



AECOM
401 West A Street
Suite 1200
San Diego, CA 92101
USA
Tel. 619.610.7600
aecom.com

To:
Gail Getz, Environmental Planning Manager
County of San Diego – Department of Public Works
5510 Overland Avenue, Suite 410, MS 0-332
San Diego, CA 92123
Phone: 858-694-3911 Fax: 858-694-3925

Project name:
13th Street Bridge Project
Project ref:
PN: 60562978

From:
Cole Martin, INCE
Paul Burge, INCE Bd. Cert.

Date:
April 21, 2020

Technical Memorandum

Subject: 13th Street Bridge Project Noise Screening Memo

Introduction

The proposed 13th Street Bridge Project is located on 13th Street and Maple Street between Main Street (SR 67) and Walnut Street in the unincorporated community of Ramona. The project segment of 13th Street/Maple Street is a dirt roadway, with gravel at the Santa Maria Creek culvert crossing. The existing, undersized corrugated steel culvert does not have sufficient capacity to convey the creek water during storm events; flooding at this crossing makes the roadway impassable for motor vehicles and pedestrians during portions of the rainy season. Therefore, the County of San Diego (County), in cooperation with the California Department of Transportation (Caltrans), is undertaking the replacement of the existing culvert crossing with a bridge, channel improvements, roadway improvements along 13th Street and Maple Street between Main Street (SR 67) Walnut Street, and storm drain systems that will ultimately discharge into Santa Maria Creek.

The objective of the project is to provide an adequate and safe crossing that allows for the conveyance of water from a 100-year storm event. The project would include replacement of the existing culvert crossing with a bridge designed to meet current federal standards, with roadway improvements along 13th Street/Maple Street and Walnut Street, and the addition of stormwater conveyance and treatment features that would ultimately discharge into Santa Maria Creek.

AECOM has been retained by the County to conduct a field survey and basic noise measurements in the project area to determine if a full traffic noise analysis is necessary. The scope of work for this project includes a review of existing relevant project materials, a site visit with noise measurements, and a technical memorandum summarizing the results, noise measurements, and data analysis. This Technical Memorandum has been prepared to assist the

County in meeting the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Proposed Project

The proposed project consists of improvements to 13th Street/Maple Street between Main Street (SR 67) and Walnut Street and construction of a bridge over Santa Maria Creek to replace the existing corrugated steel culvert. The proposed bridge would be a 4-span cast-in-place pre-stressed, post-tensioned concrete box girder structure, approximately 480-feet long and approximately 42-feet wide with three singular-column bents and two abutments. The bridge and approaches would include two 12-foot travel lanes, 3-foot shoulders on each side, and an approximately 8-foot wide multi-use pathway to accommodate pedestrians, bicyclists, and equestrians. In addition, three bridge barriers with a total width of approximately 4-feet, consisting of two edge deck rails and one pedestrian barrier would be installed to separate pathway users from the travel lane and creek. The pathway across the bridge would connect to the existing southern segment near the Ramona County Library and transition users across the bridge to existing and planned facilities north of the bridge. The grade of 13th Street/Maple Street would be raised approximately 10-feet at the Santa Maria Creek crossing to comply with current Federal Highway Administration (FHWA) requirements.

