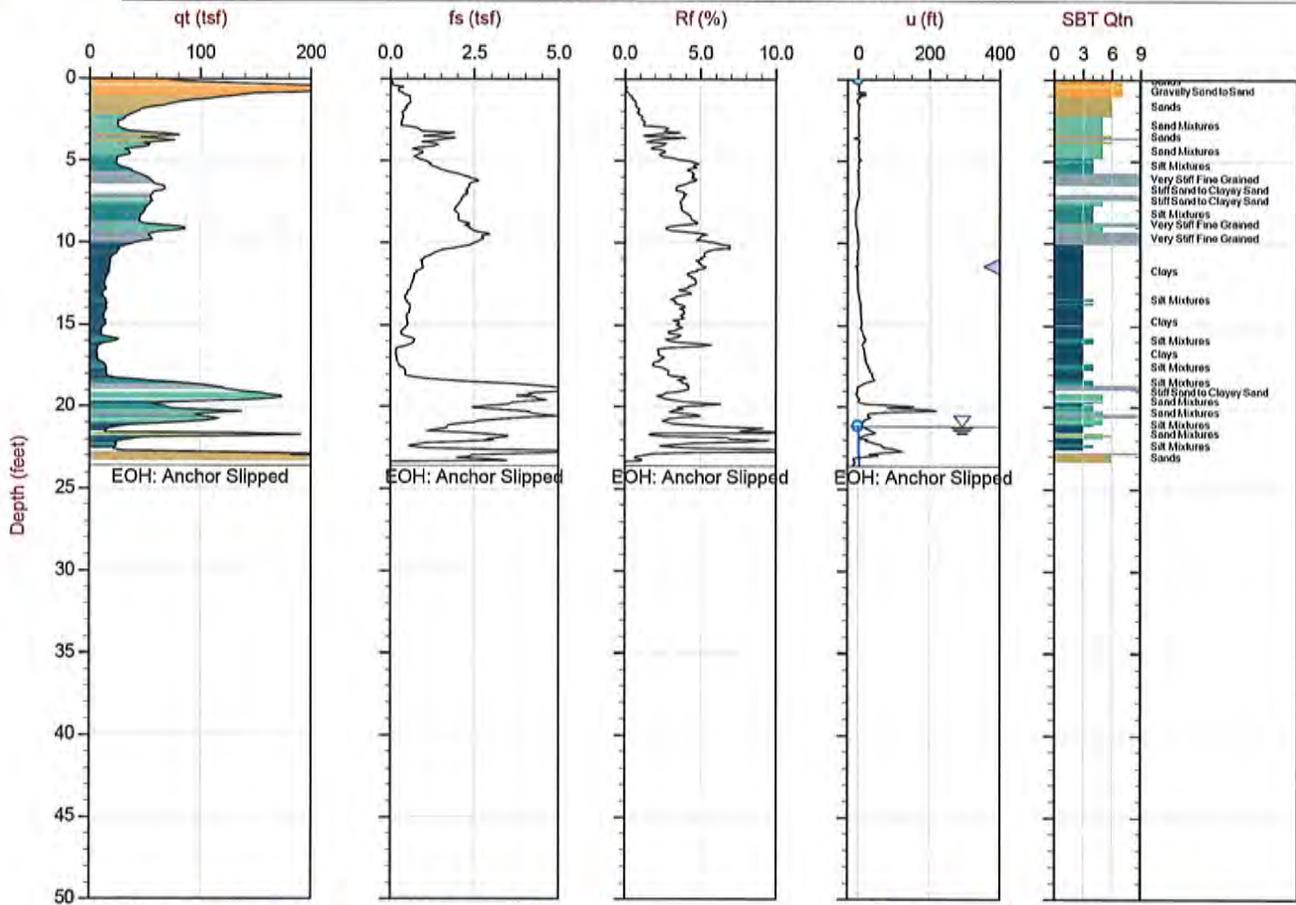
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 13:44  
 Site: Self Storage and Residential Complex

Sounding: CPT-06  
 Cone: 443:T1500F15U500



Max Depth: 7.200 m / 23.62 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP06.COR  
 Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256541m E: 528181m  
 Sheet No: 1 of 1

Overplot Item: ● Ueq ● Assumed Ueq ◁ Dissipation, Ueq achieved — Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

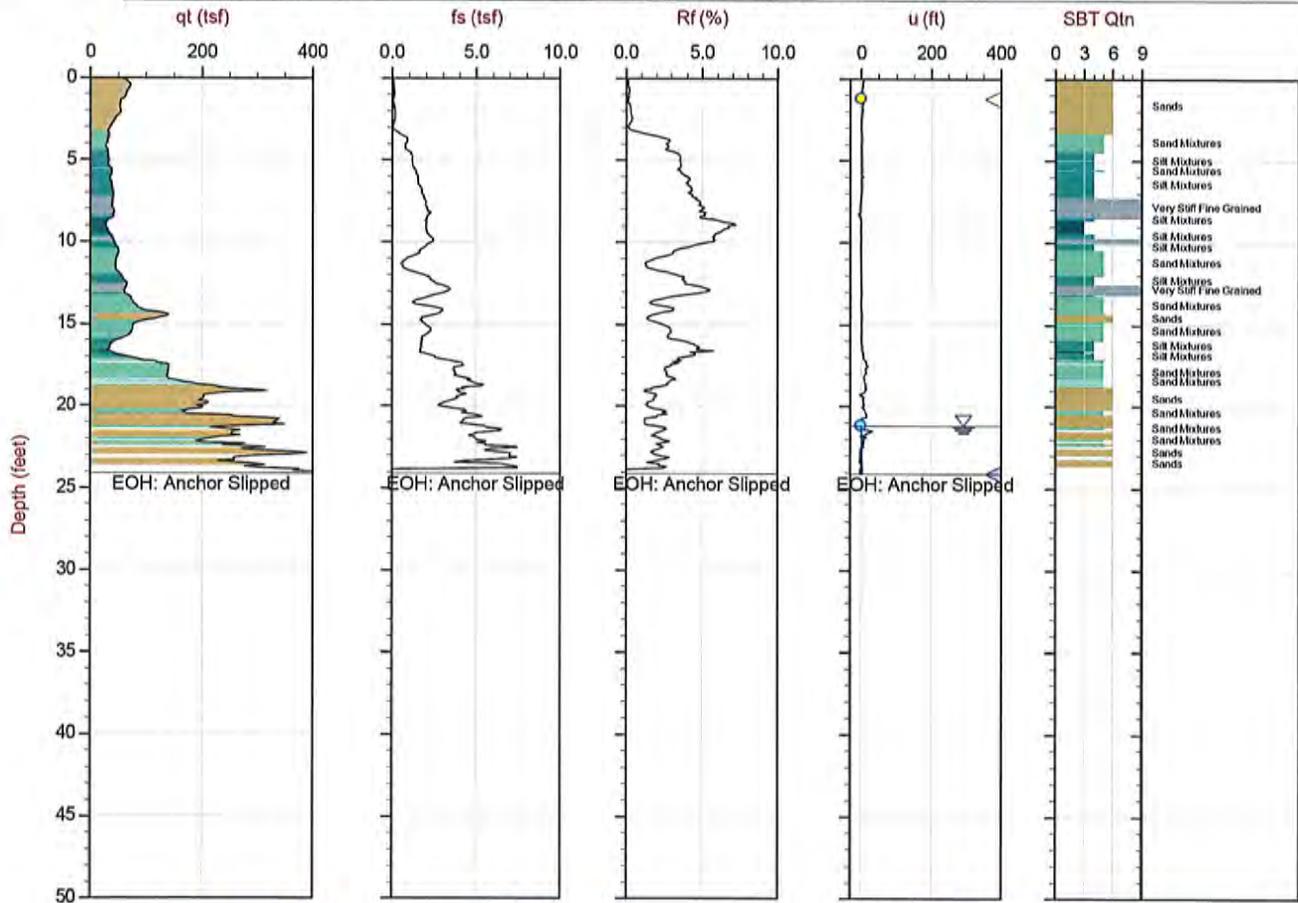
## Cone Penetration Test Plots with Expanded Range



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 09:57  
 Site: Self Storage and Residential Complex

Sounding: CPT-01  
 Cone: 443:T1500F15U500



Max Depth: 7.350 m / 24.11 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP01.COR  
 Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256467m E: 528202m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ● AssumedUeq ◁ Dissipation, Ueqachieved — HydrostaticLine

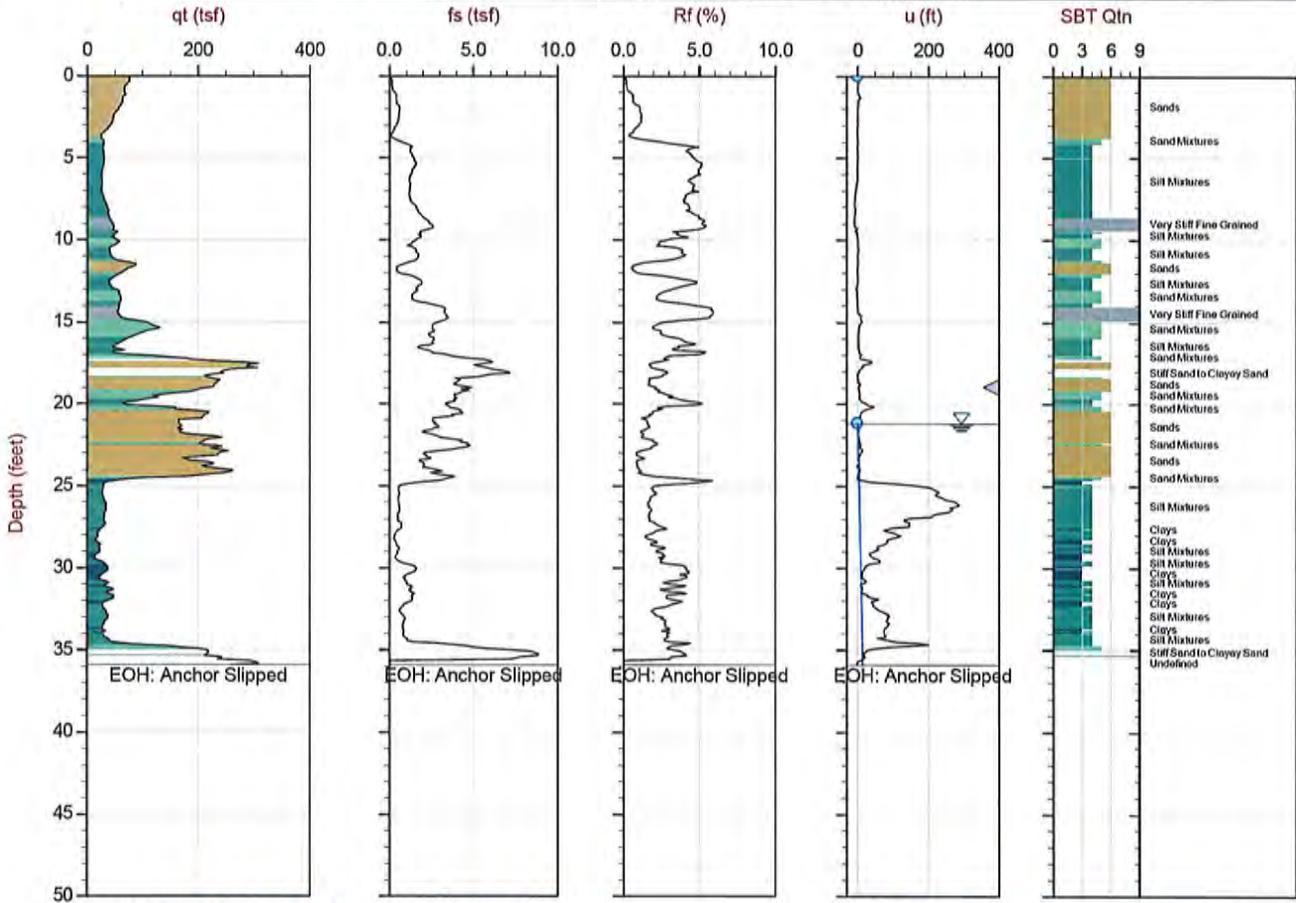
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 10:44  
 Site: Self Storage and Residential Complex

Sounding: CPT-02  
 Cone: 443:T1500F15U500



Max Depth: 10.950 m / 35.92 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP02.COR  
 Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256482m E: 528203m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ● Assumed Ueq ◁ Dissipation, Ueq achieved — Hydrostatic Line

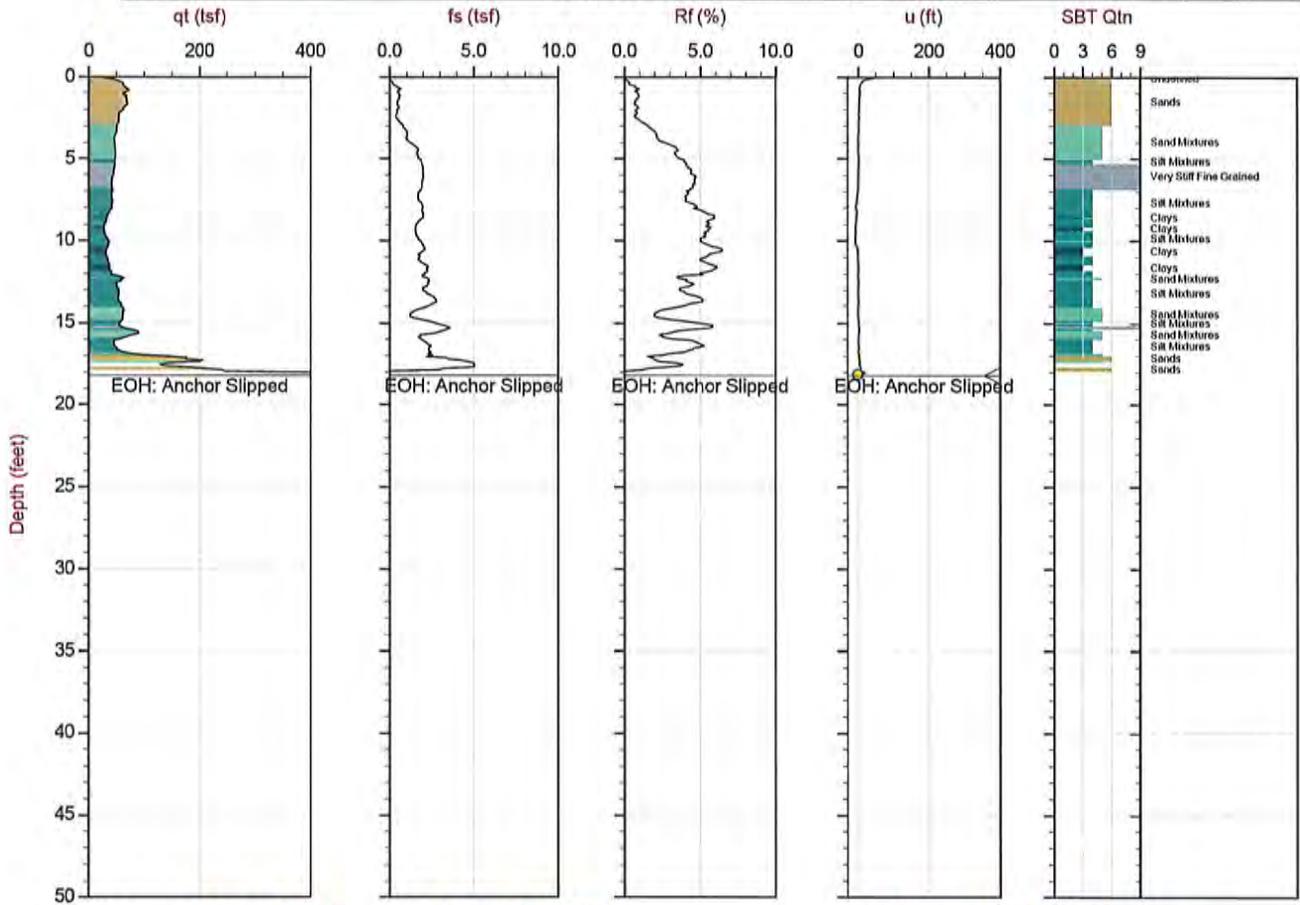
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 11:26  
 Site: Self Storage and Residential Complex

Sounding: CPT-03  
 Cone: 443:T1500F15U500



Max Depth: 5.550 m / 18.21 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP03.COR  
 Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256497m E: 528211m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ○ Assumed Ueq ◁ Dissipation, Ueq achieved — HydrostaticLine

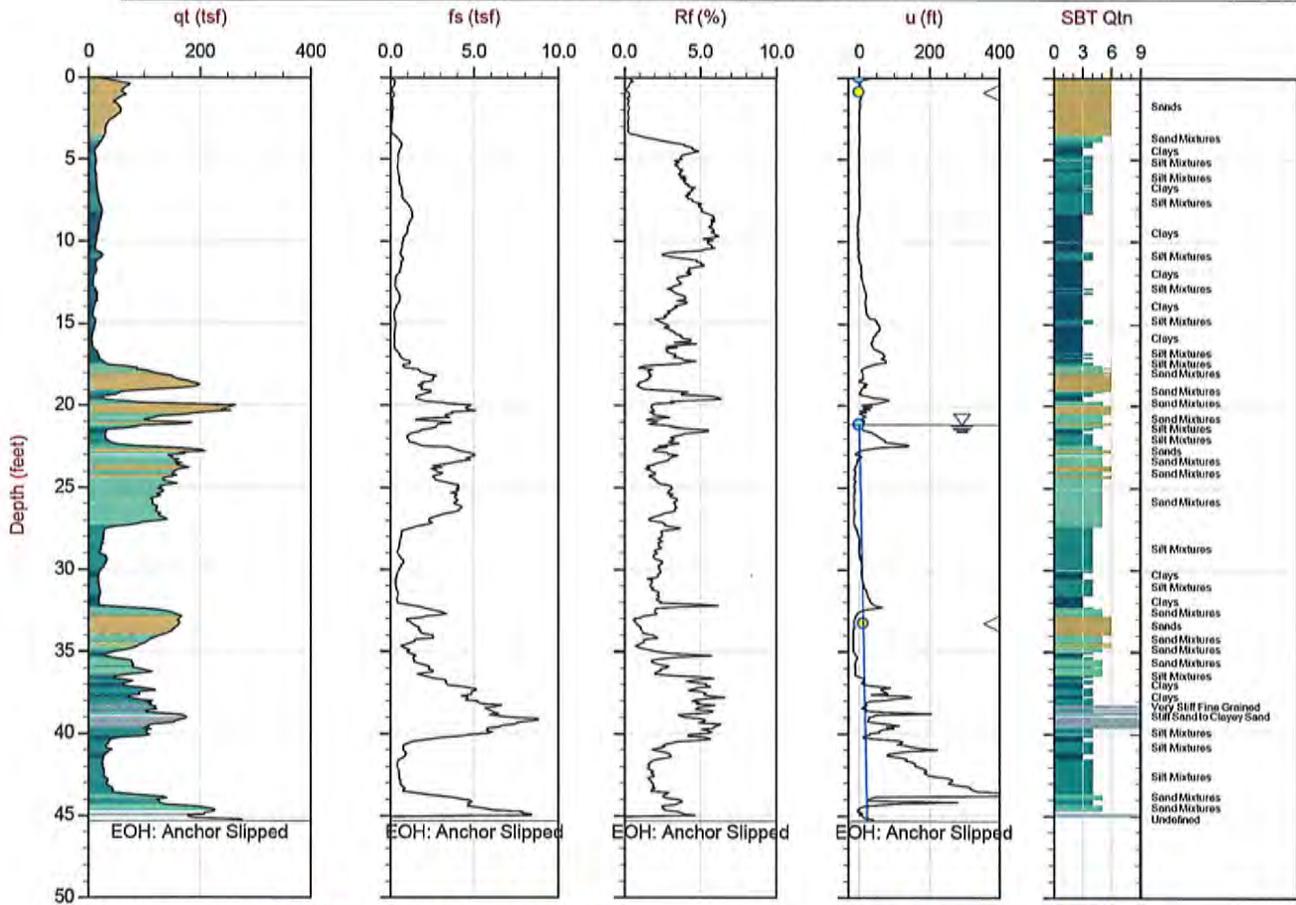
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 12:16  
 Site: Self Storage and Residential Complex

Sounding: CPT-04  
 Cone: 443:T1500F15U500



Max Depth: 13.825 m / 45.36 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP04.COR  
 Unit Wt: SBTQIn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256494m E: 528160m  
 Sheet No: 1 of 1

Overplot Item: ● Ueq ● Assumed Ueq ◁ Dissipation, Ueq achieved — Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

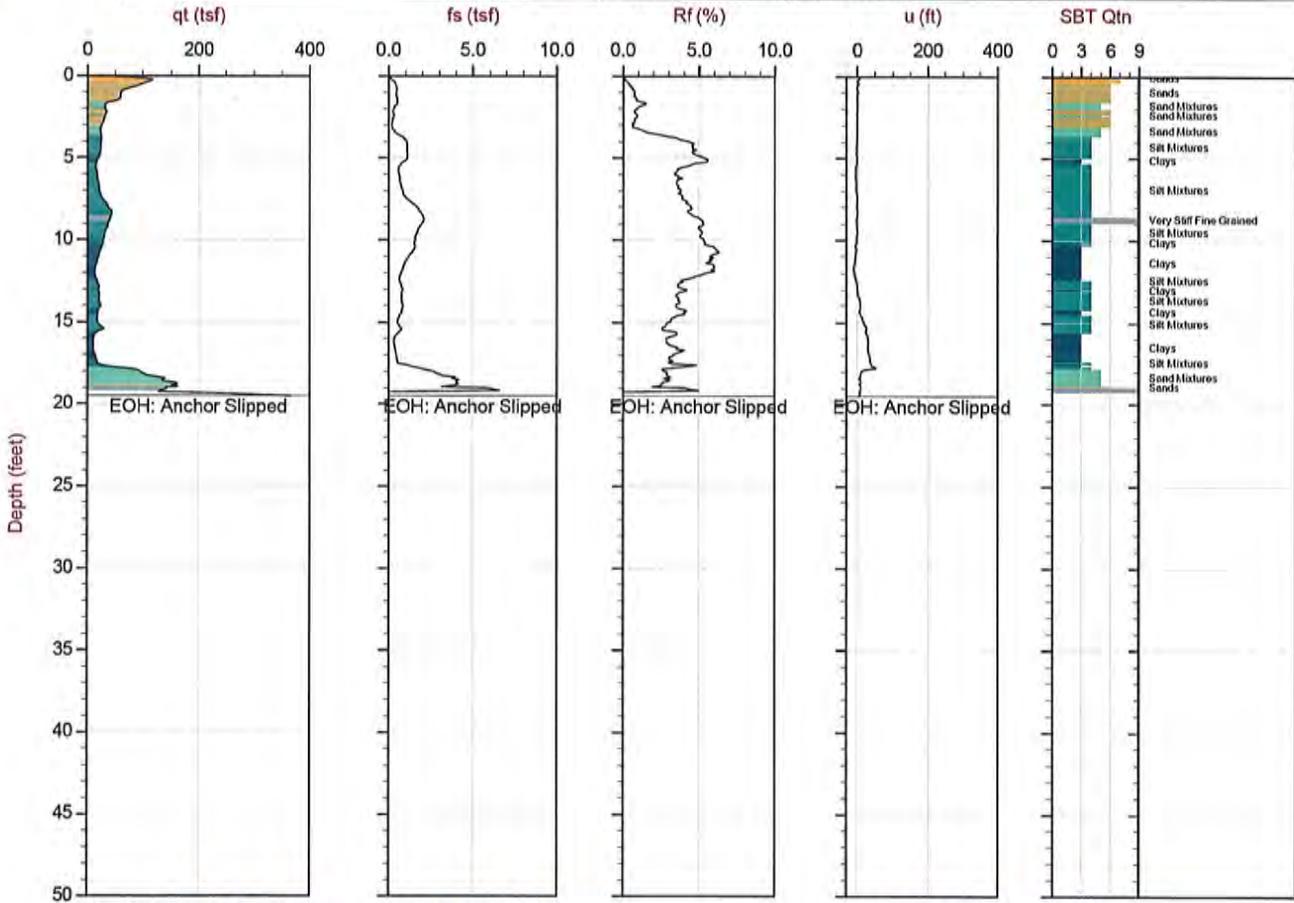
Job No: 18-56099

Sounding: CPT-05

Date: 2018-06-19 13:12

Cone: 443:T1500F15U500

Site: Self Storage and Residential Complex



Max Depth: 5.950 m / 19.52 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP05.COR  
 Unit Wt: SBTQIn(PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256523m E: 528193m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ● Assumed Ueq ◁ Dissipation, Ueq achieved — HydrostaticLine

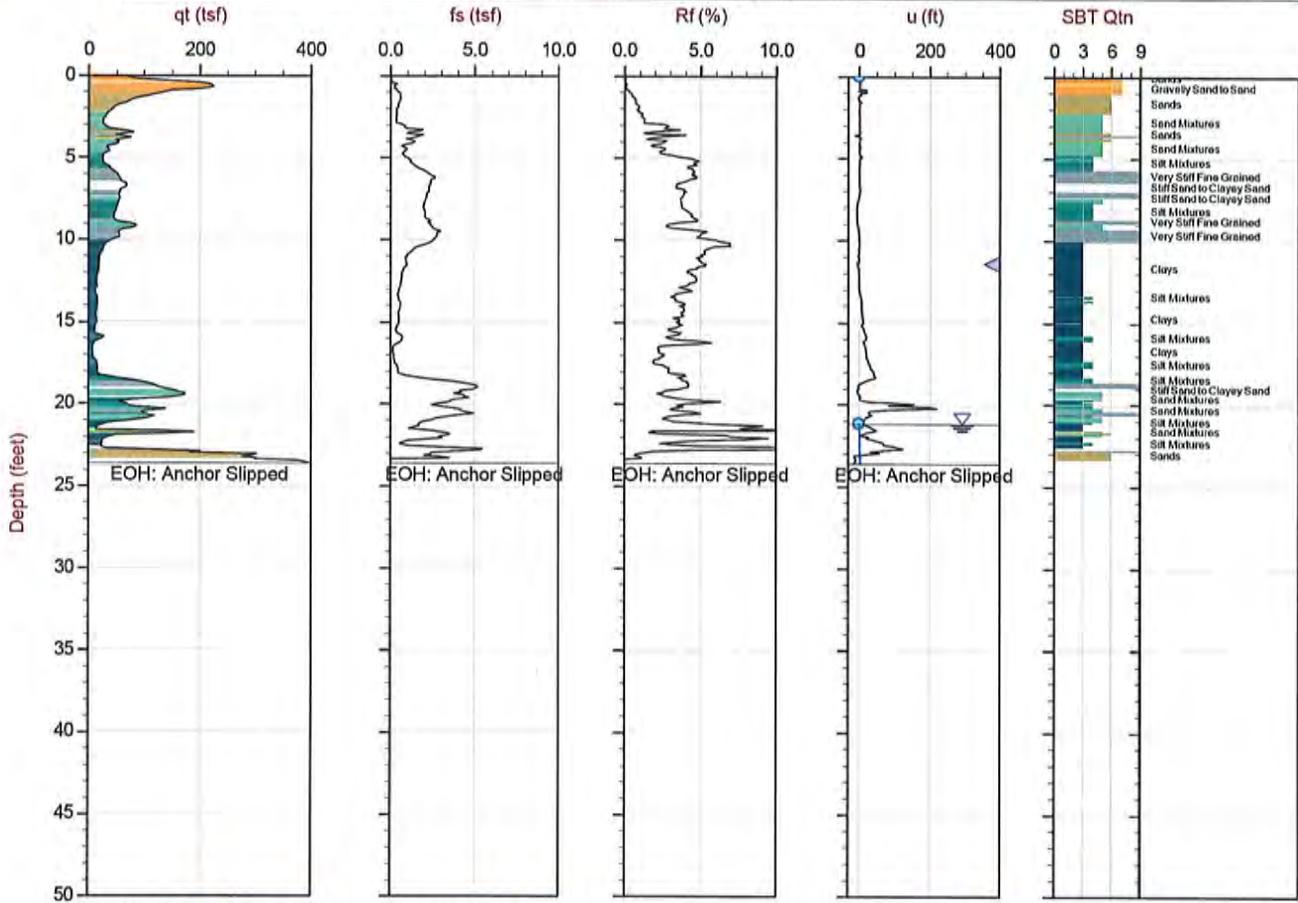
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 13:44  
 Site: Self Storage and Residential Complex

Sounding: CPT-06  
 Cone: 443:T1500F15U500



Max Depth: 7.200 m / 23.62 ft  
 Depth Inc: 0.025 m / 0.082 ft  
 Avg Int: Every Point

File: 18-56099\_CP06.COR  
 Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010  
 Coords: UTM 10 N N: 4256541m E: 528181m  
 Sheet No: 1 of 1

OverplotItem: ● Ueq ● AssumedUeq ◁ Dissipation, Ueq achieved — Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

## Advanced Cone Penetration Test Plots



Purcell Rhoades & Associates

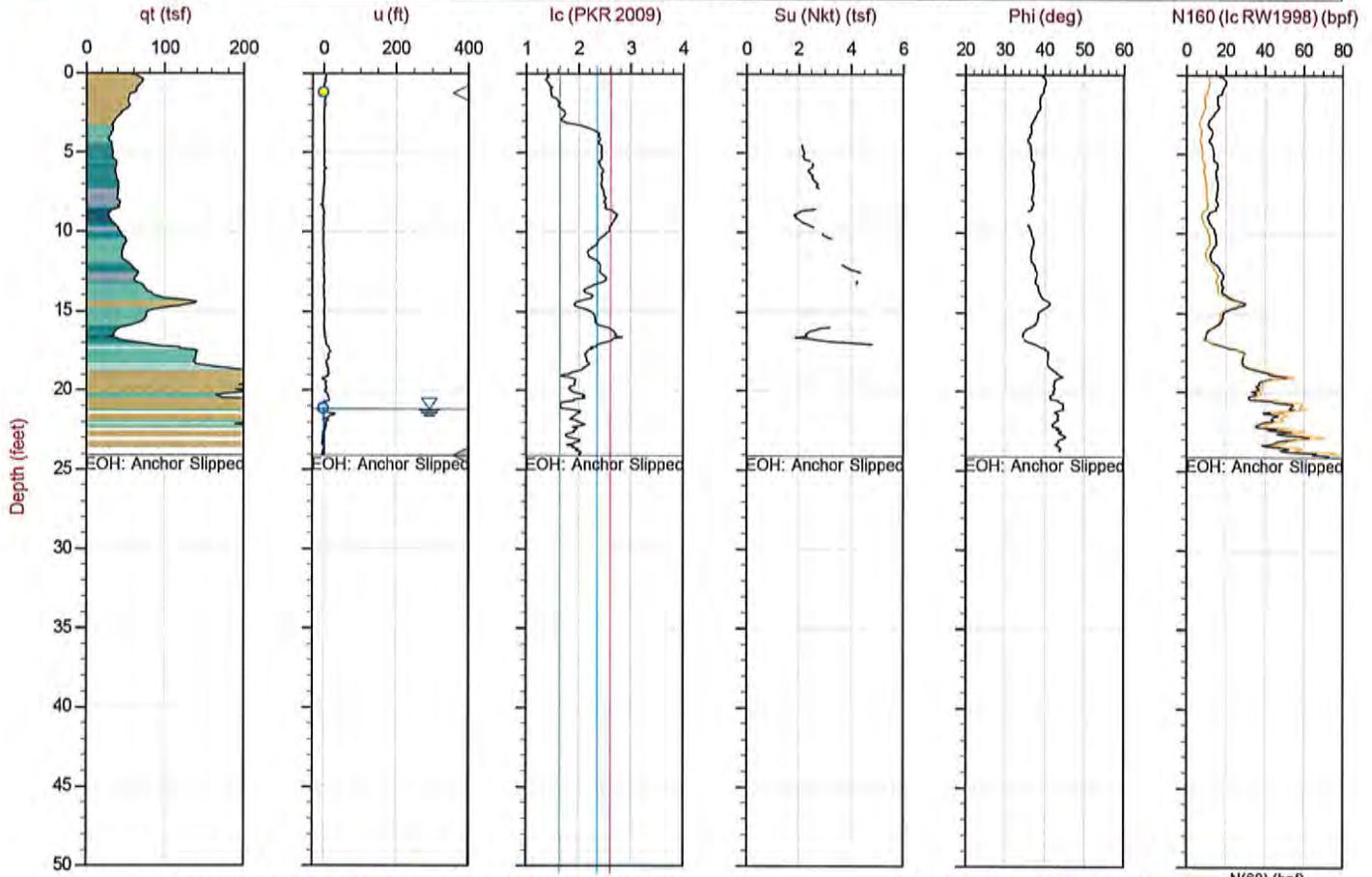
Job No: 18-56099

Date: 2018-06-19 09:57

Site: Self Storage and Residential Complex

Sounding: CPT-01

Cone: 443:T1500F15U500



Max Depth: 7.350 m / 24.11 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 18-56099\_CP01.COR  
Unit Wt: SBTQIn(PKR2009)  
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010  
Coords: UTM 10 N N: 4256467m E: 528202m  
Sheet No: 1 of 1

OverplotItem: ● Ueq ● AssumedUeq ◁ Dissipation, Ueqachieved — HydrostaticLine

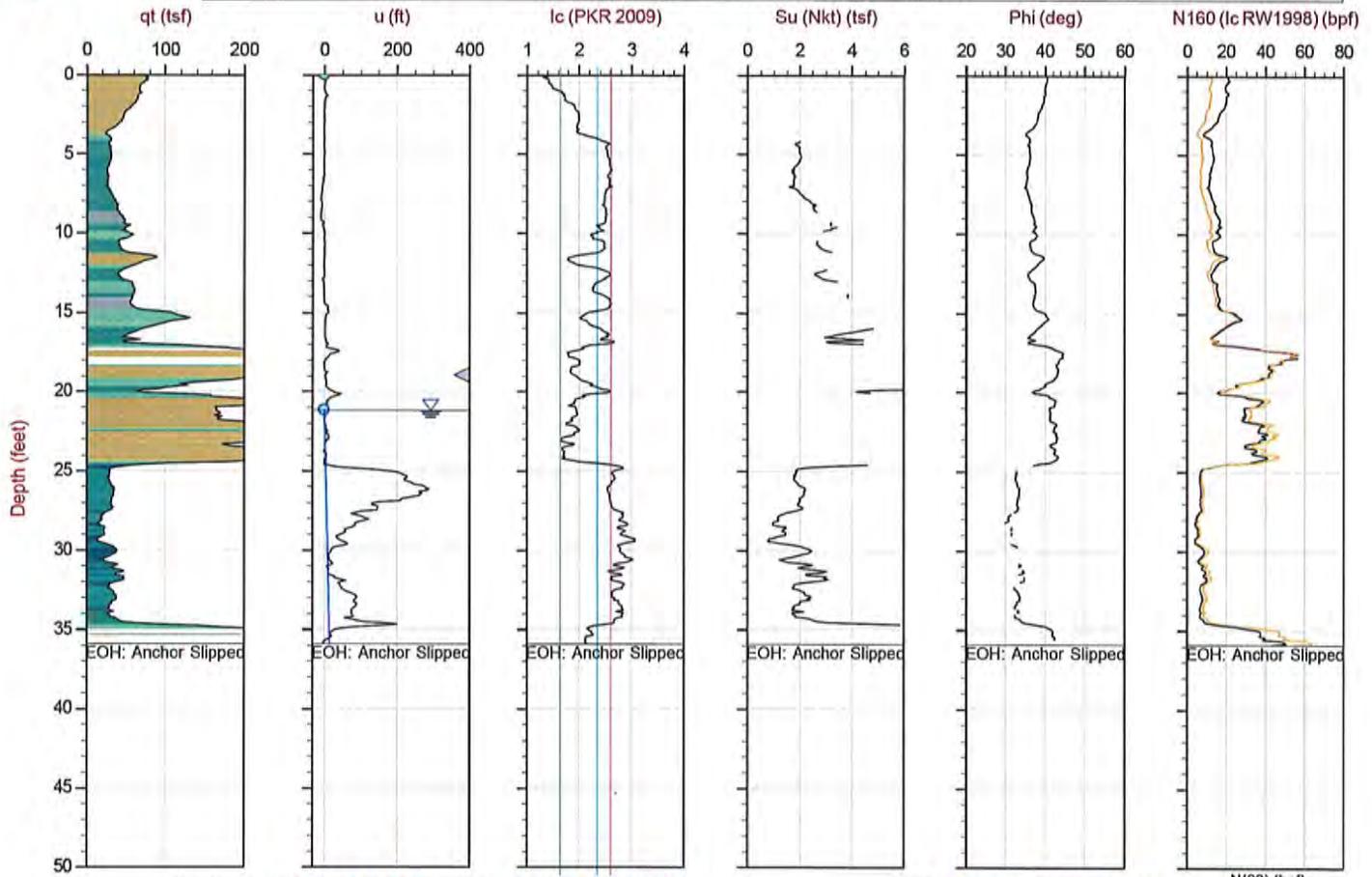
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

Job No: 18-56099  
Date: 2018-06-19 10:44  
Site: Self Storage and Residential Complex

Sounding: CPT-02  
Cone: 443:T1500F15U500



Max Depth: 10.950 m / 35.92 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 18-56099\_CP02.COR  
Unit Wt: SBTQtn(PKR2009)  
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010  
Coords: UTM 10 N N: 4256482m E: 528203m  
Sheet No: 1 of 1

Overplot Item: ● Ueq ● Assumed Ueq ◁ Dissipation, Ueq achieved — Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

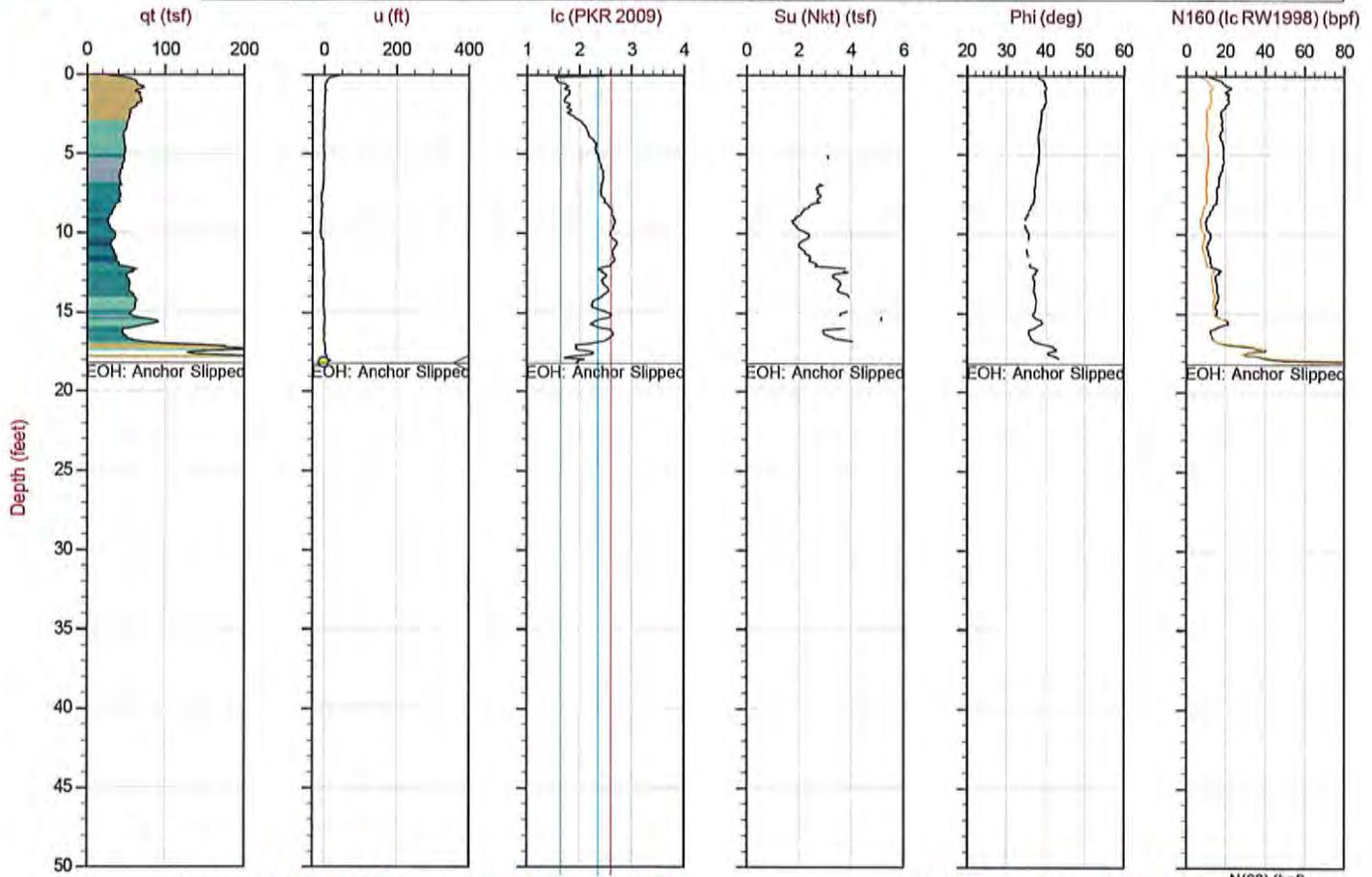
Job No: 18-56099

Date: 2018-06-19 11:26

Site: Self Storage and Residential Complex

Sounding: CPT-03

Cone: 443:T1500F15U500



Max Depth: 5.550 m / 18.21 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

Overplot Item: ● Ueq ○ Assumed Ueq

File: 18-56099\_CP03.COR

Unit Wt: SBTQln(PKR2009)

Su Nkt: 15.0

◁ Dissipation, Ueq achieved

— Hydrostatic Line

SBT: Robertson, 2009 and 2010

Coords: UTM 10 N N: 4256497m E: 528211m

Sheet No: 1 of 1

N(60) (bpf)

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

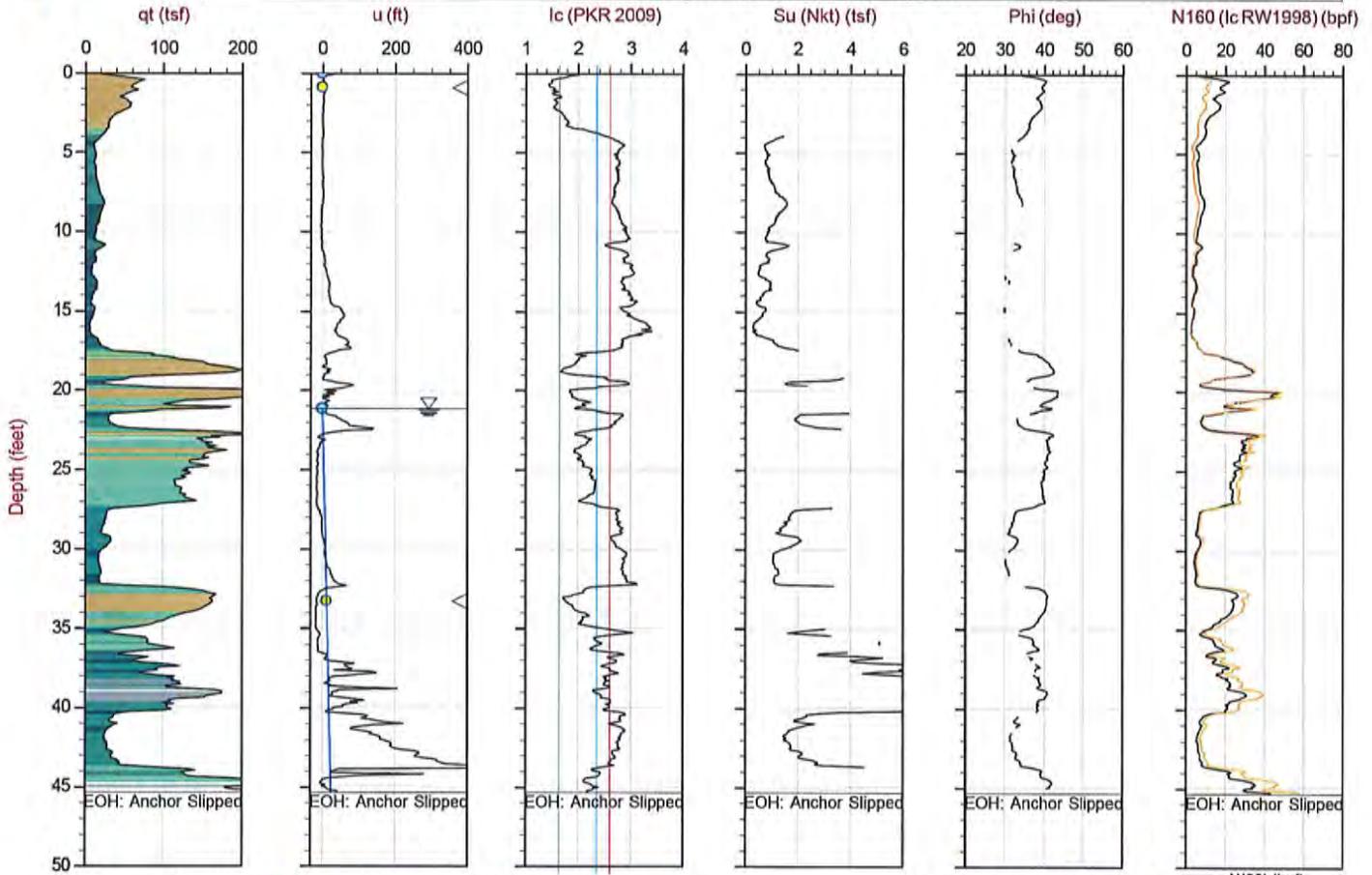
Job No: 18-56099

Date: 2018-06-19 12:16

Site: Self Storage and Residential Complex

Sounding: CPT-04

Cone: 443:T1500F15U500



Max Depth: 13.825 m / 45.36 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

OverplotItem: ● Ueq ● Assumed Ueq

File: 18-56099\_CP04.COR

Unit Wt: SBTQIn(PKR2009)

Su Nkt: 15.0

◁ Dissipation, Ueq achieved

— Hydrostatic Line

SBT: Robertson, 2009 and 2010

Coords: UTM 10 N N: 4256494m E: 528160m

Sheet No: 1 of 1

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

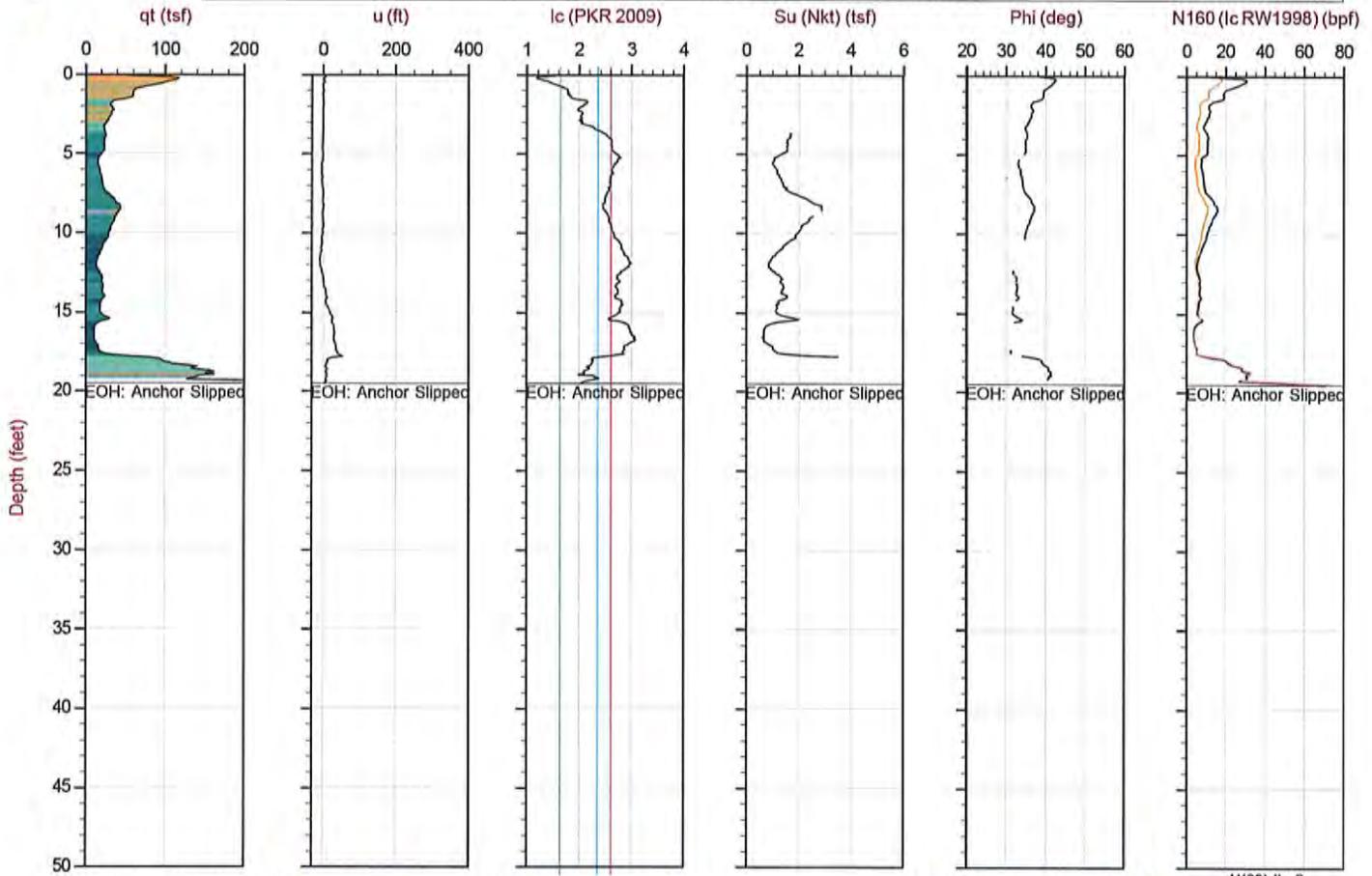
Job No: 18-56099

Date: 2018-06-19 13:12

Site: Self Storage and Residential Complex

Sounding: CPT-05

Cone: 443:T1500F15U500



Max Depth: 5.950 m / 19.52 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 18-56099\_CP05.COR  
Unit Wt: SBTQIn(PKR2009)  
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010  
Coords: UTM 10 N N: 4256523m E: 528193m  
Sheet No: 1 of 1