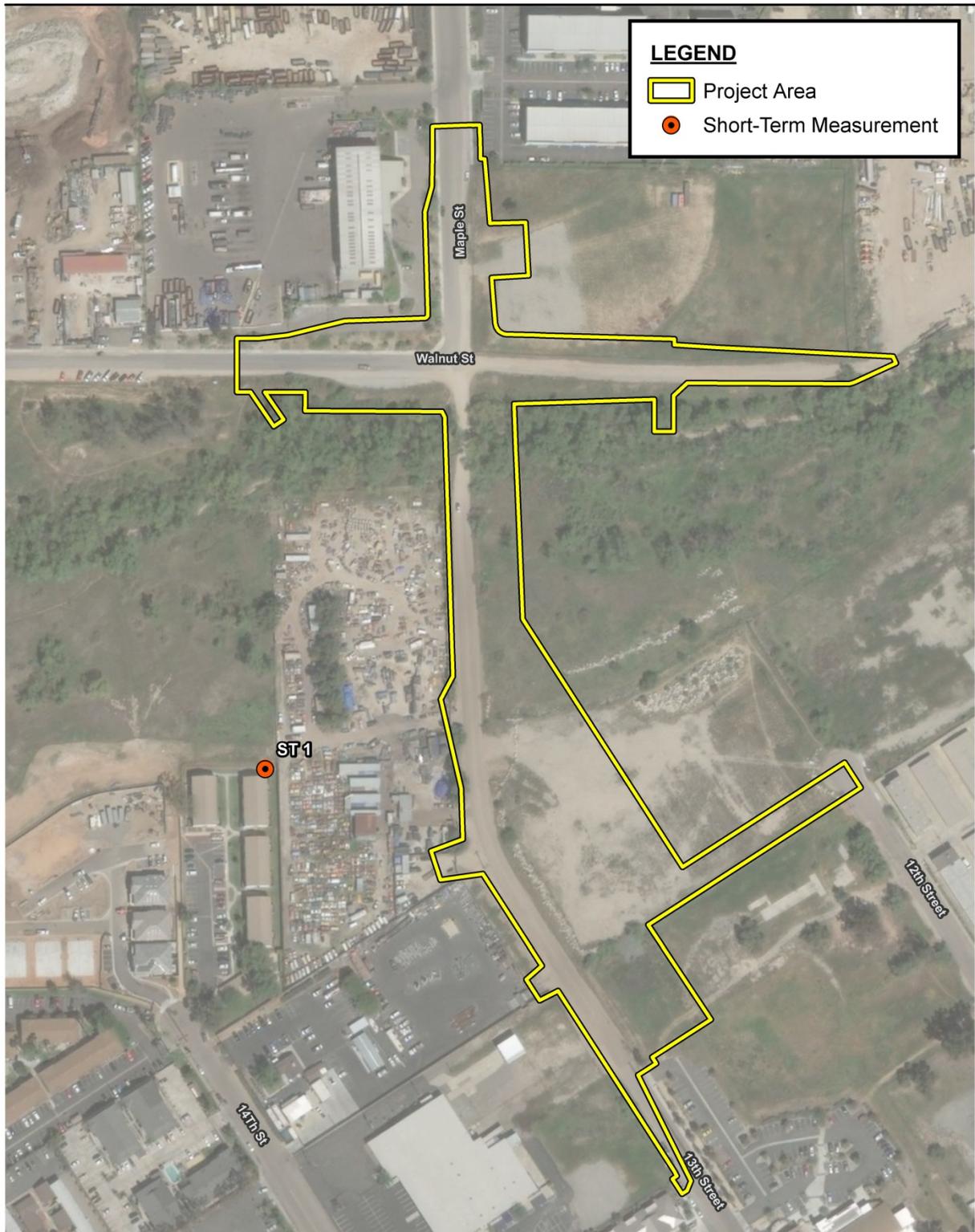
Ground disturbance is anticipated within and immediately adjacent to Santa Maria Creek. Crews are anticipated to require access to the creek area beneath the proposed bridge. Storm drain systems are proposed directly to the north and south of the bridge to capture runoff and direct it towards the existing creek. Permeable pavement areas would be incorporated into the project as Green Street features to facilitate meeting water quality requirements and for storm-water management. An existing bio-retention basin located south of the bridge that currently treats stormwater from the library and associated parking lot would be redesigned to continue treating those existing areas in addition to the proposed paved roads south of Santa Maria Creek.

The proposed project will not require the relocation of residential or business properties. Right-of-way acquisition is anticipated for slope and drainage easements.

Project Site Description

The site consists of an approximate 1,650-foot-long, roughly “t”-shaped section of 13th, Maple, and Walnut Streets in the unincorporated community of Ramona, in northeastern San Diego County. As shown on the U.S. Geological Survey 7.5-minute Ramona Quadrangle map, the proposed project area is situated within Township 13 South and Range 1 East. The proposed project area is bounded by Olive Street to the north, 12th Street to the east, Main Street to the south, and 14th Street and Brazos Street to the west (**Figure 1**). The proposed project area can be accessed via Pine Street/10th Street (SR 78), which falls under the jurisdiction of Caltrans as a State Highway. Within the study area, Pine Street/10th Street is constructed as a two-lane undivided roadway.