OverplotItem: ● Ueq ● AssumedUeq ◁ Dissipation, Ueqachieved — HydrostaticLine

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Purcell Rhoades & Associates

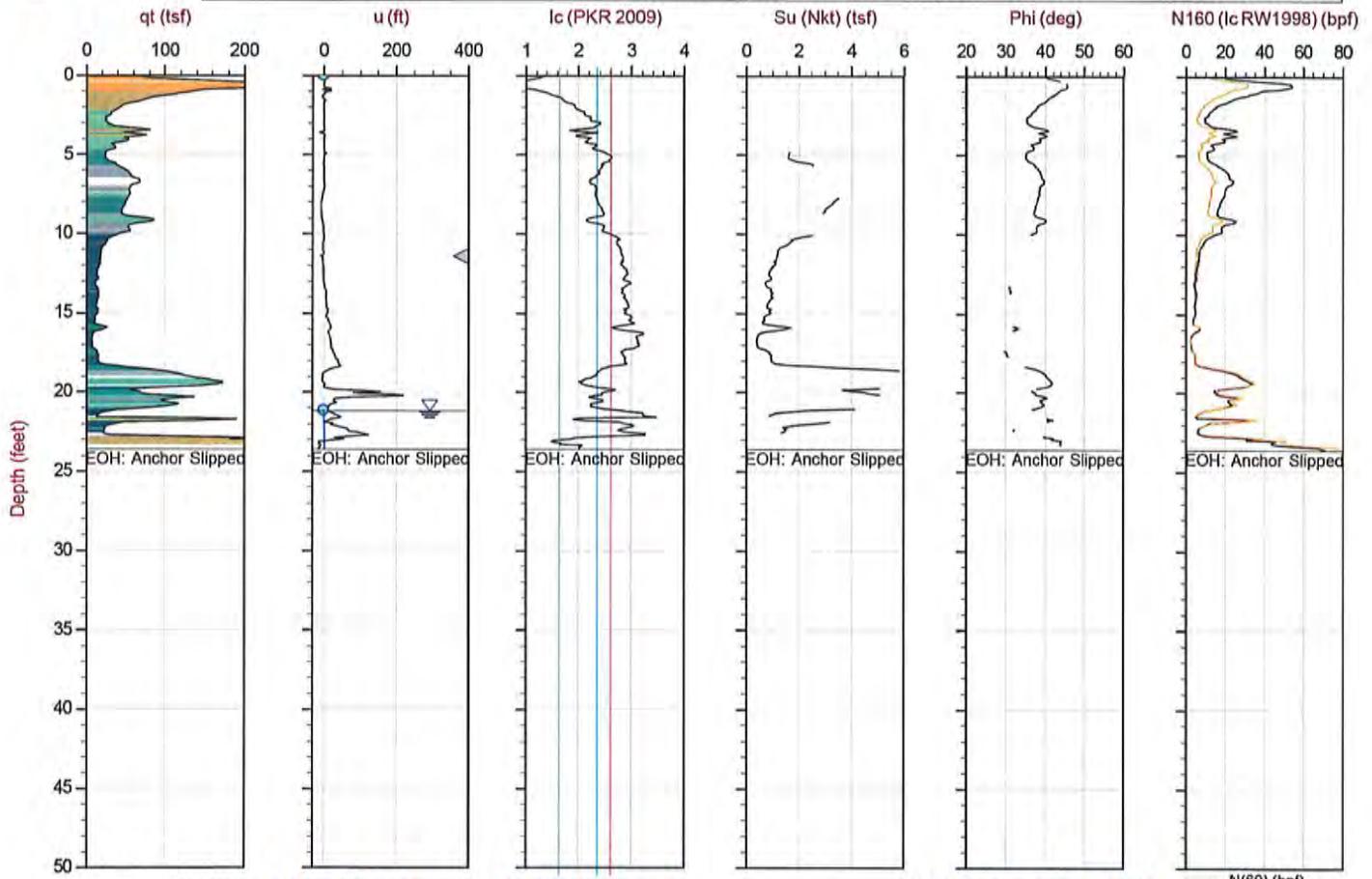
Job No: 18-56099

Date: 2018-06-19 13:44

Site: Self Storage and Residential Complex

Sounding: CPT-06

Cone: 443:T1500F15U500



Max Depth: 7.200 m / 23.62 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 18-56099\_CP06.COR  
Unit Wt: SBTQIn(PKR2009)  
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010  
Coords: UTM 10 N N: 4256541m E: 528181m  
Sheet No: 1 of 1

OverplotItem: ● Ueq ● AssumedUeq ◁ Dissipation, Ueqachieved — HydrostaticLine

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

## Soil Behavior Type (SBT) Scatter Plots



Purcell Rhoades & Associates

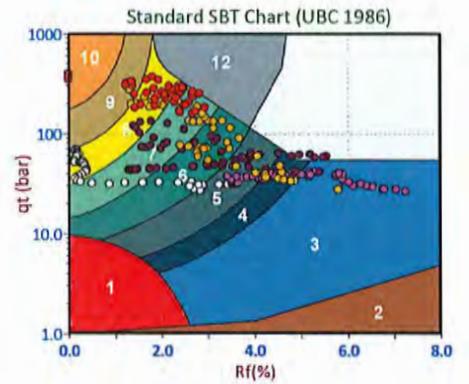
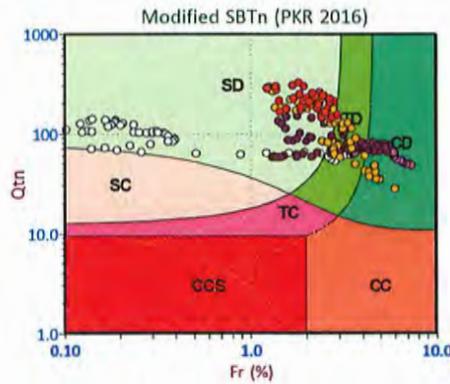
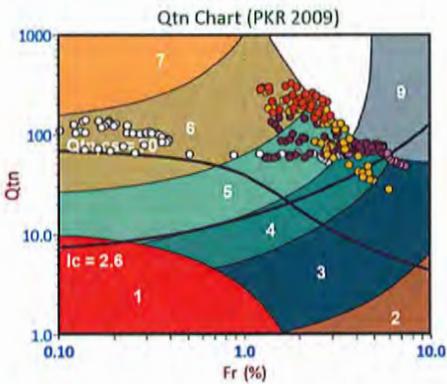
Job No: 18-56099

Date: 2018-06-19 09:57

Site: Self Storage and Residential Complex

Sounding: CPT-01

Cone: 443:T1500F15U500



Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Legend

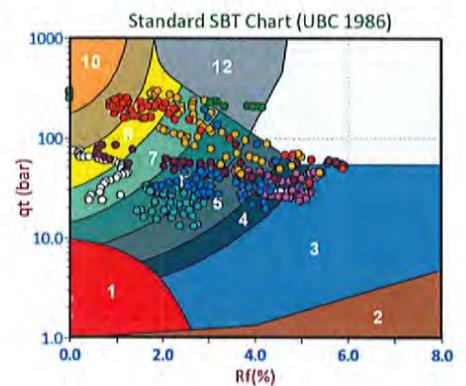
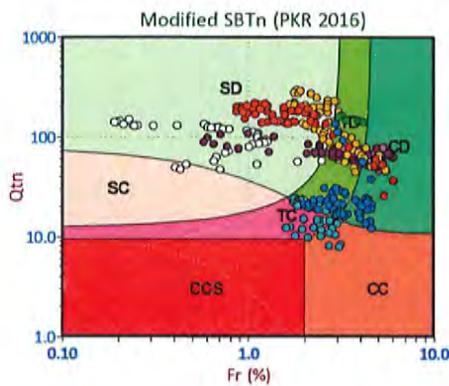
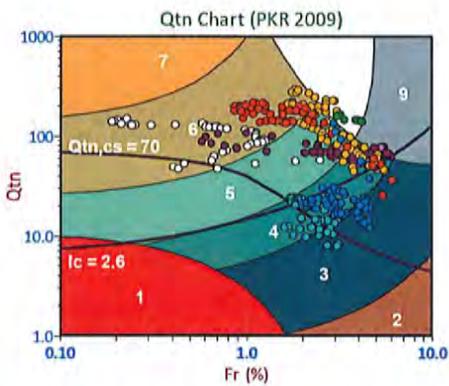
- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 10:44  
 Site: Self Storage and Residential Complex

Sounding: CPT-02  
 Cone: 443:T1500F15U500



Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Legend

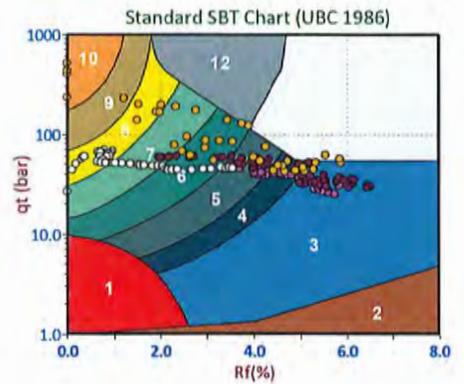
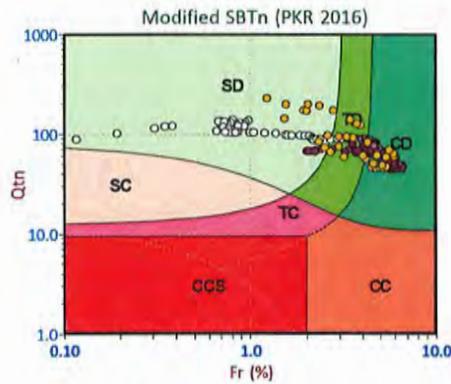
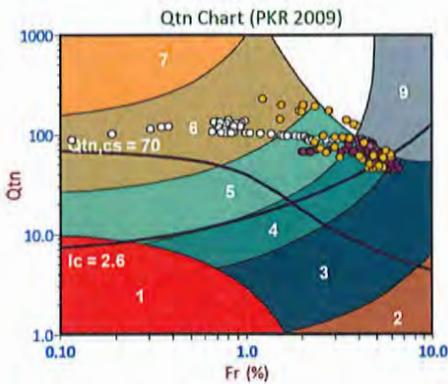
- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 11:26  
 Site: Self Storage and Residential Complex

Sounding: CPT-03  
 Cone: 443:T1500F15U500



Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand



Purcell Rhoades & Associates

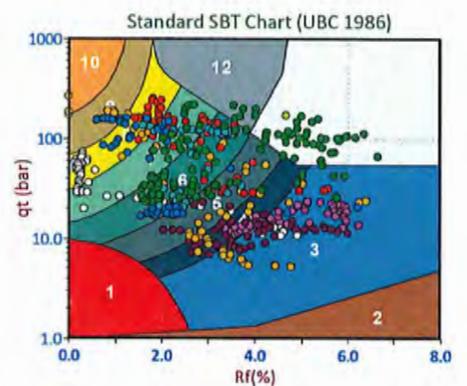
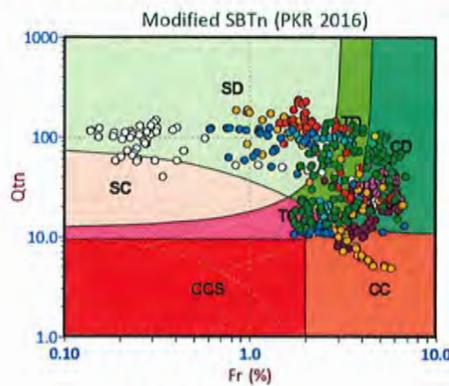
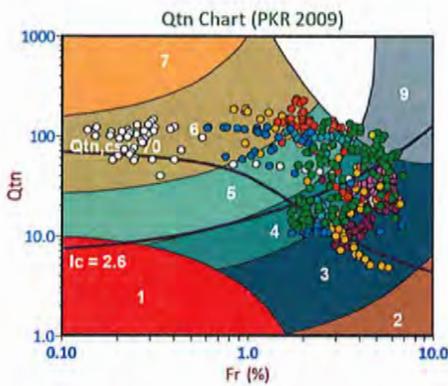
Job No: 18-56099

Date: 2018-06-19 12:16

Site: Self Storage and Residential Complex

Sounding: CPT-04

Cone: 443:T1500F15U500



- Depth Ranges**
- >0.0 to 5.0 ft
  - >5.0 to 10.0 ft
  - >10.0 to 15.0 ft
  - >15.0 to 20.0 ft
  - >20.0 to 25.0 ft
  - >25.0 to 30.0 ft
  - >30.0 to 35.0 ft
  - >35.0 to 40.0 ft
  - >40.0 to 45.0 ft
  - >45.0 to 50.0 ft
  - >50.0 ft

- Legend**
- Sensitive, Fine Grained
  - Organic Soils
  - Clays
  - Silt Mixtures
  - Sand Mixtures
  - Sands
  - Gravelly Sand to Sand
  - Stiff Sand to Clayey Sand
  - Very Stiff Fine Grained

- Legend**
- CCS (Cont. sensitive clay like)
  - CC (Cont. clay like)
  - TC (Cont. transitional)
  - SC (Cont. sand like)
  - CD (Dil. clay like)
  - TD (Dil. transitional)
  - SD (Dil. sand like)

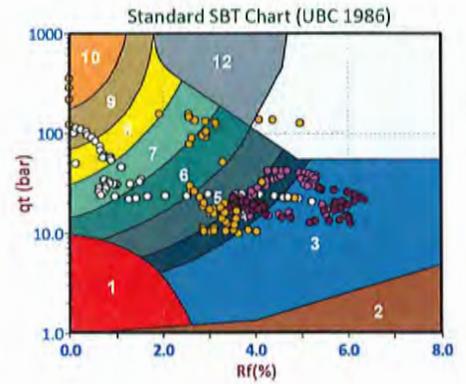
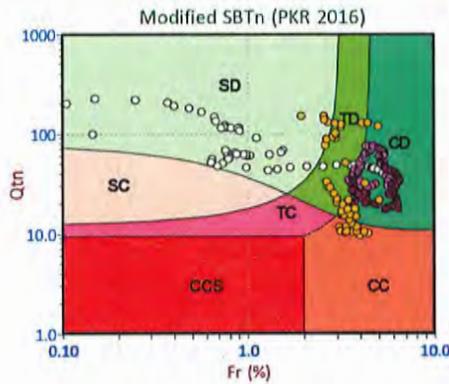
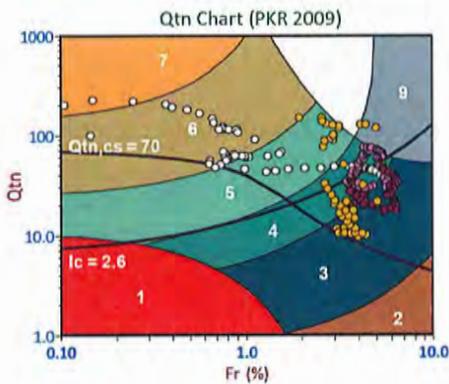
- Legend**
- Sensitive Fines
  - Organic Soil
  - Clay
  - Silty Clay
  - Clayey Silt
  - Silt
  - Sandy Silt
  - Silty Sand/Sand
  - Sand
  - Gravelly Sand
  - Stiff Fine Grained
  - Cemented Sand



Purcell Rhoades & Associates

Job No: 18-56099  
 Date: 2018-06-19 13:12  
 Site: Self Storage and Residential Complex

Sounding: CPT-05  
 Cone: 443:T1500F15U500



Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
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- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

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- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand



Purcell Rhoades & Associates

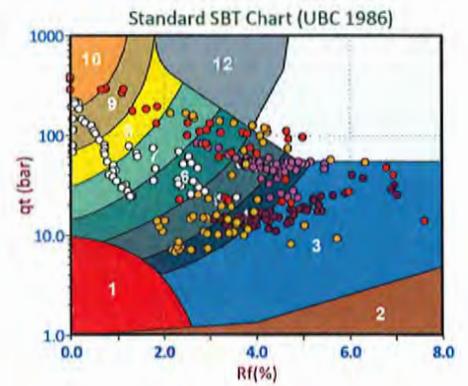
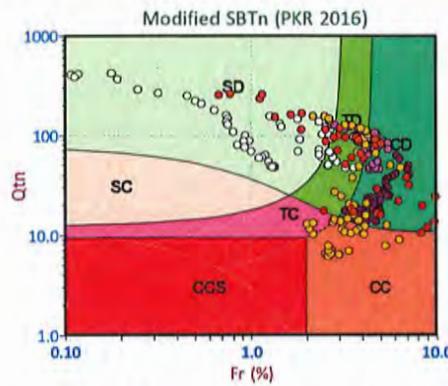
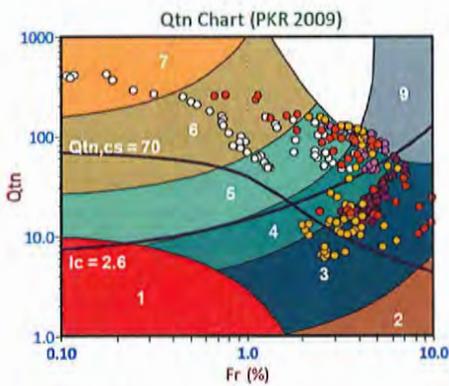
Job No: 18-56099

Date: 2018-06-19 13:44

Site: Self Storage and Residential Complex

Sounding: CPT-06

Cone: 443:T1500F15U500



Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

# Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots



Job No: 18-56099  
Client: Purcell Rhoades and Associates  
Project: Self Storage and Residential Complex  
Start Date: 19-Jun-2018  
End Date: 19-Jun-2018

<b>CPT<sub>u</sub> PORE PRESSURE DISSIPATION SUMMARY</b>						
Sounding ID	File Name	Cone Area (cm <sup>2</sup> )	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U <sub>eq</sub> (ft)	Calculated Phreatic Surface (ft)
CPT-01	18-56099_CP01	15	175	1.23	0.0	
CPT-01	18-56099_CP01	15	155	24.11	Not achieved	
CPT-02	18-56099_CP02	15	100	18.95	Not achieved	
CPT-03	18-56099_CP03	15	115	18.21	0.0	
CPT-04	18-56099_CP04	15	125	0.90	0.0	
CPT-04	18-56099_CP04	15	335	33.30	12.1	21.2
CPT-06	18-56099_CP06	15	210	11.40	Not achieved	





*Purcell Rhoades & Associates*

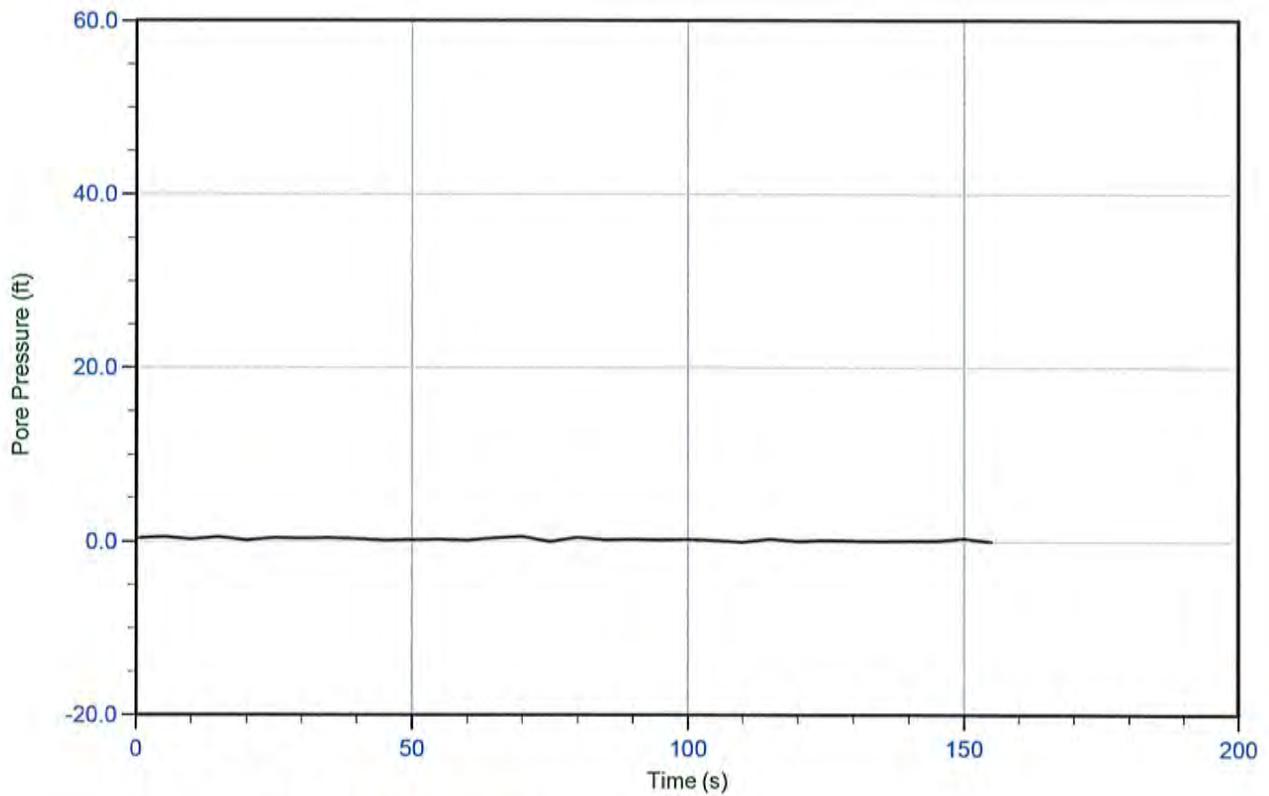
Job No: 18-56099

Date: 06/19/2018 09:57

Site: Self Storage and Residential Complex

Sounding: CPT-01

Cone: 443:T1500F15U500 Area=15 cm<sup>2</sup>



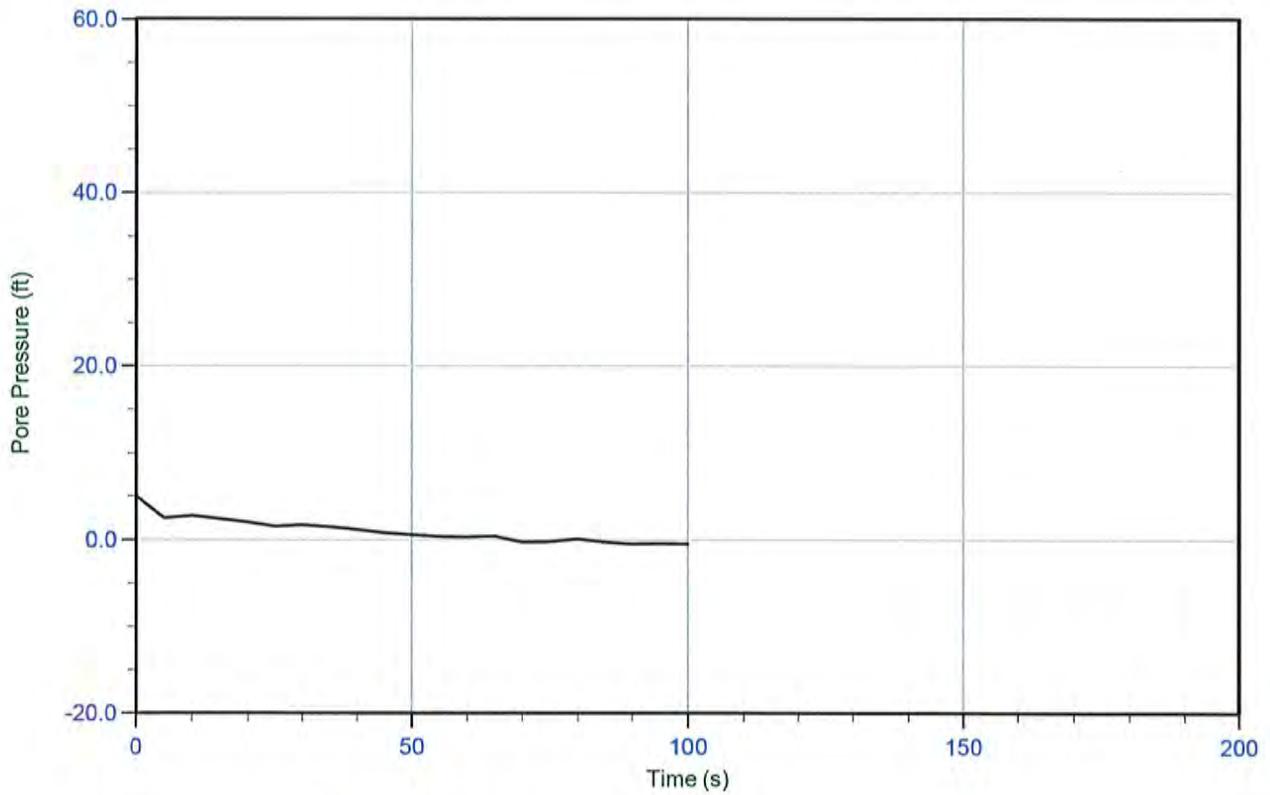
Trace Summary:   Filename: 18-56099\_CP01.PPF   U Min: -0.1 ft  
                  Depth: 7.350 m / 24.114 ft   U Max: 0.6 ft  
                  Duration: 155.0 s



*Purcell Rhoades & Associates*

Job No: 18-56099  
Date: 06/19/2018 10:44  
Site: Self Storage and Residential Complex

Sounding: CPT-02  
Cone: 443:T1500F15U500 Area=15 cm<sup>2</sup>



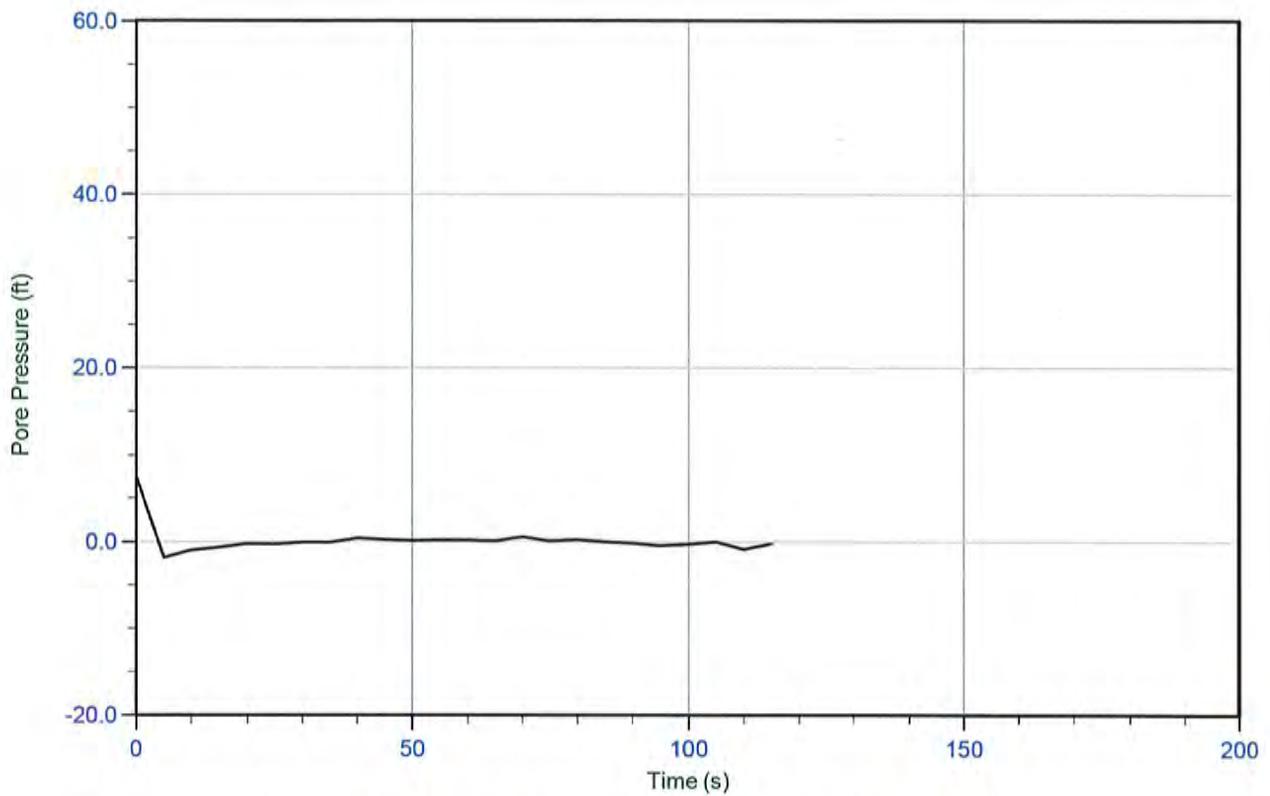
Trace Summary: Filename: 18-56099\_CP02.PPF U Min: -0.5 ft  
Depth: 5.775 m / 18.947 ft U Max: 5.0 ft  
Duration: 100.0 s



Purcell Rhoades & Associates

Job No: 18-56099  
Date: 06/19/2018 11:26  
Site: Self Storage and Residential Complex

Sounding: CPT-03  
Cone: 443:T1500F15U500 Area=15 cm<sup>2</sup>



Trace Summary: Filename: 18-56099\_CP03.PPF U Min: -1.8 ft WT: 5.550 m / 18.208 ft  
Depth: 5.550 m / 18.208 ft U Max: 7.4 ft Ueq: 0.0 ft  
Duration: 115.0 s



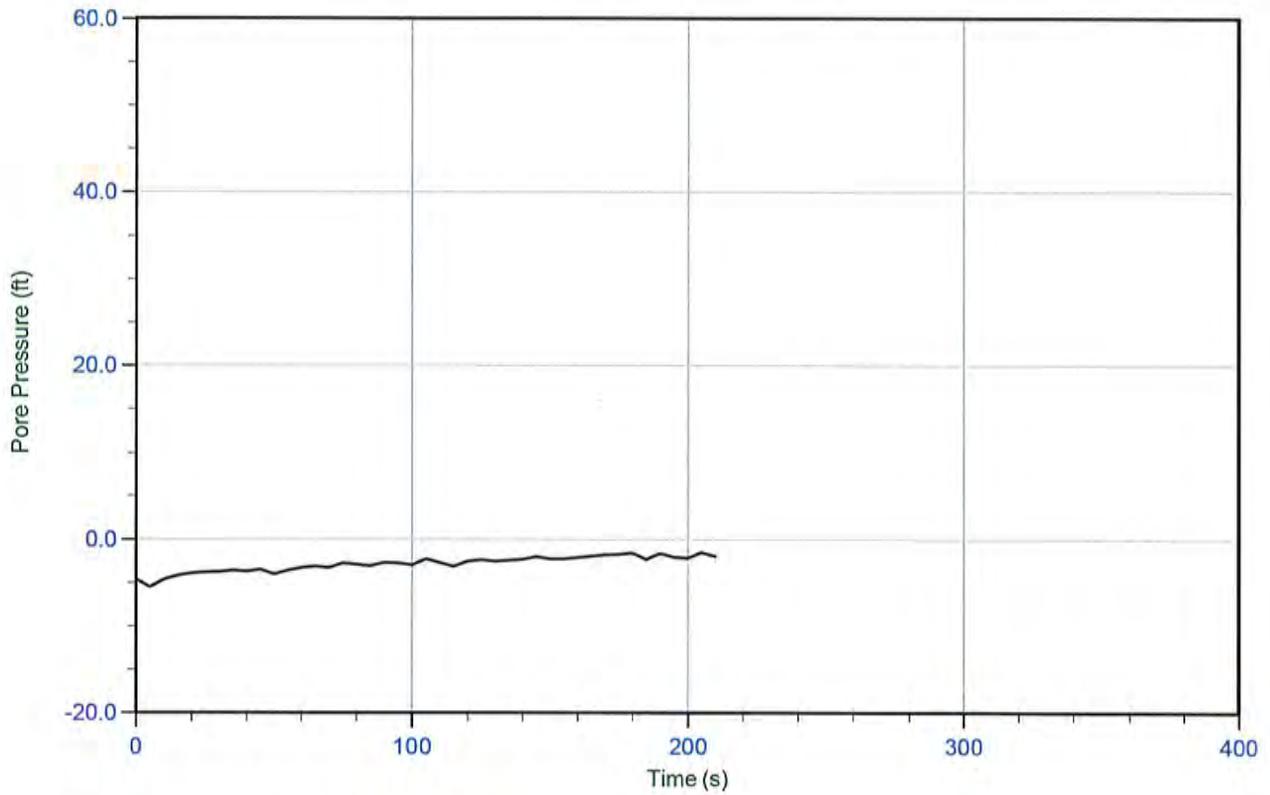




*Purcell Rhoades & Associates*

Job No: 18-56099  
Date: 06/19/2018 13:44  
Site: Self Storage and Residential Complex

Sounding: CPT-06  
Cone: 443:T1500F15U500 Area=15 cm<sup>2</sup>



Trace Summary: Filename: 18-56099\_CP06.PPF U Min: -5.5 ft  
Depth: 3.475 m / 11.401 ft U Max: -1.5 ft  
Duration: 210.0 s

## **APPENDIX E**

### CAP New Development Checklist

### APPENDIX E: CAP NEW DEVELOPMENT CHECKLIST

To ensure new development projects are compliant with the City’s Climate Action Plan, the following checklist has been developed. This checklist should be filled out for each new project, subject to discretionary review, to allow new development to find a less than significant impact for greenhouse gas emissions in the environmental review process.

#	Description	Compliance			
		Complies	Does Not Comply	N/A	See Discussion
1.1.1	Comply with CALGreen Tier 1 standards*	X			
1.1.3	After 2020, all new development will utilize zero net electricity*			X	
1.3.1	Install real-time energy monitors to track energy use*	X			
1.4.2	Comply with the City's tree preservation ordinance*	X			
1.4.3	Provide public & private trees in compliance with the Zoning Code*	X			
1.5	Install new sidewalks and paving with high solar reflectivity materials*	X			
2.1.3	Pre-wire and pre-plumb for solar thermal or PV systems	X			
3.1.2	Support implementation of station plans and corridor plans	X			
3.2.1	Provide on-site services such as ATMs or dry cleaning to site users			X	
3.2.2	Improve non-vehicular network to promote walking, biking	X			
3.2.3	Support mixed-use, higher-density development near services	X			
3.3.1	Provide affordable housing near transit	X			
3.5.1	Unbundle parking from property cost	X			
3.6.1	Install calming features to improve ped/bike experience	X			
4.1.1	Implement the Bicycle and Pedestrian Master Plan	X			
4.1.2	Install bicycle parking consistent with regulations*	X			
4.1.3	Provide bicycle safety training to residents, employees, motorists	X			
4.2.2	Provide safe spaces to wait for bus arrival	X			

#	Description	Compliance			
		Complies	Does Not Comply	N/A	See Discussion
4.3.2	Work with large employers to provide rideshare programs			X	
4.3.3	Consider expanding employee programs promoting transit use			X	
4.3.4	Provide awards for employee use of alternative commute options			X	
4.3.5	Encourage new employers of 50+ to provide subsidized transit passes*			X	
4.3.7	Provide space for additional park-and-ride lots			X	
4.5.1	Include facilities for employees that promote telecommuting			X	
5.1.2	Install electric vehicle charging equipment	X			
5.2.1	Provide alternative fuels at new refueling stations*			X	
6.1.3	Increase diversion of construction waste*	X			
7.1.1	Reduce potable water use for outdoor landscaping*	X			
7.1.3	Use water meters which track real-time water use*	X			
7.3.2	Meet on-site meter separation requirements in locations with current or future recycled water capabilities*			X	
8.1.3	Establish community gardens and urban farms			X	
9.1.2	Provide outdoor electrical outlets for charging lawn equipment	X			
9.1.3	Install low water use landscapes*	X			
9.2.1	Minimize construction equipment idling time to 5 minutes or less*	X			
9.2.2	Maintain construction equipment per manufacturer's specs*	X			
9.2.3	Limit GHG construction equipment emissions by using electrified equipment or alternative fuels*	X			

*\*To be in compliance with the CAP, all measures denoted with an asterisk are required in all new development projects unless otherwise specified. If a project cannot meet one or more of the mandatory requirements, substitutions may be made from other measures listed at the discretion of the Community Development Director.*

DISCUSSION (PLEASE LIST POLICY #)

[Empty text area for discussion]

## **APPENDIX F**

### Hazardous Materials Report

# Hazardous Materials Survey Report

**4224 Highway 12 / Sonoma Highway  
Santa Rosa, California**

December 7, 2018

Terracon Project No. R1187D02

**Prepared for:**

Larry Thom  
American Recess  
85 Keystone Avenue, Suite E  
Reno, NV 89503

**Prepared by:**

Terracon Consultants, Inc.  
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Report Prepared by: \_\_\_\_\_

  
Industrial Hygienist, CAC # 12-4856

Annabelle Call

Report Reviewed by: \_\_\_\_\_

  
Project Manager CAC #92-0772, CDPH #2228

Karin Schroeter

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**Terracon**

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

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- 1. Laboratory Results and Chain of Custody – Asbestos**
- 2. Laboratory Results and Chain of Custody – Lead**
- 3. Inspector Certificates**

# Hazardous Materials Survey Report

*4224 Highway 12/Sonoma Highway  
Santa Rosa, California*

## 1. Executive Summary

The following is a report of the hazardous materials survey conducted by William Frieszell, Certified Asbestos Consultants (CAC) and California Department of Public Health (CDPH) Lead Inspector/Assessor and Karin Schroeter, CAC and CDPH Lead Inspector/Assessor with Terracon Consultants, Inc. (Terracon). The survey was performed November 30, 2018 at the residence and outbuildings located at 4224 Highway 12/Sonoma Highway in Santa Rosa, California.

The survey area included the interior, exterior, and roofing materials associated with the main house and attached garage, detached garage and storage building.

A total of forty-one (41) suspected asbestos containing materials (ACMs) were identified throughout the interior and exterior of the structures. Four (4) of the materials sampled were determined to be positive for asbestos content. One (1) of the materials that was identified was assumed to contain asbestos and therefore was not sampled.

Thirteen (13) materials were sampled for potential lead content. Eight (8) of the sampled materials were reported above laboratory detection limits for lead.

## 2. Scope of Work

The scope of the survey was as follows:

- Inspect the subject buildings for the presence of suspect ACMs and lead-containing paint.
- Collect samples of suspect ACMs following a National Emissions Standards for Hazardous Air Pollutants (NESHAPS) protocol for sample collection for a renovation survey.
- Asbestos bulk samples will be analyzed using polarized light microscopy (PLM) in accordance with the EPA's July 1993 method for the determination of asbestos in bulk building materials - EPA 600/R-93/116.
- Collect bulk samples of primary painted surfaces and other materials suspected to be lead containing. Bulk samples will be analyzed at an accredited laboratory by Flame Atomic Absorption (AA) for Total Lead reported in parts per million (ppm).
- Submit written report including analytical results, regulatory requirements and conclusions.

### 3. Methods and Sampling Strategy

#### Visual Inspection

Accessible building materials on the interior and exterior of the structures were visually inspected using the methods presented in the federal Asbestos Hazard Emergency Response Act (AHERA) regulations (40 CFR, Part 763) as a guideline. AHERA was originally only applicable to schools; however State and Federal Occupational Safety and Health Administration (OSHA) and Asbestos School Hazard Abatement Reauthorization Act (ASHARA) have adopted the AHERA sampling methodology for all buildings subject to demolition or renovation.

#### Bulk Sampling of Asbestos

Bulk samples were collected of homogeneous suspect ACM on the subject property. A homogeneous material is defined as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color, texture and age of construction. Examples of homogeneous materials include:

- Pipe-insulation produced by the same manufacturer and installed during the same time period;
- Resilient flooring of identical color and pattern;
- Troweled on surfacing materials located in contiguous areas.

The buildings were visually inspected for the presence of suspect materials. As materials were identified, bulk samples were obtained with the aid of a coring device or other hand tool and placed into individual sampling bags. Each sample was given a discrete identification number and recorded on field notes as well as chain-of-custody forms. Refer to accompanying tables and appendices for details on material sample locations and results.

#### Bulk Sample Analysis - Asbestos

Bulk samples were analyzed by EMLab P&K (EMLab) in Phoenix, Arizona. EMLab is accredited under the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP).

When None Detected (ND) appears in this report, it should be interpreted as meaning no asbestos was observed in the sample material above the reliable limit of detection for the PLM method.

Note that under EPA assessment criteria, if a single sample of a homogeneous material test positive for asbestos, all areas of that homogeneous material are considered to be asbestos containing.

## Bulk Sampling of Lead

Paint chip and samples of other building materials were collected using a hand scraper or chisel and were placed into individual plastic sampling containers. Each sample was provided a discrete sample number, which was recorded on a chain-of-custody form. The samples were transported under chain-of-custody procedures to QuanTEM Laboratories in Oklahoma City, Oklahoma. Please refer to Table III for details on sample locations and sample results. All paint, putty and ceramic tile glazing samples were analyzed for lead content using the Flame Atomic Absorption spectroscopy in accordance to EPA Method SW846-7420.

## 4. Asbestos Results

During the survey, forty-one (41) suspect homogeneous materials were identified at the subject property. Four (4) of these materials were reported positive for asbestos content. One (1) of these materials was assumed to contain asbestos and was not sampled. Each of these materials are located in the main residential structure. Asbestos materials were not identified in any of the remaining buildings. These materials are listed in Table I below.

**TABLE I  
 ASBESTOS-CONTAINING MATERIALS**

Material Description	Material Location	Asbestos Type
Drywall and Joint Compound – Walls and Ceilings - Residence	Main House, Interior – Southeastern Bedroom Area at Western Wall Main House, Interior – Southeastern Bathroom Area at Southern Wall Main House, Interior – Northwestern Living Room Area at Northern Corner <b>Note: Material is located throughout the Main House</b>	Off-White Joint Compound: 2% CH White Drywall with Brown Paper: ND Brown Tape: ND  Point Count Composite Result :0.25% CH
Ceramic Wall Tile System – 4” Pink Tile with Grout and Mortar	Main House, Interior – Southeastern Bathroom Area at Southern Wall Main House, Interior – Southeastern Bathroom Area at Western Wall	Pink Ceramic Tile: ND White Grout: ND Gray Mortar: ND Off-White Joint Compound with Multilayered Paint: 2% CH Gray Cementitious Mortar Material: <0.25% CH
Ceramic Floor Tile System – 4” Pink Tile with Grout and Mortar	Main House, Interior – Southeastern Bathroom Area at Southwestern Entry Way Main House, Interior – Southeastern Bathroom Area at Southwestern Entry way	Gray Mortar and Gray Cementitious Material: <1% CH Pink Ceramic Tile: ND White Grout: ND Gray Mortar: ND
Attic Exhaust Flue Insulation - Grey	Main House, Interior – Western Corridor Closet Area at Attic Access Hatch	Gray Insulation: 15-75% CH & <1% CR
<b>Transite Flues</b>	<b>Not Sampled</b> <b>Note: Material is located in the attic space roof</b>	<b>ASSUMED</b>

NA = Not Applicable, CH = Chrysotile, CR = Crocidolite

Thirty-six (36) suspect materials were sampled and found to be negative for asbestos content. The non-asbestos containing materials are listed in Table II below.

**TABLE II  
 NON-ASBESTOS CONTAINING MATERIALS**

Material Description	Material Locations
Wall Vapor Barrier Material - Black	Main House, Interior - Southeastern Laundry Room Area at Southern Wall Main House, Interior - Southwestern Bedroom Area at Southern Wall Main House, Exterior - Eastern Wing of Building at Southwestern Corner
Wainscot Adhesive - Tan on Faux Blue Ceramic Tile	Main House, Interior - Southeastern Laundry Room Area at Southeastern Corner Main House, Interior - Southeastern Laundry Room Area at Southeastern Corner
Sheet Flooring System - Beige with Blue Flower Pattern and Yellow Mastic	Main House, Interior - Central Kitchen Area at Southeastern Corner Entry Way Main House, Interior - Central Kitchen Area at Western Entry Way
Vapor Barrier under Subfloor - Black	Main House, Interior - Central Kitchen Area at Southeastern Corner Entry Way Main House, Interior - Central Kitchen Area at Western Entry Way Main House, Interior - Western Corridor Area at Northern Side
Cove Base Adhesive - Brown on 4" Beige Cove	Main House, Interior - Central Kitchen Area at Southeastern Corner Entry Way Main House, Interior - Central Kitchen Area at Western Entry Way
Interior Window Glazing Putty - White	Main House, Interior - Northeastern Den Area at Eastern Window Main House, Interior - Northwestern Living Room Area at Northern Window Main House, Interior - Southwestern Bedroom Area at Southern Window
Ceramic Floor Tile System - Multi Tan Mosaic Tile with Grout and Mortar	Main House, Interior - Western Bathroom Area at Eastern Entry Way Main House, Interior - Western Bathroom Area at Eastern Entry Way
Ceramic Counter Tile System - 4" Beige Tile with Grout and Mortar	Main House, Interior - Western Bathroom Area at Northeastern Countertop Main House, Interior - Western Bathroom Area at Northeastern Countertop
Ceramic Counter Tile System - 4" Beige Tile with Grout and Mortar	Main House, Interior - Central Kitchen Area at Northwestern Countertop Main House, Interior - Central Kitchen Area at Northeastern Countertop

Material Description	Material Locations
Ceramic Counter Tile System - 4" Blue Mosaic Tile with Grout and Mortar	Main House, Interior - Central Kitchen Area at Northwestern Countertop Main House, Interior - Central Kitchen Area at Northeastern Countertop
Ceramic Wall Tile System - 6" Blue Floral Pattern with Grout and Mastic	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove
Wood Burning Stove Base - Brick and Mortar	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove
Stove Rope Gasketing - Black	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove
Stone Fireplace Grouting Material - Grey	Main House, Interior - Northwestern Living Room Area at Western Fireplace Main House, Interior - Northwestern Living Room Area at Western Fireplace
Fireplace Base Material with Mortar	Main House, Interior - Northwestern Living Room Area at Western Fireplace Main House, Interior - Northwestern Living Room Area at Western Fireplace
Wire Insulation Material - Cloth	Main House, Interior - Southwestern Bedroom Area at Western Electrical Outlet Main House, Interior - Southwestern Bedroom Area at Western Electrical Outlet
Attic System Insulation - Saw Dust Material	Main House, Interior - Eastern Hallway Area at Attic Access Hatch Main House, Interior - Eastern Hallway Area at Attic Access Hatch Main House, Interior - Western Corridor Closet Area at Attic Access Hatch
Exterior Window Glazing Putty - White	Main House, Exterior - Eastern Wing of Building at Western Window Assembly Main House, Exterior - Eastern Wing of Building at Eastern Window Assembly
Building Concrete Materials	Main House, Exterior - Southern Side of Building at Entry Way Area Main House, Exterior - Northeastern Corner of Building at Slab Main House, Exterior - Southwestern Corner of Building at Porch Area Slab
Fire Pit/Barbecue Brick System - Red with Mortar	Main House, Exterior - Southern Side of Building at Built-in Barbecue Pit Main House, Exterior - Southern Side of Building at Built-in Barbecue Pit

Material Description	Material Locations
Porch Area Stucco Wall System - Grey	Main House, Exterior - Southwestern Porch Area at Northwestern Side Wall Main House, Exterior - Southwestern Porch Area at Eastern Side Wall Main House, Exterior - Southwestern Porch Area at Western Side Overhang
Button Board Material under Stucco - White	Main House, Exterior - Southwestern Porch Area at Northwestern Side Wall Main House, Exterior - Southwestern Porch Area at Northwestern Side Wall
Main Roofing Field System - Multiple Layer Composite Shingle with Felt	Main House, Roof Level - Western Wing Main Roofing Field Area at Southern Side Main House, Roof Level - Eastern Wing Main Roofing Field Area at Eastern Side Main House, Roof Level - Central Wing Main Roofing Field Area at Northern Side
Roofing Field System - Thick Asphaltic Shingle	Main House, Exterior - Southern Pumphouse Structure at Western Side Garage Building, Roof Level - Main Roofing Field Area at Northern Side (under Metal) Garage Building, Roof Level - Main Roofing Field Area at Western Side (under Metal)
Window Glazing Putty - White	Garage Building, Exterior - Western Side of Building at Northwestern Window Bank Garage Building, Exterior - Western Side of Building at Central Window Bank
Unfinished Drywall System	Garage Building, Interior - Northwestern Office Room Area at Western Wall Garage Building, Interior - Northwestern Office Room Area at Northern Wall
Moisture Barrier Paper - Black	Garage Building, Interior - Northwestern Office Room Area at Southern Wall Garage Building, Interior - Northwestern Office Room Area at Eastern Wall
Building Concrete Materials	Garage Building, Interior - Northwestern Office Room Area at Northern Entry Way Garage Building, Interior - Northern Main Garage Area at Northern Entry Way
Roof Penetration Mastic - Black	Main House, Roof Level - Central Wing Main Roofing Field Area at Northern Stove Flue Main House, Roof Level - Central Wing Main Roofing Field Area at Northern Stove Flue Main House, Roof Level - Western Wing Main Roofing Field Area at Central Penetration
Kiln Wall System - Grey CMU Block with Mortar	Kiln/Barn Building, Interior - Central Corridor Area at Northwestern Corner Kiln/Barn Building, Interior - Central Corridor Area at Southwestern Corner
Kiln Wall Moisture Barrier - Black	Kiln/Barn Building, Interior - Central Corridor Area at Southwestern Corner Kiln/Barn Building, Interior - Central Corridor Area at Southwestern Corner

<b>Material Description</b>	<b>Material Locations</b>
Acoustical Wall Tile System - 1' White Nailed on System	Kiln/Barn Building, Interior - Western Kiln Chamber Area at Western Wall Kiln/Barn Building, Interior - Western Kiln Chamber Area at Eastern Wall
Cloth Heat Barrier Material - White	Kiln/Barn Building, Interior - Central Corridor Area at Eastern Wall North Kiln/Barn Building, Interior - Central Corridor Area at Eastern Wall South
Building Concrete Material	Kiln/Barn Building, Interior - Central Corridor Area at Southern Side Ceiling Kiln/Barn Building, Exterior - Northern Side of Building at Central Walk Way
Asphaltic Patching Material - Black	Kiln/Barn Building, Interior - Central Corridor Area at Northern Side Ceiling Kiln/Barn Building, Interior - Central Corridor Area Ceiling at Approximate Center

## 5. Lead Results

Samples of thirteen (13) suspect lead containing materials were collected and analyzed for potential lead content. Eight (8) of the samples were reported above laboratory detection limits for lead. Table III below summarizes the sampling locations and results for the materials.