The site includes a section of 13th Street that begins just north of the Ramona Library on Main Street and extends to the north where it terminates adjacent to the southwestern boundary of 405 North Maple Street. The site also includes an approximate 800-foot-long, east-west-trending section of road on Walnut Street, just north of Santa Maria Creek. The bulk of this section of 13th, Maple, and Walnut Streets is County-maintained, two-lane undivided roadways that are unclassified in the County of San Diego General Plan, Ramona Mobility Element Network. The unpaved section of Walnut Street to the east of Maple Street, which dead-ends



Source: Digital Globe 2016; Esri 2016; AECOM 2018.

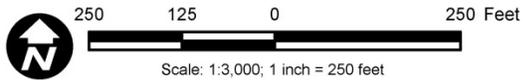


Figure 1
Project Area Map
with Noise Measurement Location

13th Street Bridge Project Noise Impact Analysis

Path: P:_6056\60562978_13thStBridge\900-CAD-GIS\920 GIS\map_docs\mxd\Noise\Fig1_NoiseMeasurement.mxd, 1/30/2019, augello

approximately 600 feet east of Maple Street, is not shown as a County-maintained road in Department of Public Works (DPW) mapping records.

The subject site comprises both paved and unpaved sections of road. There is an approximate 250-foot-long section of paved roadway at the southern end of 13th Street, near Main Street; however, this portion of 13th Street is not included within the subject site boundary. The subject site begins approximately where the pavement ends in this area. The northern portion of the site, north of the Walnut Street and Maple Street intersection is paved, as well as the western end of Walnut Street. Near the central portion of the subject site, Santa Maria Creek runs parallel to (south of) Walnut Street.

The subject site crosses portions of 10 contiguous parcels; however, no buildings or other structures are present within the site boundary. In several areas, the site boundary extends beyond the limits of the roadway and onto the outer edges of several adjacent properties. Property uses of parcels included within the site boundary include a San Diego Gas & Electric (SDG&E) storage yard, a towing facility, a vehicle storage and salvage yard, a construction contracting facility and warehouse, a transfer and recycling station, a construction company, and undeveloped areas. The southeastern portion of the site is composed of an unpaved, undeveloped parcel owned by Russel Anthony Family Trust and a portion of a County-owned property currently utilized as a bioretention basin. No address is associated with the undeveloped property, except that it is listed on 12th Street. The County-owned property is located at 115 12th Street. A drainage swale is located on this property along the eastern side of 13th Street, south of the bioretention basin.

A map of the general noise study area and noise measurement location is shown in **Figure 1**.

Surrounding Land Uses

In the County of San Diego General Plan – Ramona Mobility Element Network, 13th Street is an unclassified County-maintained roadway. Within the study area, 13th Street is generally constructed as a two-lane undivided roadway.

The proposed project area vicinity is characterized by residential, commercial, and industrial development. Single- and multi-family residences are present west of the project area along 14th and Brazos Streets, and commercial properties are present along Main, 12th, and Maple Streets. Industrial properties are present along 14th, Walnut and Maple Streets. An equipment storage yard is present on the northeast corner of Maple and Walnut Streets. A private residence is located on the southeast corner of Brazos Street and Walnut Street. Residential areas are located west of Brazos Street.

Surrounding area properties include a public library, self-storage facilities, retail gasoline filling stations, retail shopping plazas, office buildings, a lumber yard, and single- and multi-family residential areas. Industrial development was present along the west side of 13th and Maple Streets. Vacant lots are present on the east side of 13th and Maple Streets. Santa Maria Creek is an intermittent stream surrounded by riparian habitat located adjacent to (south of) Walnut Street, in the northern portion of the site.