**TABLE III  
 LEAD IN PAINT, PUTTY AND CERAMIC SAMPLE RESULTS**

<b>Sample Number</b>	<b>Material Description and Location</b>	<b>Results mg/kg (ppm)</b>
<b>Pb-01</b>	<b>Pink 4" Ceramic Wall Tile System Main House Interior Southeastern Bathroom</b>	<b>4,790</b>
Pb-02	Pink 4" Ceramic Floor Tile System Main House Interior Southeastern Bathroom	<49.8
Pb-03	Tan Mosaic Ceramic Floor Tile System Main House Interior Western Bed Room	<49.8
<b>Pb-04</b>	<b>Beige 4" Ceramic Counter Tile System Main House Interior Western Bathroom</b>	<b>102</b>
<b>Pb-05</b>	<b>Blue 4" Ceramic Counter Tile System Main House Interior Central Kitchen</b>	<b>1,340</b>
Pb-06	Blue Floral Pattern 6" Ceramic Wall Tile System Main House Interior Central Kitchen	<49.9
Pb-07	Metallic Wood Stove Liner Main House Interior Central Kitchen Area	<49.0

<b>Sample Number</b>	<b>Material Description and Location</b>	<b>Results mg/kg (ppm)</b>
<b>Pb-08</b>	<b>White Putty Interior Window Glazing Main House Interior Northeastern Bedroom</b>	<b>99.3</b>
Pb-09	White Putty Exterior Window Glazing Main House Eastern Wing	<49.9
<b>Pb-10</b>	<b>Red Paint on Concrete Porch Slab Main House Exterior Southwestern Porch</b>	<b>117</b>
<b>Pb-11</b>	<b>White Paint on Wood Exterior Wall System Main House Exterior Southern Side</b>	<b>10,300</b>
<b>Pb-12</b>	<b>White Paint on Wood Exterior Wall System Garage Building Exterior Western Side</b>	<b>16,900</b>
<b>Pb-12</b>	<b>White Putty Exterior Window Glazing Garage Building Exterior Western Side</b>	<b>168</b>

Mg/kg= Milligram per kilogram, ppm = parts per million

## 6. Conclusions and Recommendations

Based upon the scope of the work, Terracon concludes the following:

- Asbestos was detected in four (4) of the building materials. Additionally, one (1) material is assumed to contain asbestos. These materials should be removed by a licensed and registered asbestos abatement contractor if materials disturbed will exceed 100 square feet. All workers shall be properly trained for asbestos removal work.
- Lead was detected above the laboratory detection limit in eight (8) of the materials tested within the survey area. All removal work impacting lead containing materials must be done following the OSHA Lead in Construction Standard.

## 7. Regulatory Requirements

### Asbestos

Asbestos-containing materials are present in the building in concentrations greater than one tenth of one percent (0.1%). Impacting materials containing greater than 0.1% asbestos either through repair, maintenance, or demolition activities triggers numerous regulations enforced by such agencies as OSHA (worker protection) and EPA (environmental exposure, transportation and disposal).

Listed below are the regulations that apply if the materials are removed:

- If more than 100 square feet of materials that contain greater than 0.1% asbestos will be removed, they must be abated by a Cal-OSHA registered asbestos abatement contractor. Regulation: Cal-OSHA 8 CCR 1529 (R).

- ACMs that are classified by OSHA as other/miscellaneous materials have been confirmed to be present. Removal of these materials is considered a Class II activity according to Cal-OSHA regulations. Work practices and engineering controls for Class II work are specified in Cal-OSHA 8 CCR 1529 (g) (7-8).

## **Lead**

Painted surfaces observed during the survey were intact and / or peeling. Impacting lead or lead-containing paint either through repair, maintenance, renovation or demolition activities triggers numerous regulations enforced by such agencies as OSHA (worker protection), EPA (environmental exposure, transportation and disposal), and Department of Public Health (DPH).

Listed below are the lead paint regulations that apply if the paint is removed:

- There are presently no federal, state or local regulations limiting the concentration of lead in public (non-school) sector buildings, however several regulations established for the private sector as well as for government subsidized housing are used industry wide as guidelines for assessing exposure to lead. The Consumer Product Safety Commission (CPSC) has set a maximum limit of 90 ppm in paint used for residential purposes. The Department of Housing and Urban Development (HUD) requires abatement of lead hazards involving paint in concentrations exceeding 5,000 ppm.
- Disposal of all lead-containing paint and bulk materials is regulated at concentrations at, or exceeding, 1,000 ppm as stated in 40 Code of Federal Regulations (CFR) Part 263 - Land Disposal Regulations and Title 22, Division 4 Environmental Health of the California Administrative Code. Lead containing materials that exceed 50 ppm must be additionally analyzed to determine possible waste disposal restrictions with respect to lead. However, lead related work at any lead concentration is regulated under the OSHA statutes.
- Federal OSHA as well as California OSHA regulates all worker exposure during construction activities that impact lead-containing paint. California OSHA enforces the Lead in Construction Standard in Title 8 CCR 1532.1. The scope covers construction work where employees may be exposed to lead during such activities as demolition, removal, surface preparation for re-painting, renovation, clean-up and routine maintenance. The OSHA specified method of compliance includes respiratory protection, protective clothing and equipment, housekeeping, hygiene facilities, medical surveillance, and training, among other requirements.

## **8. Limitations**

RGA Environmental Inc. (RGA) warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of ACMs, lead containing materials, mercury and PCBs identified in this report. Also, note that this is a survey report and not an abatement specification. This document is not appropriate for competitive bidding or for use as an asbestos or lead abatement specification.

**Appendix 1:**  
**Laboratory Results and Chain of Custody - Asbestos**



Report for:

**William Frieszell, Ms. Karin Schroeter**  
**Terracon Consultants, Inc. - Emeryville**  
1466 66th Street  
Emeryville, CA 94608

---

Regarding: Project: R1187D02; 4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California  
EML ID: 2052737

Approved by:

Dates of Analysis:  
Asbestos PLM: 12-03-2018 to 12-05-2018

A handwritten signature in cursive script that reads "Renee Luna-Trepczynski".

Approved Signatory  
Renee Luna-Trepczynski

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

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All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Terracon Consultants, Inc. - Emeryville  
 C/O: William Frieszell, Ms. Karin Schroeter  
 Re: R1187D02; 4224 Highway 12, Pre-Demolition  
 Survey, Santa Rosa, California

Date of Sampling: 11-30-2018  
 Date of Receipt: 12-03-2018  
 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

<b>Total Samples Submitted:</b>	90
<b>Total Samples Analyzed:</b>	90
<b>Total Samples with Layer Asbestos Content &gt; 1%:</b>	6

**Location: 1A, Wall Vapor Barrier Material;Black Main House, Interior;Southeastern Laundry Room Area At Southern Wall**

Lab ID-Version‡: 9694024-1

Sample Layers	Asbestos Content
Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	75% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 1B, Wall Vapor Barrier Material;Black Main House, Interior;Southwestern Bedroom Area At Southern Wall**

Lab ID-Version‡: 9694025-1

Sample Layers	Asbestos Content
Brown/Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	90% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 1C, Wall Vapor Barrier Material;Black Main House, Exterior;Eastern Wing Of Building At Southwestern Corner**

Lab ID-Version‡: 9694026-1

Sample Layers	Asbestos Content
Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	75% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 2A, Interior Wall System;Drywall And Joint Compound Main House, Interior; Southeastern Bedroom Area At Western Wall**

Lab ID-Version‡: 9694027-1

Sample Layers	Asbestos Content
Off-White Joint Compound with Yellow Paint	2% Chrysotile
White Drywall with Brown Paper	ND
<b>Composite Asbestos Fibrous Content:</b>	< 1% Asbestos
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Comments:** Composite asbestos content provided is only for Drywall/Joint compound. Composite content provided for this analysis has been performed by following the NESHAP guidelines.

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 Date of Receipt: 12-03-2018  
 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 2B, Interior Wall System; Drywall And Joint Compound Main House, Interior;  
 Southeastern Bathroom Area At Southern Wall**

Lab ID-Version‡: 9694028-1

Sample Layers	Asbestos Content
Off-White Joint Compound with Multilayered Paint	2% Chrysotile
White Drywall with Brown Paper	ND
<b>Composite Asbestos Fibrous Content:</b>	< 1% Asbestos
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Comments:** Composite asbestos content provided is only for Drywall/Joint compound. Composite content provided for this analysis has been performed by following the NESHAP guidelines.

**Location: 2C, Interior Wall System; Drywall And Joint Compound Main House, Interior;  
 Northwestern Living Room Area At Northeastern Corner**

Lab ID-Version‡: 9694029-1

Sample Layers	Asbestos Content
Off-White Compound with Multilayered Paint	2% Chrysotile
Brown Tape	ND
Off-White Joint Compound	2% Chrysotile
White Drywall with Brown Paper	ND
<b>Composite Asbestos Fibrous Content:</b>	< 1% Asbestos
<b>Composite Non-Asbestos Content:</b>	15% Cellulose
<b>Sample Composite Homogeneity:</b>	Poor

**Comments:** Composite asbestos content provided is only for Drywall/Joint compound. Composite content provided for this analysis has been performed by following the NESHAP guidelines.

**Location: 3A, Ceramic Wall Tile System; 4" Pink Tile With Grout And Mortar Main  
 House, Interior; Southeastern Bathroom Area At Southern Wall**

Lab ID-Version‡: 9694030-1

Sample Layers	Asbestos Content
Pink Ceramic Tile	ND
White Grout	ND
Gray Mortar	ND
Off-White Compound with Multilayered Paint	2% Chrysotile
<b>Sample Composite Homogeneity:</b>	Poor

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**ASBESTOS PLM REPORT**

**Location: 3B, Ceramic Wall Tile System;4" Pink Tile With Grout And Mortar Main House, Interior;Southeastern Bathroom Area At Western Wall**

Lab ID-Version‡: 9694031-1

Sample Layers	Asbestos Content
White Grout	ND
Gray Mortar	ND
Gray Cementitious Material	< 1% Chrysotile
<b>Sample Composite Homogeneity:</b> Poor	

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 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 4A, Ceramic Floor Tile System;4" Pink Tile With Grout And Mortar Main House, Interior;Southeastern Bathroom Area At Southwestern Entry Way**

Lab ID-Version‡: 9694032-1

Sample Layers	Asbestos Content
Pink Ceramic Tile	ND
White Grout	ND
Gray Mortar & Cementitious Material	< 1% Chrysotile
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 4B, Ceramic Floor Tile System;4" Pink Tile With Grout And Mortar Main House, Interior;Southeastern Bathroom Area At Southwestern Entry Way**

Lab ID-Version‡: 9694033-1

Sample Layers	Asbestos Content
Pink Ceramic Tile	ND
White Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 5A, Sheet Flooring System;Square Pattern Under Carpet Main House, Interior; Southeastern Laundry Room Area At Western Entry Way**

Lab ID-Version‡: 9694034-1

Sample Layers	Asbestos Content
Yellow Sheet Flooring with Fibrous Backing and White Paint	ND
Gray Foam	ND
<b>Composite Non-Asbestos Content:</b>	40% Cellulose < 1% Synthetic Fibers
<b>Sample Composite Homogeneity:</b> Moderate	

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C/O: William Frieszell, Ms. Karin Schroeter  
Re: R1187D02; 4224 Highway 12, Pre-Demolition  
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**ASBESTOS PLM REPORT**

**Location: 5B, Sheet Flooring System; Square Pattern Under Carpet Main House, Interior;  
Southeastern Laundry Room Area At Eastern Side**

Lab ID-Version‡: 9694035-1

Sample Layers	Asbestos Content
Yellow Sheet Flooring with Fibrous Backing and White Paint	ND
Gray Foam	ND
<b>Composite Non-Asbestos Content:</b>	40% Cellulose < 1% Synthetic Fibers
<b>Sample Composite Homogeneity:</b>	Moderate

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**ASBESTOS PLM REPORT**

**Location: 6A, Wainscot Adhesive; Tan On Faux Blue Ceramic Tile Main House, Interior;  
 Southeastern Laundry Room Area At Southeastern Corner**

Lab ID-Version‡: 9694036-1

Sample Layers	Asbestos Content
Tan Mastic	ND
White Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	2% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 6B, Wainscot Adhesive; Tan On Faux Blue Ceramic Tile Main House, Interior;  
 Southeastern Laundry Room Area At Southeastern Corner**

Lab ID-Version‡: 9694037-1

Sample Layers	Asbestos Content
Tan Mastic	ND
White Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	2% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 7A, Sheet Flooring System; Beige With Blue Flower Pattern And Yellow Mastic  
 Main House, Interior; Central Kitchen Area At Southeastern Corner Entry Way**

Lab ID-Version‡: 9694038-1

Sample Layers	Asbestos Content
Beige Sheet Flooring	ND
Yellow Mastic	ND
<b>Composite Non-Asbestos Content:</b>	2% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 7B, Sheet Flooring System; Beige With Blue Flower Pattern And Yellow Mastic  
 Main House, Interior; Central Kitchen Area At Western Entry Way**

Lab ID-Version‡: 9694039-1

Sample Layers	Asbestos Content
Beige Sheet Flooring	ND
Yellow Mastic	ND
<b>Composite Non-Asbestos Content:</b>	2% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Moderate

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**ASBESTOS PLM REPORT**

**Location: 8A, Vapor Barrier Under Subfloor;Black Main House, Interior;Central  
 Kitchen Area At Southeastern Corner Entry Way**

Lab ID-Version‡: 9694040-1

Sample Layers	Asbestos Content
Brown/Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	90% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 8B, Vapor Barrier Under Subfloor;Black Main House, Interior;Central  
 Kitchen Area At Western Entry Way**

Lab ID-Version‡: 9694041-1

Sample Layers	Asbestos Content
Brown/Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	90% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 8C, Vapor Barrier Under Subfloor;Black Main House, Interior;Western  
 Corridor Area At Northern Side**

Lab ID-Version‡: 9694042-1

Sample Layers	Asbestos Content
Brown/Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	90% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 9A, Cove Base Adhesive;Brown On 4" Beige Cove Main House, Interior;  
 Central Kitchen Area At Southeastern Corner Entry Way**

Lab ID-Version‡: 9694043-1

Sample Layers	Asbestos Content
Beige Baseboard	ND
Cream Mastic	ND
<b>Sample Composite Homogeneity:</b>	Moderate

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**ASBESTOS PLM REPORT**

**Location: 9B, Cove Base Adhesive; Brown On 4" Beige Cove Main House, Interior;  
 Central Kitchen Area At Western Entry Way**

Lab ID-Version‡: 9694044-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Dark Brown Mastic	ND
<b>Composite Non-Asbestos Content:</b>	75% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 10A, Interior Window Glazing Putty; White Main House, Interior;  
 Northeastern Den Area At Eastern Window**

Lab ID-Version‡: 9694045-1

Sample Layers	Asbestos Content
Off-White Window Glazing with White Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 10B, Interior Window Glazing Putty; White Main House, Interior;  
 Northwestern Living Room Area At Northern Window**

Lab ID-Version‡: 9694046-1

Sample Layers	Asbestos Content
White Window Glazing with White Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 10C, Interior Window Glazing Putty; White Main House, Interior;  
 Southwestern Bedroom Area At Southern Window**

Lab ID-Version‡: 9694047-1

Sample Layers	Asbestos Content
White Window Glazing with White Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

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### ASBESTOS PLM REPORT

**Location: 11A, Ceramic Floor Tile System; Multi Tan Mosaic Tile With Grout And Mortar Main House, Interior; Western Bathroom Area At Eastern Entry Way**

Lab ID-Version‡: 9694048-1

Sample Layers	Asbestos Content
Tan Ceramic Tile	ND
White Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 11B, Ceramic Floor Tile System; Multi Tan Mosaic Tile With Grout And Mortar Main House, Interior; Western Bathroom Area At Eastern Entry Way**

Lab ID-Version‡: 9694049-1

Sample Layers	Asbestos Content
Tan Ceramic Tile	ND
White Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 12A, Ceramic Counter Tile System; 4" Beige Tile With Grout And Mortar Main House, Interior; Western Bathroom Area At Northeastern Countertop**

Lab ID-Version‡: 9694050-1

Sample Layers	Asbestos Content
Beige Ceramic Tile	ND
White Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Poor	

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Re: R1187D02; 4224 Highway 12, Pre-Demolition  
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Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 12B, Ceramic Counter Tile System;4" Beige Tile With Grout And Mortar  
Main House, Interior;Western Bathroom Area At Northeastern Countertop**

Lab ID-Version‡: 9694051-1

Sample Layers	Asbestos Content
Beige Ceramic Tile	ND
White Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b>	Poor

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**ASBESTOS PLM REPORT**

**Location: 13A, Ceramic Counter Tile System;4" Blue Mosaic Tile With Grout And Mortar Main House, Interior;Central Kitchen Area At Northwestern Countertop**

Lab ID-Version‡: 9694052-1

Sample Layers	Asbestos Content
Blue Ceramic Tile	ND
Gray Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 13B, Ceramic Counter Tile System;4" Blue Mosaic Tile With Grout And Mortar Main House, Interior;Central Kitchen Area At Northeastern Countertop**

Lab ID-Version‡: 9694053-1

Sample Layers	Asbestos Content
Beige Grout	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

**Location: 14A, Cermaic Counter Tile System;4" Blue Mosaic Tile With Grout And Mortar Main House, Interior;Central Kitchen Area At Northwestern Couertop**

Lab ID-Version‡: 9694054-1

Sample Layers	Asbestos Content
Blue Ceramic Tile	ND
White Grout	ND
Tan Mastic	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 14B, Cermaic Counter Tile System;4" Blue Mosaic Tile With Grout And Mortar Main House, Interior;Central Kitchen Area At Northeastern Couertop**

Lab ID-Version‡: 9694055-1

Sample Layers	Asbestos Content
Blue Ceramic Tile	ND
White Grout	ND
Tan Mastic	ND
<b>Sample Composite Homogeneity:</b> Poor	

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**ASBESTOS PLM REPORT**

**Location: 15A, Ceramic Wall Tile System;6" Blue Floral Pattern With Grout And  
 Mastic Mian House, Interior;Central Kitchen Area At Northeastern Wood Burning  
 Stove**

Lab ID-Version‡: 9694056-1

Sample Layers	Asbestos Content
Blue Ceramic Tile	ND
White Grout	ND
Brown Mastic	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 15B, Ceramic Wall Tile System;6" Blue Floral Pattern With Grout And Mastic  
 Mian House, Interior;Central Kitchen Area At Northeastern Wood Burning Stove**

Lab ID-Version‡: 9694057-1

Sample Layers	Asbestos Content
Blue Ceramic Tile	ND
White Grout	ND
Brown Mastic	ND
<b>Sample Composite Homogeneity:</b> Poor	

**Location: 16A, Wood Burning Stove Base;Brick And Mortar Main House, Interior;  
 Central Kitchen Area At Northeastern Wood Burning Stove**

Lab ID-Version‡: 9694058-1

Sample Layers	Asbestos Content
Red Brick	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

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Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 16B, Wood Burning Stove Base;Brick And Mortar Main House, Interior;  
Central Kitchen Area At Northeastern Wood Burning Stove**

Lab ID-Version‡: 9694059-1

Sample Layers	Asbestos Content
Red Brick	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

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 Survey, Santa Rosa, California

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 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 17A, Stove Rope Gasketing;Black Main House, Interior;Central Kitchen Area  
 At Northeastern Wood Burning Stove**

Lab ID-Version‡: 9694060-1

Sample Layers	Asbestos Content
White Gasket	ND
<b>Composite Non-Asbestos Content:</b>	99% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 17B, Stove Rope Gasketing;Black Main House, Interior;Central Kitchen Area  
 At Northeastern Wood Burning Stove**

Lab ID-Version‡: 9694061-1

Sample Layers	Asbestos Content
White Gasket	ND
<b>Composite Non-Asbestos Content:</b>	99% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 18A, Stone Fireplace Grouting Material;Grey Main House, Interior;  
 Northwestern Living Room Area At Western Fireplace**

Lab ID-Version‡: 9694062-1

Sample Layers	Asbestos Content
Gray Grout	ND
Light Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 18B, Stone Fireplace Grouting Material;Grey Main House, Interior;  
 Northwestern Living Room Area At Western Fireplace**

Lab ID-Version‡: 9694063-1

Sample Layers	Asbestos Content
Gray Grout	ND
<b>Sample Composite Homogeneity:</b>	Good

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**ASBESTOS PLM REPORT**

**Location: 19A, Fireplace Base Material With Mortar Main House, Interior;  
 Northwestern Living Room Area At Western Fireplace**

Lab ID-Version‡: 9694064-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material	ND
Light Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

**Location: 19B, Fireplace Base Material With Mortar Main House, Interior;Northwestern  
 Living Room Area At Western Fireplace**

Lab ID-Version‡: 9694065-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material	ND
Light Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

**Location: 20A, Wire Insulation Material;Cloth Main House, Interior;Southwestern  
 Bedroom Area At Western Electrical Outlet**

Lab ID-Version‡: 9694066-1

Sample Layers	Asbestos Content
Black Wiring Insulation	ND
<b>Composite Non-Asbestos Content:</b> 80% Cotton	
<b>Sample Composite Homogeneity:</b> Good	

**Location: 20B, Wire Insulation Material;Cloth Main House, Interior;Southwestern  
 Bedroom Area At Western Electrical Outlet**

Lab ID-Version‡: 9694067-1

Sample Layers	Asbestos Content
Black Wiring Insulation	ND
<b>Composite Non-Asbestos Content:</b> 80% Cotton	
<b>Sample Composite Homogeneity:</b> Good	

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**ASBESTOS PLM REPORT**

**Location: 21A, Attic System Insulation;Saw Dust Material Main House, Interior;Eastern  
 Hallway Area At Attic Access Hatch**

Lab ID-Version‡: 9694068-1

Sample Layers	Asbestos Content
Brown Insulation	ND
<b>Composite Non-Asbestos Content:</b>	99% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 21B, Attic System Insulation;Saw Dust Material Main House, Interior;Eastern  
 Hallway Area At Attic Access Hatch**

Lab ID-Version‡: 9694069-1

Sample Layers	Asbestos Content
Brown Insulation	ND
<b>Composite Non-Asbestos Content:</b>	99% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 21C, Attic System Insulation;Saw Dust Material Main House, Interior;  
 Western Corridor Closet Area At Attic Access Hatch**

Lab ID-Version‡: 9694070-1

Sample Layers	Asbestos Content
Brown Insulation	ND
<b>Composite Non-Asbestos Content:</b>	99% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 22A, Attic Exhaust Flue Insulation;Grey Main House, Interior;Western  
 Corridor Closet Area At Attic Access Hatch**

Lab ID-Version‡: 9694071-1

Sample Layers	Asbestos Content
Gray Insulation	15% Chrysotile < 1% Crocidolite
<b>Composite Non-Asbestos Content:</b>	< 1% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

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**ASBESTOS PLM REPORT**

**Location: 22B, Attic Exhaust Flue Insulation; Grey Main House, Interior; Western  
 Corridor Closet Area At Attic Access Hatch**

Lab ID-Version‡: 9694072-1

Sample Layers	Asbestos Content
Gray Insulation	75% Chrysotile < 1% Crocidolite
<b>Composite Non-Asbestos Content:</b>	< 1% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 23A, Exterior Window Glazing Putty; White Main House, Exterior; Eastern  
 Wing Of Building At Western Window Assembly**

Lab ID-Version‡: 9694073-1

Sample Layers	Asbestos Content
White Window Glazing with White Paint	ND
<b>Composite Non-Asbestos Content:</b>	< 1% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 23B, Exterior Window Glazing Putty; White Main House, Exterior; Eastern  
 Wing Of Building At Eastern Window Assembly**

Lab ID-Version‡: 9694074-1

Sample Layers	Asbestos Content
White Window Glazing with White Paint	ND
<b>Composite Non-Asbestos Content:</b>	< 1% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 24A, Building Concrete Materials Main House, Exterior; Southern Side Of  
 Building At Entry Way Area**

Lab ID-Version‡: 9694075-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b>	Good

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**ASBESTOS PLM REPORT**

**Location: 24B, Building Concrete Materials Main House, Exterior; Northeastern Corner  
 Of Building At Slab**

Lab ID-Version‡: 9694076-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 24C, Building Concrete Materials Main House, Exterior; Southwestern Corner  
 Of Building At Porch Area Slab**

Lab ID-Version‡: 9694077-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 25A, Fire Pit/Barbeque Brick System; Red With Mortar Main House, Exterior;  
 Southern Side Of Building At Built-In Barbeque Pit**

Lab ID-Version‡: 9694078-1

Sample Layers	Asbestos Content
Red Brick	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

**Location: 25B, Fire Pit/Barbeque Brick System; Red With Mortar Main House, Exterior;  
 Southern Side Of Building At Built-In Barbeque Pit**

Lab ID-Version‡: 9694079-1

Sample Layers	Asbestos Content
Red Brick	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b> Moderate	

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**ASBESTOS PLM REPORT**

**Location: 26A, Porch Area Stucco Wall System; Grey Main House, Exterior;  
 Southwestern Porch Area At Northwestern Side Wall**

Lab ID-Version‡: 9694080-1

Sample Layers	Asbestos Content
Gray Stucco	ND
Brown Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	3% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 26B, Porch Area Stucco Wall System; Grey Main House, Exterior;  
 Southwestern Porch Area At Eastern Side Wall**

Lab ID-Version‡: 9694081-1

Sample Layers	Asbestos Content
Gray Stucco with White Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 26C, Porch Area Stucco Wall System; Grey Main House, Exterior;  
 Southwestern Porch Area At Western Side Overhang**

Lab ID-Version‡: 9694082-1

Sample Layers	Asbestos Content
Gray Stucco with White Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 27A, Button Board Material Under Stucco; White Main House, Exterior;  
 Southwestern Porch Area At Northwestern Side Wall**

Lab ID-Version‡: 9694083-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

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**ASBESTOS PLM REPORT**

**Location: 27B, Button Board Material Under Stucco; White Main House, Exterior;  
 Southwestern Porch Area At Northwestern Side Wall**

Lab ID-Version‡: 9694084-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 28A, Main Roofing Field System; Multiple Layer Composite Shingle With Felt  
 Main House, Roof Level; Western Wing Main Roofing Field Area At Southern Side**

Lab ID-Version‡: 9694085-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Gray Pebbles	ND
Black Roofing Shingle with Black Pebbles	ND
Black Roofing Tar and Felt	ND
<b>Composite Non-Asbestos Content:</b>	20% Cellulose 7% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Poor

**Location: 28B, Main Roofing Field System; Multiple Layer Composite Shingle With Felt  
 Main House, Roof Level; Eastern Wing Main Roofing Field Area At Eastern Side**

Lab ID-Version‡: 9694086-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Gray Pebbles	ND
Black Roofing Shingle with Black Pebbles	ND
Black Roofing Tar and Felt	ND
<b>Composite Non-Asbestos Content:</b>	20% Cellulose 7% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Poor

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**ASBESTOS PLM REPORT**

**Location: 28C, Main Roofing Field System; Multiple Layer Composite Shingle With Felt  
 Main House, Roof Level; Central Wing Main Roofing Field Area At Northern Side**

Lab ID-Version‡: 9694087-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Gray Pebbles	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt	ND
<b>Composite Non-Asbestos Content:</b>	45% Cellulose 5% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Poor

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**ASBESTOS PLM REPORT**

**Location: 29A, Roofing Field System;Thick Asphaltic Shingle Main House, Exterior;  
 Southern Pumhouse Structure At Western Side**

Lab ID-Version‡: 9694088-1

Sample Layers	Asbestos Content
Black Roofing Shingle with White Pebbles	ND
Black Roofing Tar and Felt with Multicolored Pebbles	ND
Black Roofing Tar and Felt with Multicolored Pebbles	ND
<b>Composite Non-Asbestos Content:</b>	15% Cellulose 5% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Poor

**Location: 29B, Roofing Field System;Thick Asphaltic Shingle Garage Building, Roof  
 Level;Main Roofing Field Area At Northern Side (Under Metal)**

Lab ID-Version‡: 9694089-1

Sample Layers	Asbestos Content
Black Roofing Tar and Felt with Multicolored Pebbles	ND
Black Roofing Tar and Felt with Multicolored Pebbles	ND
Black Roofing Tar and Felt	ND
<b>Composite Non-Asbestos Content:</b>	20% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 29C, Roofing Field System;Thick Asphaltic Shingle Garage Building, Roof  
 Level;Main Roofing Field Area At Western Side (Under Metal)**

Lab ID-Version‡: 9694090-1

Sample Layers	Asbestos Content
Black Roofing Shingle with White Pebbles	ND
Black Roofing Tar and Felt with Multicolored Pebbles	ND
Black Roofing Tar and Felt with Multicolored Pebbles	ND
<b>Composite Non-Asbestos Content:</b>	20% Cellulose
<b>Sample Composite Homogeneity:</b>	Poor

**Location: 30A, Window Glazing Putty;White Garage Building, Exterior;Western Side Of  
 Building At Northwestern Window Bank**

Lab ID-Version‡: 9694091-1

Sample Layers	Asbestos Content
White Window Glazing with White Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

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**ASBESTOS PLM REPORT**

**Location: 30B, Window Glazing Putty; White Garage Building, Exterior; Western Side Of Building At Central Window Bank**

Lab ID-Version‡: 9694092-1

Sample Layers	Asbestos Content
White Window Glazing with White Paint	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 31A, Unfinished Drywall System Garage Building, Interior; Northwestern Office Room Area At Western Wall**

Lab ID-Version‡: 9694093-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 31B, Unfinished Drywall System Garage Building, Interior; Northwestern Office Room Area At Northern Wall**

Lab ID-Version‡: 9694094-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 32A, Moisture Barrier Paper; Black Garage Building, Interior; Northwestern Office Room Area At Southern Wall**

Lab ID-Version‡: 9694095-1

Sample Layers	Asbestos Content
Brown/Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	95% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

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**ASBESTOS PLM REPORT**

**Location: 32B, Moisture Barrier Paper;Black Garage Building, Interior;Northwestern Office Room Area At Eastern Wall**

Lab ID-Version‡: 9694096-1

Sample Layers	Asbestos Content
Brown/Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	95% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 33A, Building Concrete Materials Garage Building, Interior;Northwestern Office Room Area At Northern Entry Way**

Lab ID-Version‡: 9694097-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 33B, Building Concrete Materials Garage Building, Interior;Northern Main Garage Area At Northern Entry Way**

Lab ID-Version‡: 9694098-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 34A, Roof Penetration Mastic;Black Main House, Roof Level;Central Wing Main Roofing Field Area At Northern Stove Flue**

Lab ID-Version‡: 9694099-1

Sample Layers	Asbestos Content
Black Mastic	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

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**ASBESTOS PLM REPORT**

**Location: 34B, Roof Penetration Mastic;Black Main House, Roof Level;Central Wing  
 Main Roofing Field Area At Northern Stove Flue**

Lab ID-Version‡: 9694100-1

Sample Layers	Asbestos Content
Black Mastic	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 34C, Roof Penetration Mastic;Black Main House, Roof Level;Western Wing  
 Main Roofing Field Area At Central Penetration**

Lab ID-Version‡: 9694101-1

Sample Layers	Asbestos Content
Black Mastic	ND
<b>Composite Non-Asbestos Content:</b>	10% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 36A, Kiln Wall System;Grey CMU Block With Mortar Kiln/Barn Building,  
 Interior;Central Corridor Area At Northwestern Corner**

Lab ID-Version‡: 9694102-1

Sample Layers	Asbestos Content
Gray Block	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 36B, Kiln Wall System;Grey CMU Block With Mortar Kiln/Barn Building,  
 Interior;Central Corridor Area At Southwestern Corner**

Lab ID-Version‡: 9694103-1

Sample Layers	Asbestos Content
Gray Block	ND
Gray Mortar	ND
<b>Sample Composite Homogeneity:</b>	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Terracon Consultants, Inc. - Emeryville  
 C/O: William Frieszell, Ms. Karin Schroeter  
 Re: R1187D02; 4224 Highway 12, Pre-Demolition  
 Survey, Santa Rosa, California

Date of Sampling: 11-30-2018  
 Date of Receipt: 12-03-2018  
 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 37A, Kiln Wall Moisture Barrier;Black Kiln/Barn Building, Interior;Central  
 Corridor Area At Southwestern Corner**

Lab ID-Version‡: 9694104-1

Sample Layers	Asbestos Content
Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	85% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 37B, Kiln Wall Moisture Barrier;Black Kiln/Barn Building, Interior;Central  
 Corridor Area At Southwestern Corner**

Lab ID-Version‡: 9694105-1

Sample Layers	Asbestos Content
Black Vapor Barrier	ND
<b>Composite Non-Asbestos Content:</b>	85% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 38A, Acoustical Wall Tile System;1" White Nailed On System Kiln/Barn  
 Building, Interior;Western Kiln Chamber Area At Western Wall**

Lab ID-Version‡: 9694106-1

Sample Layers	Asbestos Content
Brown Ceiling Tile with White Surface	ND
<b>Composite Non-Asbestos Content:</b>	95% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 38B, Acoustical Wall Tile System;1" White Nailed On System Kiln/Barn  
 Building, Interior;Western Kiln Chamber Area At Eastern Wall**

Lab ID-Version‡: 9694107-1

Sample Layers	Asbestos Content
Brown Ceiling Tile with White Surface	ND
<b>Composite Non-Asbestos Content:</b>	95% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

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Client: Terracon Consultants, Inc. - Emeryville  
 C/O: William Frieszell, Ms. Karin Schroeter  
 Re: R1187D02; 4224 Highway 12, Pre-Demolition  
 Survey, Santa Rosa, California

Date of Sampling: 11-30-2018  
 Date of Receipt: 12-03-2018  
 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 39A, Cloth H; White Kiln/Barn Building, Interior; Central Corridor Area At Eastern Wall North**

Lab ID-Version‡: 9694108-1

Sample Layers	Asbestos Content
White Woven Material	ND
<b>Composite Non-Asbestos Content:</b>	95% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 39B, Cloth H; White Kiln/Barn Building, Interior; Central Corridor Area At Eastern Wall South**

Lab ID-Version‡: 9694109-1

Sample Layers	Asbestos Content
White Woven Material	ND
<b>Composite Non-Asbestos Content:</b>	95% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

**Location: 40A, Building Concrete Material Kiln/Barn Building, Interior; Central Corridor Area Southern Side Ceiling**

Lab ID-Version‡: 9694110-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 40B, Building Concrete Material Kiln/Barn Building, Exterior; Northern Side Of Building At Central Walk Way**

Lab ID-Version‡: 9694111-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b>	Good

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Terracon Consultants, Inc. - Emeryville  
 C/O: William Frieszell, Ms. Karin Schroeter  
 Re: R1187D02; 4224 Highway 12, Pre-Demolition  
 Survey, Santa Rosa, California

Date of Sampling: 11-30-2018  
 Date of Receipt: 12-03-2018  
 Date of Report: 12-05-2018

**ASBESTOS PLM REPORT**

**Location: 41A, Asphaltic Patching Material;Black Kiln/Barn Building, Interior;Central  
 Corridor Area At Northern Side Ceiling**

Lab ID-Version‡: 9694112-1

Sample Layers	Asbestos Content
Dark Brown Fibrous Material	ND
Light Gray Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	30% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 41B, Asphaltic Patching Material;Black Kiln/Barn Building, Interior;Central  
 Corridor Area Ceiling At Approximate Center**

Lab ID-Version‡: 9694763-1

Sample Layers	Asbestos Content
Dark Brown Fibrous Material	ND
Light Gray Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	30% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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## ACM BULK SAMPLE DATA SHEET

\* PLM Analysis

Page 1 of 9

Stop Analysis at First Positive

Analyze All Samples

Point Count Analysis (400-point)

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Schroeder KSchro@terracon.com	<input type="checkbox"/> PM - T. Kattchee TKattchee@terracon.com	<input type="checkbox"/> PM - S. Steiner ssteiner@terracon.com	<input type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com
--	--	---	---	---

Project Name/Address		4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California					
Terracon Project Number		R1187D02	Sampled By		W. Frieszell/ K. Schroeder	Sampling Date	November 30, 2018
Laboratory	EMLab	<input checked="" type="checkbox"/> Other	Turn Around Time		48 Hrs	<input checked="" type="checkbox"/> Other (Specify)	

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

<b>HM# 1</b>	<b>Material Description: Wall Vapor Barrier Material - Black</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
1 A	Main House, Interior - Southeastern Laundry Room Area at Southern Wall	
1 B	Main House, Interior - Southwestern Bedroom Area at Southern Wall	
1 C	Main House, Exterior - Eastern Wing of Building at Southwestern Corner	
Material Location:		
<b>HM# 2</b>	<b>Material Description: Interior Wall System - Drywall and Joint Compound</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
2 A	Main House, Interior - Southeastern Bedroom Area at Western Wall	
2 B	Main House, Interior - Southeastern Bathroom Area at Southern Wall	
2 C	Main House, Interior - Northwestern Living Room Area at Northeastern Corner	
Material Location:		
<b>HM# 3</b>	<b>Material Description: Ceramic Wall Tile System - 4" Pink Tile with Grout and Mortar</b>	
<b>Sample ID</b>	<b>Sample Locations</b>	<b>Quantity:</b>
3 A	Main House, Interior - Southeastern Bathroom Area at Southern Wall	
3 B	Main House, Interior - Southeastern Bathroom Area at Western Wall	
3 C		
Material Location:		
<b>HM# 4</b>	<b>Material Description: Ceramic Floor Tile System - 4" Pink Tile with Grout and Mortar</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
4 A	Main House, Interior - Southeastern Bathroom Area at Southwestern Entry Way	
4 B	Main House, Interior - Southeastern Bathroom Area at Southwestern Entry Way	
4 C		
Material Location:		
<b>HM# 5</b>	<b>Material Description: Sheet Flooring System - Square Pattern under Carpet</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
5 A	Main House, Interior - Southeastern Laundry Room Area at Western Entry Way	
5 B	Main House, Interior - Southeastern Laundry Room Area at Eastern Side	
5 C		
Material Location:		

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	Fedex 1005	<i>K. Schroeder</i>		12/3/18
Relinquished By:				
Received By:				

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## ACM BULK SAMPLE DATA SHEET

Page 2 of 9

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Schroeter Karin@terracon.com	Ken@terracon.com
PM - T. Kattcheo Tkd@terracon.com	PM - S. Steiner ssteiner@terracon.com	PM - W. Frieszell wfrieszell@terracon.com

- \* PLM Analysis
  - Stop Analysis at First Positive
  - Analyze All Samples
  - Point Count Analysis (400-point)

Project Name/Address		4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number		R1187D02	Sampled By		W. Frieszell/ K. Schroeter	Sampling Date		November 30, 2018
Laboratory	EMLab	<input checked="" type="checkbox"/> Other	Turn Around Time			48 Hrs	<input checked="" type="checkbox"/> Other (Specify)	

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

<b>HM#</b> 6	<b>Material Description:</b> Wainscot Adhesive - Tan on Faux Blue Ceramic Tile		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b> 25 sf	
6 A	Main House, Interior - Southeastern Laundry Room Area at Southeastern Corner		
6 B	Main House, Interior - Southeastern Laundry Room Area at Southeastern Corner		
C			
<b>Material Location:</b>			
<b>HM#</b> 7	<b>Material Description:</b> Sheet Flooring System - Beige with Blue Flower Pattern and Yellow Mastic		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
7 A	Main House, Interior - Central Kitchen Area at Southeastern Corner Entry Way		
7 B	Main House, Interior - Central Kitchen Area at Western Entry Way		
C			
<b>Material Location:</b>			
<b>HM#</b> 8	<b>Material Description:</b> Vapor Barrier under Subfloor - Black		
<b>Sample ID</b>	<b>Sample Locations</b>	<b>Quantity:</b>	
8 A	Main House, Interior - Central Kitchen Area at Southeastern Corner Entry Way		
8 B	Main House, Interior - Central Kitchen Area at Western Entry Way		
8 C	Main House, Interior - Western Corridor Area at Northern Side		
<b>Material Location:</b>			
<b>HM#</b> 9	<b>Material Description:</b> Cove Base Adhesive - Brown on 4" Beige Cove		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
9 A	Main House, Interior - Central Kitchen Area at Southeastern Corner Entry Way		
9 B	Main House, Interior - Central Kitchen Area at Western Entry Way		
C			
<b>Material Location:</b>			
<b>HM#</b> 10	<b>Material Description:</b> Interior Window Glazing Putty - White		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
10 A	Main House, Interior - Northeastern Den Area at Eastern Window		
10 B	Main House, Interior - Northwestern Living Room Area at Northern Window		
10 C	Main House, Interior - Southwestern Bedroom Area at Southern Window		
<b>Material Location:</b>			

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	<i>Feolux 1005</i>	<i>Koriff</i>		<i>12/3/18</i>
Relinquished By:				
Received By:				

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## ACM BULK SAMPLE DATA SHEET

\* PLM Analysis  
 \_\_\_ Stop Analysis at First Positive

Page 3 of 9

Analyze All Samples

\_\_\_ Point Count Analysis (400-point)

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Sch. KSch@terracon.com	KSch@terracon.com
PM - T. Kaitcheo TKaitcheo@terracon.com	PM - S. Steiner ssteiner@terracon.com	PM - W. Frieszell wfrieszell@terracon.com

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number	RI1871002	Sampled By	W. Frieszell/ K. Schroeter		Sampling Date	November 30, 2018	
Laboratory	EMLab	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)		

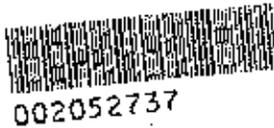
\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

HM#	Sample ID	Material Description	Sample Location & Material Location	Quantity
11		<b>Ceramic Floor Tile System - Multi Tan Mosaic Tile with Grout and Mortar</b>		
	11 A		Main House, Interior - Western Bathroom Area at Eastern Entry Way	
	11 B		Main House, Interior - Western Bathroom Area at Eastern Entry Way	
	C			
Material Location:				
12		<b>Ceramic Counter Tile System - 4" Beige Tile with Grout and Mortar</b>		
	12 A		Main House, Interior - Western Bathroom Area at Northeastern Countertop	
	12 B		Main House, Interior - Western Bathroom Area at Northeastern Countertop	
	C			
Material Location:				
13		<b>Ceramic Counter Tile System - 4" Beige Tile with Grout and Mortar</b>		
	13 A		Main House, Interior - Central Kitchen Area at Northwestern Countertop	
	13 B		Main House, Interior - Central Kitchen Area at Northeastern Countertop	
	C			
Material Location:				
14		<b>Ceramic Counter Tile System - 4" Blue Mosaic Tile with Grout and Mortar</b>		
	14 A		Main House, Interior - Central Kitchen Area at Northwestern Countertop	
	14 B		Main House, Interior - Central Kitchen Area at Northeastern Countertop	
	C			
Material Location:				
15		<b>Ceramic Wall Tile System - 6" Blue Floral Pattern with Grout and Mastic</b>		
	15 A		Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove	
	15 B		Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove	
	C			
Material Location:				

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	Fedex 1005	<i>K. Sch.</i>		12/3/18
Relinquished By:				
Received By:				

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## ACM BULK SAMPLE DATA SHEET

\* PLM Analysis  
 Stop Analysis at First Positive

Page 4 of 9

<input checked="" type="checkbox"/>	PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/>	PM - K. Schroeter Karin@terracon.com
	PM - T. Katchee TKatchee@terracon.com		PM - S. Steiner steiff@terracon.com
			PM - W. Frieszell wfrieszell@terracon.com

Analyze All Samples  
 Point Count Analysis (400-point)

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number	RA1187D02	Sampled By	W. Frieszell/ K. Schroeter		Sampling Date	November 30, 2018	
Laboratory	EMLab	<input checked="" type="checkbox"/> Other		Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)	

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

HM#	Sample ID	Material Description	Sample Location & Material Location	Quantity
16		<b>Material Description: Wood Burning Stove Base - Brick and Mortar</b>		
	16 A	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove		
	16 B	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove		
	C			
Material Location:				
17		<b>Material Description: Stove Rope Gasketing - Black</b>		
	17 A	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove		
	17 B	Main House, Interior - Central Kitchen Area at Northeastern Wood Burning Stove		
	C			
Material Location:				
18		<b>Material Description: Stone Fireplace Grouting Material - Grey</b>		
	18 A	Main House, Interior - Northwestern Living Room Area at Western Fireplace		
	18 B	Main House, Interior - Northwestern Living Room Area at Western Fireplace		
	C			
Material Location:				
19		<b>Material Description: Fireplace Base Material with Mortar</b>		
	19 A	Main House, Interior - Northwestern Living Room Area at Western Fireplace		
	19 B	Main House, Interior - Northwestern Living Room Area at Western Fireplace		
	C			
Material Location:				
20		<b>Material Description: Wire Insulation Material - Cloth</b>		
	20 A	Main House, Interior - Southwestern Bedroom Area at Western Electrical Outlet		
	20 B	Main House, Interior - Southwestern Bedroom Area at Western Electrical Outlet		
	C			
Material Location:				

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	Fedex 1005	<i>K. Griffin</i>		12/3/18
Relinquished By:				
Received By:				



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ACM BULK SAMPLE DATA SHEET

\* PLM Analysis  
 \_\_\_ Stop Analysis at First Positive

Page 5 of 9

Analyze All Samples

\_\_\_ Point Count Analysis (400-point)

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Schroeter Kurin@terracon.com	PM - K. Fugate Ker@terracon.com
PM - T. Katchco Ted@terracon.com	PM - S. Steiner steff@terracon.com	PM - W. Frieszell wfrieszell@terracon.com

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California				
Terracon Project Number	R1187D02	Sampled By	W. Frieszell/ K. Schroeter	Sampling Date	November 30, 2018
Laboratory	EMLab	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

<b>HM# 21</b>	<b>Material Description: Attic System Insulation - Saw Dust Material</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity</b>
21 A	Main House, Interior - Eastern Hallway Area at Attic Access Hatch	
21 B	Main House, Interior - Eastern Hallway Area at Attic Access Hatch	
21 C	Main House, Interior - Western Corridor Closet Area at Attic Access Hatch	
Material Location:		
<b>HM# 22</b>	<b>Material Description: Attic Exhaust Flue Insulation - Grey</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity</b>
22 A	Main House, Interior - Western Corridor Closet Area at Attic Access Hatch	
22 B	Main House, Interior - Western Corridor Closet Area at Attic Access Hatch	
C		
Material Location:		
<b>HM# 23</b>	<b>Material Description: Exterior Window Glazing Putty - White</b>	
<b>Sample ID</b>	<b>Sample Locations</b>	<b>Quantity</b>
23 A	Main House, Exterior - Eastern Wing of Building at Western Window Assembly	
23 B	Main House, Exterior - Eastern Wing of Building at Eastern Window Assembly	
C		
Material Location:		
<b>HM# 24</b>	<b>Material Description: Building Concrete Materials</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity</b>
24 A	Main House, Exterior - Southern Side of Building at Entry Way Area	
24 B	Main House, Exterior - Northeastern Corner of Building at Slab	
24 C	Main House, Exterior - Southwestern Corner of Building at Porch Area Slab	
Material Location:		
<b>HM# 25</b>	<b>Material Description: Fire Pit/Barbecue Brick System - Red with Mortar</b>	
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity</b>
25 A	Main House, Exterior - Southern Side of Building at Built-in Barbecue Pit	
25 B	Main House, Exterior - Southern Side of Building at Built-in Barbecue Pit	
C		
Material Location:		