Sensitive Receptors

The nearest noise-sensitive receptor is at the Peppertree Apartments, located at the end of 14th Street, approximately 550 feet to the southwest of the proposed bridge and 330 feet west of 13th Street. The Calvary Chapel is approximately 1,200 feet south of the proposed bridge location

and 230 feet southwest of the paved portion of 13th Street. Commercial properties north of Main Street adjacent to 13th Street do not appear to contain any outdoor noise-sensitive land uses. Additionally, the Ramona Branch Library is located approximately 200 feet southeast of the edge of the project, but it does not appear to contain any exterior frequent human use areas, and was therefore not included in the analysis.

Applicable Noise Policy

Title 23, Part 772 of the Code of Federal Regulations (23CFR772) "Procedures for Abatement of Highway Traffic Noise and Construction Noise," outlines procedures for noise studies that are required for approval of Federal-aid highway projects. The FHWA requires that state highway agencies prepare state-specific policies and procedures for applying the regulation in their state.

Caltrans has a guideline titled *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*, which provides the policies and procedures necessary for applying 23CFR772 in California.

Under 23CFR772.7, projects are categorized as Type I, Type II, or Type III projects. FHWA defines a Type I project as a proposed Federal or Federal-aid highway project for the construction of a highway on a new location, the physical alteration of an existing highway where there is either a substantial horizontal or substantial vertical alteration, or other activities defined below. Type I projects require a noise analysis.

23CFR772 defines a Type I project as a project that involves:

1. The construction of a highway on a new location; or
2. The physical alteration of an existing highway where there is either:
 - A. Substantial horizontal alternation. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition, or
 - B. Substantial vertical alteration. A project that removes shielding thereby exposing the line-of-sight between the receptor and the traffic noise source. This is done by altering either the vertical alignment of the highway or the topography between the highway traffic noise source and the receptor; or
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane; or
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or
5. The addition or relocation of interchange lanes or ramps added to a new quadrant to complete an existing partial interchange; or
6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; or
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

The 13th Street Bridge Project is not being constructed on a new location. There are no planned horizontal alterations to the roadway. Although there are vertical alterations to the project roadway to facilitate the bridge crossing over Santa Maria Creek, the alterations would have a minimal effect on the line-of-sight between the nearest receptor and the roadway. There are no new planned through-traffic lanes; no planned addition of auxiliary lanes; no planned addition or relocation of lanes or ramps; no restriping for the purpose of adding a through-lane or an auxiliary lane; and no weight stations, rest stops, ride-share lots, or toll plazas within the project area.

Therefore, the 13th Street Bridge Project would not be considered Type I and a detailed noise study is not required. However, AECOM has conducted a field measurement at the nearest noise-sensitive receptor, located in the rear of the Peppertree Apartments at the northern end of 14th Street, during typical daytime hours to determine if a noise impact may already exist according to the FHWA and Caltrans Noise Abatement Criteria (NAC).

According to the Caltrans NAC, a residential receiver is categorized as a Category B land use and would be considered impacted at a noise level of 66 A-weighted decibels (dBA) and considered a substantial impact if the design-year worst-hour noise level exceeds the existing year worst-hour noise level by 12 dBA or more.

Existing Project Information

A noise study has not been previously completed for this project.

Noise Measurement Set Up and Procedures

Noise measurements were conducted on January 11, 2018, for the purpose of documenting noise levels during typical daytime hours. A summary of the noise measurement location, audible noise sources, and measurement period is presented in **Table 1**.

Table 1. Existing Conditions Ambient Noise Measurement Locations and Sound Sources

Location ID	Description	Audible Sound Sources (in order of prominence)	Measurement period (date and time)
ST1 (see Figure 1)	In the rear area of the northernmost apartment in the Peppertree Apartments complex, at the northern end of 14 th Street, west of 13 th Street, between Main Street (Route 67) and Walnut Street	Industrial noise from Walnut Street locations, music from residences, aircraft, distant roadway traffic, dogs barking, birds vocalizing	January 11, 2018, 12:20 PM to 12:40 PM

Measurements were conducted using 1-minute measurement intervals, with L_{eq} , L_{min} , L_{max} , L_{10} , L_{50} , and L_{90} values measured for each 1-minute interval. Weather conditions during the daytime measurement period were mostly sunny, with temperatures at 75 degrees Fahrenheit, with winds generally averaging 1–2 miles per hour. Traffic was free-flowing. Acoustical measurement equipment included one Type 1 Larson Davis model LxT precision sound level meter (SLM), within its manufacturer’s recommended factory calibration period and field calibration checked, fitted with a standard 3.5-inch windscreen and mounted on a tripod at approximately 5 feet above the ground to simulate the height of a typical human ear.