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell		Terracon Consultants	November 30, 2018
Received By:	Fedex 1005			12/3/18
Relinquished By:				
Received By:				



002052737

\* PLM Analysis  
Stop Analysis at First Positive

<input checked="" type="checkbox"/>	PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/>	PM - K. Schroeter Karin@rgaenv.com	Ken@rgaenv.com
	PM - T. Katchee Ted@rgaenv.com		PM - S. Steiner steff@rgaenv.com	PM - W. Frieszell wfrieszell@terracon.com

Analyze All Samples  
 Point Count Analysis (400-point)

Project Name/Address		4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number		RI187D02	Sampled By		W. Frieszell/ K. Schroeter	Sampling Date		November 30, 2018
Laboratory	EMLab	<input checked="" type="checkbox"/> Other	Turn Around Time			48 Hrs	<input checked="" type="checkbox"/> Other (Specify)	

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

<b>HM#</b>	<b>28</b>	<b>Material Description: Porch Area Stucco Wall System - Grey</b>	
<b>Sample ID</b>		<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
	26 A	Main House, Exterior - Southwestern Porch Area at Northwestern Side Wall	
	26 B	Main House, Exterior - Southwestern Porch Area at Eastern Side Wall	
	26 C	Main House, Exterior - Southwestern Porch Area at Western Side Overhang	
Material Location:			
<b>HM#</b>	<b>27</b>	<b>Material Description: Button Board Material under Stucco - White</b>	
<b>Sample ID</b>		<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
	27 A	Main House, Exterior - Southwestern Porch Area at Northwestern Side Wall	
	27 B	Main House, Exterior - Southwestern Porch Area at Northwestern Side Wall	
	C		
Material Location:			
<b>HM#</b>	<b>28</b>	<b>Material Description: Main Roofing Field System - Multiple Layer Composite Shingle with Felt</b>	
<b>Sample ID</b>		<b>Sample Locations</b>	<b>Quantity:</b>
	28 A	Main House, Roof Level - Western Wing Main Roofing Field Area at Southern Side	
	28 B	Main House, Roof Level - Eastern Wing Main Roofing Field Area at Eastern Side	
	28 C	Main House, Roof Level - Central Wing Main Roofing Field Area at Northern Side	
Material Location:			
<b>HM#</b>	<b>29</b>	<b>Material Description: Roofing Field System - Thick Asphaltic Shingle</b>	
<b>Sample ID</b>		<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
	29 A	Main House, Exterior - Southern Pumthouse Structure at Western Side	
	29 B	Garage Building, Roof Level - Main Roofing Field Area at Northern Side (under Metal)	
	29 C	Garage Building, Roof Level - Main Roofing Field Area at Western Side (under Metal)	
Material Location:			
<b>HM#</b>	<b>30</b>	<b>Material Description: Window Glazing Putty - White</b>	
<b>Sample ID</b>		<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>
	30 A	Garage Building, Exterior - Western Side of Building at Northwestern Window Bank	
	30 B	Garage Building, Exterior - Western Side of Building at Central Window Bank	
	C		
Material Location:			

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	FedEx 1005	<i>K. Schroeter</i>		12/3/18
Relinquished By:				
Received By:				

# Terracon

1466 66<sup>th</sup> Street, Emeryville, California



002052737

## ACM BULK SAMPLE DATA SHEET

- PLM Analysis
- Stop Analysis at First Positive
- Analyze All Samples
- Point Count Analysis (400-point)

Page 7 of 9

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Schroeter Karin@terracon.com	PM - K. Pilgrim Kpil@terracon.com
PM - T. Katchee Tkd@terracon.com	PM - S. Steiner sst@terracon.com	PM - W. Frieszell wfrieszell@terracon.com

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number	R1187D02	Sampled By	W. Frieszell/ K. Schroeter	Sampling Date	November 30, 2018		
Laboratory	FMI Lab	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)		

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

HMM#	Sample ID	Material Description	Sample Location & Material Location	Quantity
<b>31</b>	<b>Material Description: Unfinished Drywall System</b>			
	31 A	Garage Building, Interior - Northwestern Office Room Area at Western Wall		
	31 B	Garage Building, Interior - Northwestern Office Room Area at Northern Wall		
	C			
	Material Location:			
<b>32</b>	<b>Material Description: Moisture Barrier Paper - Black</b>			
	32 A	Garage Building, Interior - Northwestern Office Room Area at Southern Wall		
	32 B	Garage Building, Interior - Northwestern Office Room Area at Eastern Wall		
	C			
	Material Location:			
<b>33</b>	<b>Material Description: Building Concrete Materials</b>			
	33 A	Garage Building, Interior - Northwestern Office Room Area at Northern Entry Way		
	33 B	Garage Building, Interior - Northern Main Garage Area at Northern Entry Way		
	C			
	Material Location:			
<b>34</b>	<b>Material Description: Roof Penetration Mastic - Black</b>			
	34 A	Main House, Roof Level - Central Wing Main Roofing Field Area at Northern Stove Flue		
	34 B	Main House, Roof Level - Central Wing Main Roofing Field Area at Northern Stove Flue		
	C	Main House, Roof Level - Western Wing Main Roofing Field Area at Central Penetration		
	Material Location:			
<b>35</b>	<b>Material Description: Transite Flues</b>			
	A	*****INACCESSIBLE - ASSUMED*****		
	B			
	C			
	Material Location: Multiple Flues Abandoned in Attic Space			

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	Fedex 1005	<i>K. Schroeter</i>		12/3/18
Relinquished By:				
Received By:				



\* PLM Analysis  
 Stop Analysis at First Positive  
 Analyze All Samples  
 Point Count Analysis (400-point)

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Schroeter Karin@terracon.com	PM - K. Pilgrin Kcp@terracon.com
PM - T. Katchee Tck@terracon.com	PM - S. Steiner steff@terracon.com	PM - W. Frieszell wfrieszell@terracon.com

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number	RI187D02	Sampled By	W. Frieszell/ K. Schroeter	Sampling Date	November 30, 2018		
Laboratory	EMLab	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)		

\*\*\* FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM) \*\*\*

<b>HM#</b> 36	<b>Material Description:</b> Kiln Wall System - Grey CMU Block with Mortar		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
36 A	Kiln/Barn Building, Interior - Central Corridor Area at Northwestern Corner		
36 B	Kiln/Barn Building, Interior - Central Corridor Area at Southwestern Corner		
C			
Material Location:			
<b>HM#</b> 37	<b>Material Description:</b> Kiln Wall Moisture Barrier - Black		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
37 A	Kiln/Barn Building, Interior - Central Corridor Area at Southwestern Corner		
37 B	Kiln/Barn Building, Interior - Central Corridor Area at Southwestern Corner		
C			
Material Location:			
<b>HM#</b> 38	<b>Material Description:</b> Acoustical Wall Tile System - 1' White Nailed On System		
<b>Sample ID</b>	<b>Sample Locations</b>	<b>Quantity:</b>	
38 A	Kiln/Barn Building, Interior - Western Kiln Chamber Area at Western Wall		
38 B	Kiln/Barn Building, Interior - Western Kiln Chamber Area at Eastern Wall		
C			
Material Location:			
<b>HM#</b> 39	<b>Material Description:</b> Cloth Heat Barrier Material - White		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
39 A	Kiln/Barn Building, Interior - Central Corridor Area at Eastern Wall North		
39 B	Kiln/Barn Building, Interior - Central Corridor Area at Eastern Wall South		
C			
Material Location:			
<b>HM#</b> 40	<b>Material Description:</b> Building Concrete Material		
<b>Sample ID</b>	<b>Sample Location &amp; Material Location</b>	<b>Quantity:</b>	
40 A	Kiln/Barn Building, Interior - Central Corridor Area at Southern Side Ceiling		
40 B	Kiln/Barn Building, Exterior - Northern Side of Building at Central Walk Way		
C			
Material Location:			

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	Fedex 1005	<i>K. Pilgrin</i>		12/3/18
Relinquished By:				
Received By:				



PLM Analysis  
 Stop Analysis at First Positive

Analyze All Samples

Point Count Analysis (400-point)

<input checked="" type="checkbox"/> PM - W. Frieszell wfrieszell@terracon.com	<input checked="" type="checkbox"/> PM - K. Schroeter Karl@rgaenv.com	PM - K. Pilgrim Ken@rgaenv.com
PM - T. Katchoo Ted@rgaenv.com	PM - S. Steiner steff@rgaenv.com	PM - W. Frieszell wfrieszell@terracon.com

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California					
Terracon Project Number	RI187D02	Sampled By	W. Frieszell/ K. Schroeter	Sampling Date	November 30, 2018	
Laboratory	BMLab	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)	

\*\*\*FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)\*\*\*

HM#	41	Material Description:	Asphaltic Patching Material - Black
Sample ID		Sample Location & Material Location	Quantity:
41	A	Kiln/Barn Building, Interior - Central Corridor Area at Northern Side Ceiling	
41	B	Kiln/Barn Building, Interior - Central Corridor Area Ceiling at Approximate Center	
	C		
Material Location:			
HM#		Material Description:	
Sample ID		Sample Location & Material Location	Quantity:
	A		
	B		
	C		
Material Location:			
HM#		Material Description:	
Sample ID		Sample Locations	Quantity:
	A		
	B		
	C		
Material Location:			
HM#		Material Description:	
Sample ID		Sample Location & Material Location	Quantity:
	A		
	B		
	C		
Material Location:			
HM#		Material Description:	
Sample ID		Sample Location & Material Location	Quantity:
	A		
	B		
	C		
Material Location:			

	NAME:	SIGNATURE:	COMPANY:	DATE:
Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:				
Relinquished By:				
Received By:				



Report for:

**William Frieszell, Ms. Karin Schroeter**  
**Terracon Consultants, Inc. - Emeryville**  
1466 66th Street  
Emeryville, CA 94608

---

Regarding: Project: R1187D02; 4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California  
EML ID: 2052737

Approved by:

Dates of Analysis:  
Asbestos-EPA 400 point count: 12-07-2018

A handwritten signature in cursive script that reads "Renee Luna-Trepczynski".

Approved Signatory  
Renee Luna-Trepczynski

Service SOPs: Asbestos-EPA 400 point count (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1262)

---

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Terracon Consultants, Inc. - Emeryville  
 C/O: William Frieszell, Ms. Karin Schroeter  
 Re: R1187D02; 4224 Highway 12, Pre-Demolition  
 Survey, Santa Rosa, California

Date of Sampling: 11-30-2018  
 Date of Receipt: 12-03-2018  
 Date of Report: 12-07-2018

**ASBESTOS POINT COUNT REPORT**

Location:	2A Interior Wall System;Drywall And Joint Compound Main House, Interior;Southeastern Bedroom Area At Western Wall		
Total Points Counted:	400		
Lab ID-Version‡:	9708680-1		
<b>Sample Layers</b>	<b>Asbestos Type</b>	<b>Asbestos Points Counted</b>	<b>Asbestos Concentration (%)</b>
White Drywall / Joint Compound Composite	Chrysotile	1	0.25
<b>Layer Totals:</b>		1	0.25

Location:	3B Ceramic Wall Tile System;4" Pink Tile With Grout And Mortar Main House, Interior;Southeastern Bathroom Area At Western Wall		
Total Points Counted:	400		
Lab ID-Version‡:	9708681-1		
<b>Sample Layers</b>	<b>Asbestos Type</b>	<b>Asbestos Points Counted</b>	<b>Asbestos Concentration (%)</b>
Gray Cementitious Material	Chrysotile	0	< 0.25
<b>Layer Totals:</b>		0	NA

**Comments:**No asbestos was detected and no points were counted.

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

**Appendix 2:**  
**Laboratory Results and Chain of Custody - Lead**



2033 HERITAGE PARK DR, OKLAHOMA CITY, OK 73120 | 1.800.822.1650

## Environmental Chemistry Analysis Report

**QuanTEM Set ID:** 302556  
**Date Received:** 12/04/18  
**Received By:** Taylor Hooper  
**Date Sampled:**  
**Time Sampled:**  
**Analyst:** CR  
**Date of Report:** 12/05/18

**Client:** Terracon Consultants, Inc.  
 1466 66th Street  
 Emeryville, CA 94608

**Acct. No.:** C018

**Project:** 4224 Highway 12, Pre-Demolition Survey

**Location:** Santa Rosa, California

**Project No.:** R1187D02

AIHA ID: 101352

QuanTEM ID	Client ID	Matrix	Parameter	Results	Reporting Limits	Units	Date/Time Analyzed	Method
001	Pb-01	Bulk	Lead	4,790	50	ppm	12/05/18 10:54	P EPA 7000B (1)
002	Pb-02	Bulk	Lead	<49.8	49.8	mg/kg	12/05/18 10:54	B EPA 7000B (1)
003	Pb-03	Bulk	Lead	<49.8	49.8	mg/kg	12/05/18 10:54	B EPA 7000B (1)
004	Pb-04	Bulk	Lead	102	49.4	mg/kg	12/05/18 10:54	B EPA 7000B (1)
005	Pb-05	Bulk	Lead	1,340	49.6	mg/kg	12/05/18 10:54	B EPA 7000B (1)
006	Pb-06	Bulk	Lead	<49.9	49.9	mg/kg	12/05/18 10:54	B EPA 7000B (1)
007	Pb-07	Paint	Lead	<49.0	49	ppm	12/05/18 10:54	P EPA 7000B (1)
008	Pb-08	Paint	Lead	99.3	49.3	ppm	12/05/18 10:54	P EPA 7000B (1)
009	Pb-09	Paint	Lead	<49.9	49.9	ppm	12/05/18 10:54	P EPA 7000B (1)
010	Pb-10	Bulk	Lead	117	49.8	mg/kg	12/05/18 10:54	B EPA 7000B (1)
011	Pb-11	Paint	Lead	10,300	48.8	ppm	12/05/18 10:54	P EPA 7000B (1)
012	Pb-12	Paint	Lead	16,900	49.4	ppm	12/05/18 10:54	P EPA 7000B (1)
013	Pb-13	Paint	Lead	168	49.3	ppm	12/05/18 10:54	P EPA 7000B (1)

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission. QuanTEM is not responsible for user-supplied data used in calculations.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.

EPA Method 7000B (1) = EPA 600/R-93/200 Preparation Modified. EPA 7000B Analysis Modified

EPA Method 7082 (2) = EPA 600/R-93/200 Preparation Modified. EPA 7082 Analysis Modified



2033 HERITAGE PARK DR, OKLAHOMA CITY, OK 73120 | 1.800.822.1650

## Environmental Chemistry Analysis Report

**QuanTEM Set ID:** 302556  
**Date Received:** 12/04/18  
**Received By:** Taylor Hooper  
**Date Sampled:**  
**Time Sampled:**  
**Analyst:** CR  
**Date of Report:** 12/05/18

**Client:** Terracon Consultants, Inc.  
1466 66th Street  
Emeryville, CA 94608

**Acct. No.:** C018

**Project:** 4224 Highway 12, Pre-Demolition Survey

**Location:** Santa Rosa, California

**Project No.:** R1187D02

AIHA ID: 101352

QuanTEM ID	Client ID	Matrix	Parameter	Results	Reporting Limits	Units	Date/Time Analyzed	Method
------------	-----------	--------	-----------	---------	------------------	-------	--------------------	--------

Authorized Signature: \_\_\_\_\_

Cherry Rossen, Technical Manager

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission. QuanTEM is not responsible for user-supplied data used in calculations.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.

EPA Method 7000B (1) = EPA 600/R-93/200 Preparation Modified. EPA 7000B Analysis Modified

EPA Method 7082 (2) = EPA 600/R-93/200 Preparation Modified. EPA 7082 Analysis Modified

# Supplemental Report QAQC Results

QA ID: 16880

Test: Lead

Date: 12/5/2018

Matrix: Bulk

Lab Number: 302556

Approved By: Cherry Rossen

Date Approved: 12/5/2018

## Notes:

## Blank Data:

Type of Blank	Blank Value
FCB	0
ICB	0
Matrix Blank	0

## Standards Data:

Standard	Low Limit	Obtained	High Limit
CCV	4.5	5.2	5.5
FCV	4.5	4.8	5.5
ICV	0.9	1.1	1.1
RLVS	0.08	0.19	0.24

## Duplicate Data:

Sample Number	Result	Duplicate	% RPD
302556-005	5.413	5.321	1.7

## Recovery Data:

Sample Number	Result	Spike Level	Result + Spike	% Recovery	Dup. Result + Spike	% Dup. Recovery	% Spike RPD
LCS-B1	0.000	2.401	2.842	118.4	2.536	105.6	11.3

Authorized Signature:



# Supplemental Report QAQC Results

**QA ID:** 16881  
**Test:** Lead

**Date:** 12/5/2018  
**Matrix:** Paint

**Lab Number:** 302556  
**Approved By:** Cherry Rossen  
**Date Approved:** 12/5/2018

**Notes:**

**Blank Data:**

Type of Blank	Blank Value
FCB	0
ICB	0
Matrix Blank	0

**Standards Data:**

Standard	Low Limit	Obtained	High Limit
CCV	4.5	5.2	5.5
FCV	4.5	4.8	5.5
ICV	0.9	1.1	1.1
RLVS	0.05	0.12	0.15

**Duplicate Data:**

Sample Number	Result	Duplicate	% RPD
302560-002	1.334	1.393	4.4

**Recovery Data:**

Sample Number	Result	Spike Level	Result + Spike	% Recovery	Dup. Result + Spike	% Dup. Recovery	% Spike RPD
LCS-P1	0.000	1.962	2.347	119.6	2.275	115.9	3.1
302560-002	1.334	2.000	3.162	91.4			

Authorized Signature: \_\_\_\_\_



Cherry Rossen, Technical Manager

302556

# Terracon

1466 66<sup>th</sup> Street, Emeryville, California

## LEAD PAINT SAMPLE DATA SHEET

\* Lead Analysis  
 \_\_\_ Flame AA (EPA 7420)  
 \_\_\_ TTLC

PM - S. Steiner Steff@rgaenv.com Fax: 510.899.7051	<input checked="" type="checkbox"/>	PM - K. Schroeter Karin@rgaenv.com Fax: 510.899.7063	<input type="checkbox"/>	PM - K. Pilgrim Ken@rgaenv.com Fax: 510.899.7053
PM - T. Katchee Tedd@rgaenv.com Fax: 510.899.7070	<input checked="" type="checkbox"/>	PM - W. Frieszell wmfrieszell@terracon.com	<input type="checkbox"/>	PM - M. Bryant marlin.bryant@rgaenv.com Fax: 510.899.7062

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California						
Terracon Project Number	R1187D02	Sampled By	W. Frieszell/ K. Schroeter	Sampling Date	November 30, 2018		
Laboratory	QuanTEM	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)		

Sample ID	Paint Description and Sample Location						Condition (I/F/P)
Pb-01	Paint Color:	Pink	Substrate:	4" Ceramic	Component:	Wall Tile System	I
	Bldg:	Main House	Unit:	Interior	Room:	Southeastern Bathroom	
Pb-02	Paint Color:	Pink	Substrate:	4" Ceramic	Component:	Floor Tile System	I
	Bldg:	Main House	Unit:	Interior	Room:	Southeastern Bathroom	
Pb-03	Paint Color:	Tan	Substrate:	Mosaic Ceramic	Component:	Floor Tile System	I
	Bldg:	Main House	Unit:	Interior	Room:	Western Bathroom	
Pb-04	Paint Color:	Beige	Substrate:	4" Ceramic	Component:	Counter Tile System	I
	Bldg:	Main House	Unit:	Interior	Room:	Western Bathroom	
Pb-05	Paint Color:	Blue	Substrate:	4" Ceramic	Component:	Counter Tile System	I
	Bldg:	Main House	Unit:	Interior	Room:	Central Kitchen	
Pb-06	Paint Color:	Blue Floral Pattern	Substrate:	6" Ceramic	Component:	Wall Tile System	I
	Bldg:	Main House	Unit:	Interior	Room:	Central Kitchen	
Pb-07	Paint Color:	None	Substrate:	Metallic	Component:	Wood Stove Liner	I
	Bldg:	Main House	Unit:	Interior	Room:	Central Kitchen Area	

NAME:

SIGNATURE:

COMPANY:

DATE:

Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:	<i>Taylor Boyer</i>	<i>Taylor Boyer</i>		12-4-18 8:50
Relinquished By:				
Received By:				

302556

# Terracon

1466 66<sup>th</sup> Street, Emeryville, California

## LEAD PAINT SAMPLE DATA SHEET

\* Lead Analysis  
 \_\_\_ Flame AA (EPA 7420)  
 \_\_\_ TLC

PM - S. Steiner Steff@rgaenv.com Fax: 510.899.7051	<input checked="" type="checkbox"/>	PM - K. Schroeter Karin@rgaenv.com Fax: 510.899.7063		PM - K. Pilgrim Ken@rgaenv.com Fax: 510.899.7053
PM - T. Kattchee Tedd@rgaenv.com Fax: 510.899.7070	<input checked="" type="checkbox"/>	PM - W. Frieszell wmfrieszell@terracon.com		PM - M. Bryant mardin.bryant@rgaenv.com Fax: 510.899.7062

Project Name/Address	4224 Highway 12, Pre-Demolition Survey, Santa Rosa, California					
Terracon Project Number	R1187D02	Sampled By	W. Frieszell/ K. Schroeter	Sampling Date	November 30, 2018	
Laboratory	QuanTEM	<input checked="" type="checkbox"/> Other	Turn Around Time	48 Hrs	<input checked="" type="checkbox"/> Other (Specify)	

Sample ID	Paint Description and Sample Location						Condition (I/F/P)
Pb-08	Paint Color:	White	Substrate:	Putty	Component:	Interior Window Glazing	I
	Bldg:	Main House	Unit:	Interior	Room:	Northeastern Bedroom	
Pb-09	Paint Color:	White	Substrate:	Putty	Component:	Exterior Window Glazing	I
	Bldg:	Main House	Unit:	Exterior	Room:	Eastern Wing	
Pb-10	Paint Color:	Red	Substrate:	Concrete	Component:	Porch Slab	I
	Bldg:	Main House	Unit:	Exterior	Room:	Southwestern Porch	
Pb-11	Paint Color:	White	Substrate:	Wood	Component:	Exterior Wall System	P
	Bldg:	Main House	Unit:	Exterior	Room:	Southern Side	
Pb-12	Paint Color:	White	Substrate:	Wood	Component:	Exterior Wall System	P
	Bldg:	Garage Building	Unit:	Exterior	Room:	Western Side	
Pb-13	Paint Color:	White	Substrate:	Putty	Component:	Exterior Window Glazing	I
	Bldg:	Garage Building	Unit:	Exterior	Room:	Western Side	
	Paint Color:		Substrate:		Component:		
	Bldg:		Unit:		Room:		

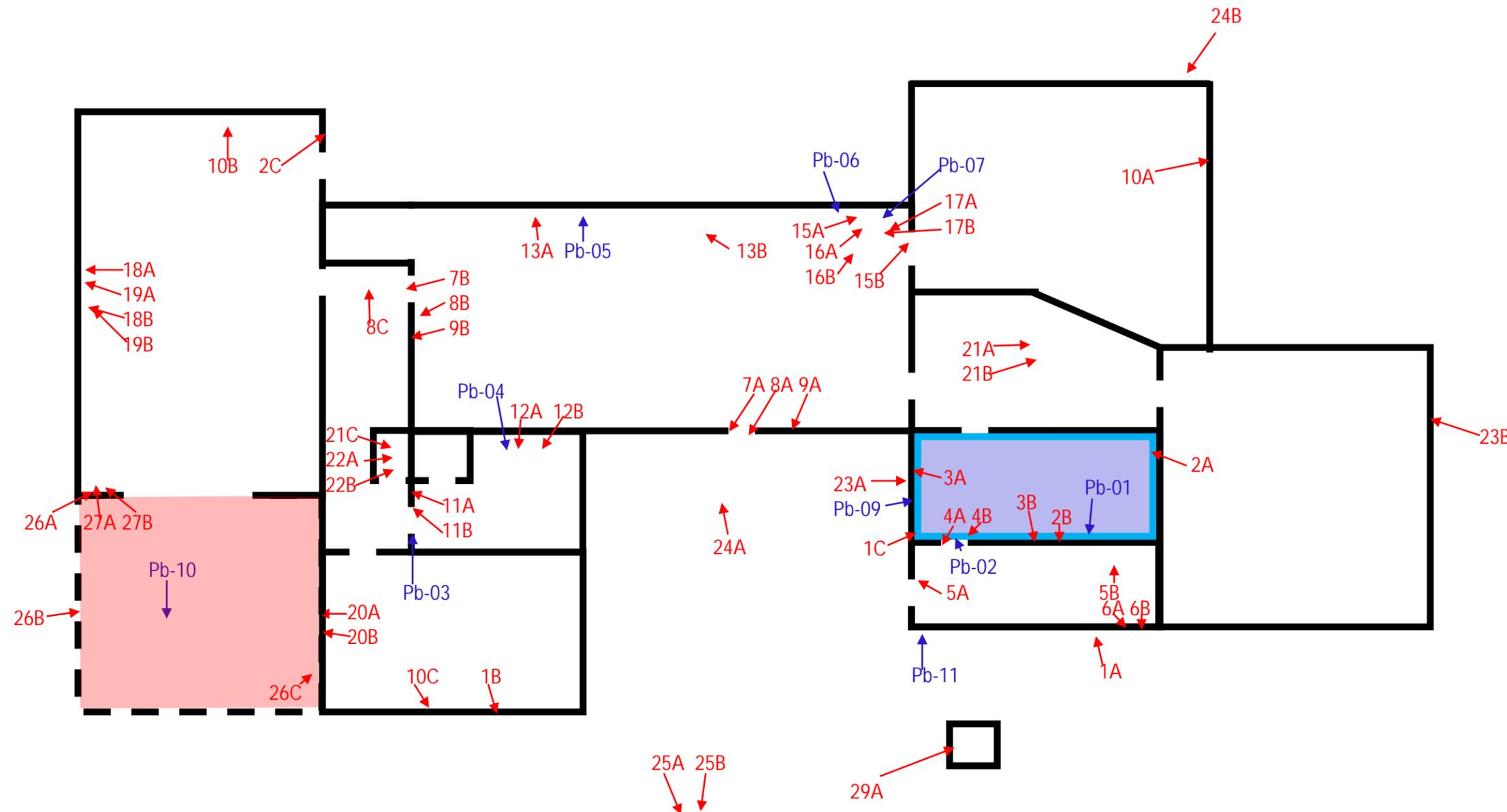
NAME: SIGNATURE: COMPANY: DATE:

Relinquished By:	William Frieszell	<i>William Frieszell</i>	Terracon Consultants	November 30, 2018
Received By:				
Relinquished By:				
Received By:				

**Appendix 3:**  
**Material and Sample Location Drawing**

Pre-Demolition  
Limited Hazardous  
Materials Survey

4224 Highway 12  
Santa Rosa, California

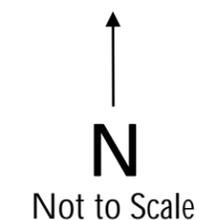


Legend:

- Asbestos containing Gray Cementitious Material (<0.25% CH) associated ceramic wall tile system and drywall system (2% CH)
- Asbestos containing Gray Mortar and Gray Cementitious Material (<1%CH) associated with the ceramic floor tile system
- Lead containing 4" pink ceramic wall tile (4,790 ppm)
- Lead containing red paint (117 ppm) on concrete porch.

The following materials are not depicted:

- Asbestos containing interior wall and ceiling drywall systems
- Asbestos containing insulation associated with the attic exhaust flues (multiple)
- Assumed asbestos containing Transite flues abandoned in the attic space
- Lead containing white interior window putty (99.3 ppm)
- Lead containing white paint (10,300 ppm) at the exterior walls of residence
- Lead containing beige 4" ceramic tile (102 ppm) at the counter in the western bathroom
- Lead containing blue 4" ceramic tile (1,340 ppm) at the counter in the central kitchen

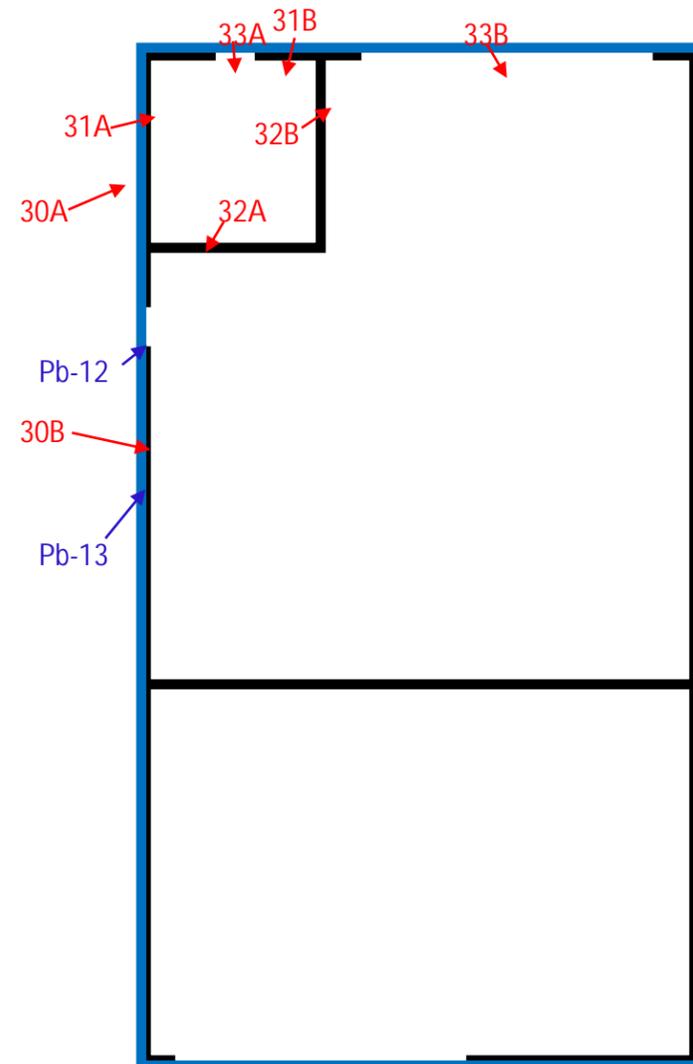


<u>Date</u> November 2018	<u>Drafted By</u> WMF
<u>Project Number</u> R1187D02	<u>Checked By</u> KMS
<u>Sheet Name</u> Main House- Sample and Material Location Diagram	
<u>Sheet Number</u> Figure 1	

Pre-Demolition

Limited Hazardous  
Materials Survey

4224 Highway 12  
Santa Rosa, California



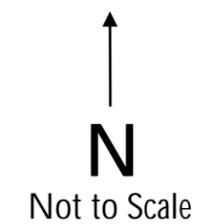
Legend:

Asbestos was not detected in the sampled materials.

■ Lead containing white exterior paint (16,900 ppm).

The following materials are not depicted:

- Lead containing white exterior window glazing putty (168 ppm).



Date  
November 2018

Drafted By  
WMF

Project Number  
R1187D02

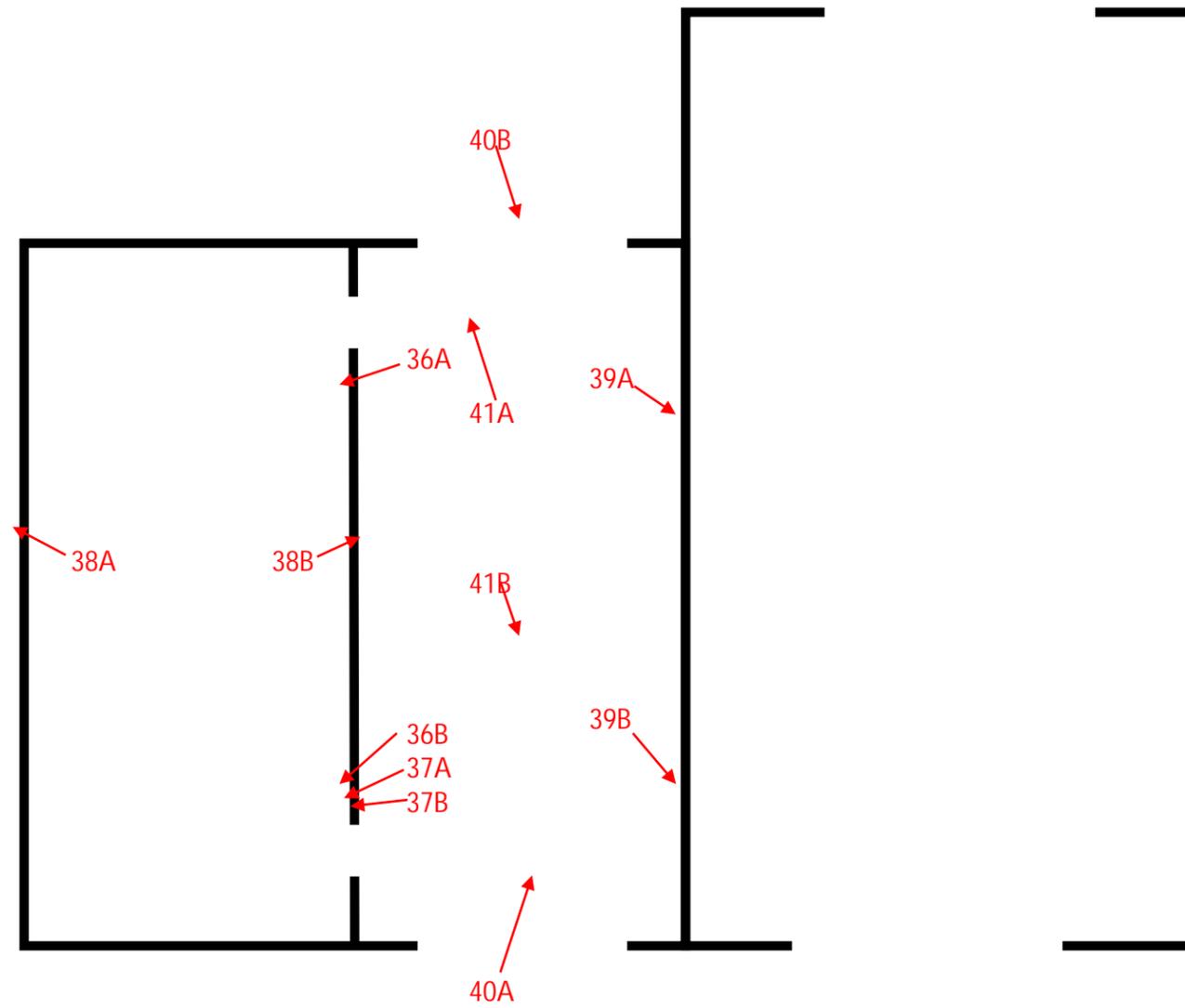
Checked By  
KMS

Sheet Name  
Garage Building – Sample and  
Material Location Diagram

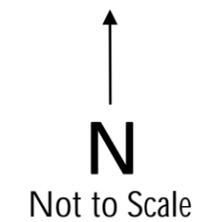
Sheet Number  
Figure 2

Pre-Demolition  
Limited Hazardous  
Materials Survey

4224 Highway 12  
Santa Rosa, California



Asbestos was not detected in the sampled materials.  
Lead was not detected in the sampled materials above the laboratory detection limit.



<u>Date</u> November 2018	<u>Drafted By</u> WMF
<u>Project Number</u> R1187D02	<u>Checked By</u> KMS
<u>Sheet Name</u> Kiln/Barn Building - Sample Location Diagram	
<u>Sheet Number</u> Figure 3	

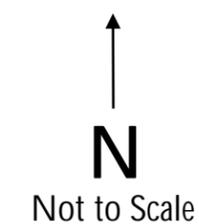
Pre-Demolition

Limited Hazardous  
Materials Survey

4224 Highway 12  
Santa Rosa, California



Asbestos was not detected in the sampled materials.  
Lead was not detected in the sampled materials above the laboratory detection limit.



<u>Date</u> November 2018	<u>Drafted By</u> WMF
<u>Project Number</u> R1187D02	<u>Checked By</u> KMS
<u>Sheet Name</u> Roof Levels - Sample Location Diagram	
<u>Sheet Number</u> Figure 4	

**Appendix 4:**  
**Site Inspector Certificate**

State of California  
Division of Occupational Safety and Health  
**Certified Asbestos Consultant**

**Karin M. Schroeter**

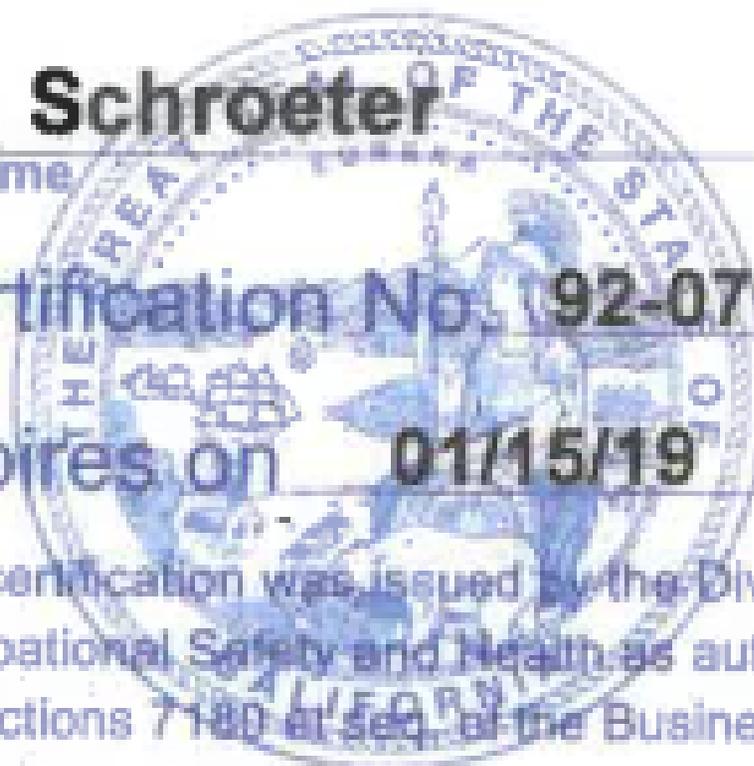


Name

Certification No. **92-0772**

Expires on **01/15/19**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.



# State of California Department of Public Health

Lead-Related  
Construction  
Certificate

Certificate  
Type

Expiration  
Date

Inspector/Assessor

04/08/2019



Karin M. Schroeter

ID #: 2228

State of California  
Division of Occupational Safety and Health  
**Certified Asbestos Consultant**

**William M Frieszell**



Name

Certification No. **12-4853**

Expires on **02/15/19**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.



# State of California Department of Public Health

Lead-Related  
Construction  
Certificate

Certificate  
Type

Expiration  
Date

Inspector/Assessor

12/11/2018



William M. Frieszell

ID #: 23815

## **APPENDIX G**

### Ambient Noise Monitor Data













<b>S048_BIR010005_04062018_101310: Calibration History</b>												
Date	Action	Level	Cal. Model	Serial	Cert. Due							
5/22/2018 4:26:49 PM	Calibration	114.0										
<b>S048_BIR010005_04062018_101310: Information Panel</b>												
Description	Value											
Name	S048_BIR010005_04062018_101310											
Start Time	5/29/2018 13:56:51											
Stop Time	5/31/2018 15:08:53											
Device Name	BIR010005											
Model Type	SoundPro DL											
Device Firmware Rev	R.13H											
Comments												
<b>S048_BIR010005_04062018_101310: Summary Data Panel</b>												
Description	Meter/ Sensor	Value										
Leq	1	51.7 dB										
Exchange Rate	1	3 dB										
Weighting	1	A										
Response	1	SLOW										
Bandwidth	1	OFF										
Exchange Rate	2	3 dB										
Weighting	2	A										
Response	2	SLOW										
<b>S048_BIR010005_04062018_101310: Statistics Table</b>												
dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%	
30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	
31.00	0.03	0.03	0.05	0.05	0.06	0.06	0.05	0.06	0.07	0.07	0.53	
32.00	0.08	0.09	0.09	0.09	0.10	0.11	0.10	0.10	0.11	0.12	0.98	
33.00	0.14	0.05	0.12	0.14	0.14	0.14	0.17	0.16	0.18	0.19	1.44	
34.00	0.20	0.21	0.22	0.23	0.23	0.23	0.24	0.23	0.23	0.23	2.24	
35.00	0.23	0.23	0.24	0.24	0.23	0.23	0.24	0.23	0.22	0.24	2.34	
36.00	0.25	0.17	0.21	0.20	0.20	0.19	0.19	0.19	0.19	0.17	1.96	
37.00	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.17	0.15	1.65	
38.00	0.15	0.15	0.16	0.16	0.17	0.17	0.17	0.19	0.18	0.19	1.69	
39.00	0.20	0.14	0.18	0.19	0.19	0.19	0.19	0.20	0.19	0.19	1.85	
40.00	0.19	0.19	0.20	0.20	0.20	0.20	0.21	0.21	0.21	0.22	2.00	
41.00	0.23	0.22	0.23	0.22	0.23	0.24	0.24	0.25	0.25	0.27	2.36	
42.00	0.28	0.22	0.24	0.26	0.26	0.25	0.26	0.27	0.27	0.28	2.58	
43.00	0.28	0.28	0.28	0.28	0.29	0.29	0.29	0.30	0.31	0.31	2.89	
44.00	0.31	0.33	0.34	0.34	0.35	0.37	0.37	0.39	0.40	0.43	3.62	
45.00	0.45	0.40	0.32	0.41	0.41	0.41	0.42	0.42	0.42	0.42	4.07	
46.00	0.41	0.42	0.42	0.43	0.43	0.42	0.44	0.45	0.46	0.47	4.35	
47.00	0.48	0.48	0.49	0.51	0.52	0.52	0.53	0.56	0.58	0.60	5.26	
48.00	0.62	0.63	0.39	0.57	0.58	0.59	0.58	0.58	0.58	0.59	5.71	







## **APPENDIX H**

### Mitigation, Monitoring and Reporting Program

**Mitigation, Monitoring and Reporting Program Recess Storage Project Santa Rosa, California**

Mitigation Measure	Implementing Procedure	Responsibility	Timing	
<b>Aesthetics</b>				
<b>AES-01</b>	<p>Protective measures shall be implemented to protect retained trees. In accordance with 17-24.050(D), a "Tree Protection Perimeter" shall be established at the dripline around each tree or cluster of trees to be preserved. The Perimeter shall be enclosed by temporary protective fencing prior to initiating grading activities and shall remain for the duration of construction. No ground disturbance including the placement of utilities or sub drains shall occur within the Tree Protection Perimeter. Plastic tree protection fencing shall be installed at the dripline of trees within construction zone. If access within the dripline is required, fencing shall be placed at the grading limit. Tree protection fencing will be installed prior to clearing and grubbing and kept in place for the duration of construction.</p> <p>No parking or operation of equipment, storage of materials, disposal of waste or other construction activities shall occur within the driplines of protected trees.</p> <p>Any deviation from the protection measures are necessary, a certified arborist shall be consulted to ensure retained trees are protected during construction.</p> <p>Tree preservation notes shall be included on all plans.</p>	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before and during construction

**Mitigation, Monitoring and Reporting Program Recess Storage Project Santa Rosa, California**

Mitigation Measure	Implementing Procedure	Responsibility	Timing	
<b>Air Quality</b>				
<b>AQ-01</b>	<p>The applicant shall implement the following air quality construction measures:</p> <ol style="list-style-type: none"> <li>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>3. 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.</li> <li>4. All vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> <li>7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</li> <li>8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to comply with applicable regulations.</li> </ol>	<p>Incorporate into Project design and construction documents</p>	<p>Contractor and City of Santa Rosa Planning and Economic Development Department</p>	<p>During construction</p>

**Mitigation, Monitoring and Reporting Program Recess Storage Project Santa Rosa, California**

Mitigation Measure	Implementing Procedure	Responsibility	Timing	
<b>Biological Resources</b>				
<b>BIO-01</b>	In order to avoid impacts to nesting birds, Project activities shall occur outside of the peak avian breeding season which runs from February 1 through September 1. If Project construction activities are necessary during the nesting season, a qualified bird biologist shall conduct a survey for nesting birds within three days prior to commencement of construction-related activities. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 200 feet (500 feet for raptors), and be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No Project construction shall occur within the fenced nesting zone until the young have fledged. If identified by the bird biologist, reductions in the nest buffer may be appropriate.	Incorporate into Project design and construction documents	Planning & Economic Development	Before and during construction
<b>BIO-02</b>	Vegetation removal shall occur between September 1 and February 1. If vegetation removal occurs outside that time, BIO-1 shall apply.	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before and during construction
<b>BIO-03</b>	Comply with AES-01		Contractor and City of Santa Rosa Planning and Economic Development Department	Before and during construction

**Mitigation, Monitoring and Reporting Program Recess Storage Project Santa Rosa, California**

Mitigation Measure	Implementing Procedure	Responsibility	Timing	
<b>Cultural Resources</b>				
<b>CUL-01</b>	<p>In the event human remains are discovered, the following standard measures imposed by the City of Santa Rosa and promulgated under Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5 pertaining to the discovery of human remains shall be implemented:</p> <ul style="list-style-type: none"> <li>- All work in the vicinity of the discovery will be halted until a qualified archeologist can evaluate the find(s) under Section 106 of the National Historic Preservation Act.</li> <li>- The Sonoma County Coroner shall be contacted to determine that no investigation of the circumstances, manner or cause of death is required and to make recommendations as to the treatment and disposition of the human remains.</li> <li>- If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.</li> <li>- The applicant shall retain a City-approved qualified archaeologist to provide adequate inspection, recommendations and retrieval, if appropriate.</li> <li>- The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American, and shall contact such descendant in accordance with state law.</li> <li>- The applicant shall be responsible for ensuring that human remains and associated grave goods are reburied with appropriate dignity at a place and process suitable to the most likely descendent.</li> </ul>	<p>Incorporate into Project design and construction documents</p>	<p>Contractor and City of Santa Rosa Planning and Economic Development Department</p>	<p>Before and during construction</p>

Mitigation, Monitoring and Reporting Program Recess Storage Project Santa Rosa, California

Mitigation Measure		Implementing Procedure	Responsibility	Timing
<b>Geology and Soils</b>				
<b>GEO-01</b>	Prior to issuance of a grading permit, an erosion control plan along with grading and drainage plans shall be submitted to the Building Division of the City's Department of Planning and Economic Development. All earthwork, grading, trenching, backfilling, and compaction operations shall be conducted in accordance with the City of Santa Rosa's Grading and Erosion Control Ordinance Chapter 19-64 of the Santa Rosa Municipal Code). These plans shall detail erosion control measures such as site watering, sediment capture, equipment staging and laydown pad, and other erosion control measures to be implemented during construction activity on the project site	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before and during construction
<b>Hazards and Hazardous Materials</b>				
<b>HAZ-01</b>	<b>Asbestos Containing Material:</b> Demolition of the existing structures shall be done by a licensed and certified asbestos abatement contractor. All workers shall be properly trained for asbestos removal work.	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before Construction
<b>HAZ-02</b>	<b>Lead Containing Paint:</b> Demolition of the existing structures shall be done following OSHA Lead in Construction Standard. The OSHA specified method of compliance includes respiratory protection, protective clothing and equipment, housekeeping, hygiene facilities, medical surveillance, and training, among other requirements.	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before Construction
<b>HAZ-03</b>	A Site Safety Plan will be prepared that will outline protocols that will be followed in the event of an unintended fire during construction. The plan will include, but not limited to maps and directions to local hospitals, evacuation routes, and methods to reduce the potential for fire at the site.	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before Construction

**Mitigation, Monitoring and Reporting Program Recess Storage Project Santa Rosa, California**

Mitigation Measure	Implementing Procedure	Responsibility	Timing	
<b>Hydrology and Water Quality</b>				
<b>HYD-01</b>	A Notice of Intent and fees will be submitted to the Regional Water Quality Control Board's Stormwater Multiple Application and Reporting Tracking System for authorization under the Construction General Permit (Order 2009-0009-DWQ). The applicant shall prepare and implement a SWPPP prior to construction. The SWPPP shall address erosion and sediment controls, proper storage of fuels, identification of site-specific BMPs, and use and cleanup of hazardous materials. During construction a monitoring report shall be conducted weekly during dry conditions and three times a day during storms that produce more than 0.50 inch of precipitation.	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	Before Construction
<b>Tribal Cultural Resources</b>				
<b>TRI-01</b>	If a potentially significant tribal cultural resource is encountered, all ground disturbing activities shall halt until the archeologist or Tribal representative can assess the resource. The archeologist or Tribal representative shall be granted stop work authority and shall be provided sufficient time to evaluate the resource and make treatment recommendations. Should a significant tribal cultural resource be identified, the archeologist or Tribal representative shall prepare a resource mitigation plan and monitoring program to be carried out during all construction activities.	Incorporate into Project design and construction documents	Contractor and City of Santa Rosa Planning and Economic Development Department	During Construction