A field measurement data sheet is included as **Attachment A**. A photo log is included as **Attachment B**.

Noise Measurement Result and Analysis

Table 2 shows the L_{eq} , L_{max} , L_{min} , L_{10} , L_{50} , and L_{90} values for the measurement conducted at ST1.

Table 2. Existing Condition Sound Level Measurement Results

Location ID	Site Description	Measured Sound Level, dBA					
		L_{eq}	L_{min}	L_{max}	L_{10}	L_{50}	L_{90}
ST1	In the rear area of the northernmost apartment in the Peppertree Apartments complex, closest residential location to proposed improvements	41.4	35.3	52.7	42.7	40.5	38.7

In reviewing the measurement results in **Table 2**, it can be seen that the 20-minute L_{eq} level is well below the FHWA and Caltrans threshold for impact at 41.4 dBA. The highest measured level, L_{max} , was 52.7 dBA, which is well under the Caltrans threshold for a Category B land use NAC impact (66 dBA).

Traffic Impact Analysis

A Traffic Impact Analysis report, the 13th Street Bridge Data Validation Memorandum by Chen Ryan (2019), was provided for the noise analysis. **Table 3** shows the With and Without project daily traffic volumes for 13th Street taken from Table 2 of that memo.

Table 3. With and Without Project Average Daily Traffic Volumes for 13th Street¹

Roadway	From	To	With Project	Without Project	Potential Change in Noise Level (L_{eq} , dBA)
13 th Street	Walnut Street	550 Feet North of Main Street	1,680	770	3

¹Chen Ryan Associates, Inc., February 2019 and 13th Street Bridge TIA, 2013

The proposed project may potentially result in a 3 dBA increase in noise levels due to a change in traffic volumes within the project area. This is calculated using the standard equation to calculate the increase for sound level due to a relative increase in source energy:

$$\text{Sound Level Increase} = 10 \cdot \log(N2 / N1),$$

where

N2 is the “with project” traffic volume and

N1 is the “without project” traffic volume.

Although a 3 dBA increase in noise levels would generally be considered a just barely detectable change to the average person, and although sensitive receptors within the area would experience this audible increase during the loudest traffic hour, the Caltrans criteria for a substantial increase noise impact due to the change in traffic volume on the project roadway from a worst-hour existing noise level to the project’s predicted worst-hour noise level is 12 dBA, and would, therefore, not be considered a substantial increase impact and would not require further analysis.

Construction Noise

FHWA and Caltrans require that construction noise be evaluated for all Type I projects. Since the proposed project is not considered a Type I project, construction noise analysis and abatement measures do not apply. However, the following list could be considered best practices for the avoidance of any potential problems related to construction noise impacts:

- No construction shall be performed within 1,000 feet of an occupied receptor on Sundays, legal holidays, or between the hours of 10 p.m. and 6 a.m. on other days without the approval of the construction project manager.
- All equipment used shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.
- No pile driving or blasting operations shall be performed within 3,000 feet of an occupied receptor on Sundays, legal holidays, or between the hours of 8 p.m. and 8 a.m. on other days without the approval of the construction project manager.
- The noise from rock crushing or screening operations performed within 3,000 feet of any occupied receptor shall be mitigated by strategic placement of material stockpiles between the operation and the affected receptor or by other means approved by the construction project manager.

If a specific noise complaint is received during construction of the project, the contractor may be required to implement one or more of the following noise mitigation measures at the contractor's expense, as directed by the construction project manager:

- Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible.
- Shut off idling equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work will be occurring.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Operate electrically powered equipment using line voltage power or solar power rather than using a generator.

Conclusions

According to the FHWA and Caltrans definition for Type I projects, the 13th Street Bridge Project does not meet the definition necessary to be considered a Type I project, and noise analysis would not be required by Caltrans or FHWA policy. However, AECOM conducted a noise measurement in the project area during typical daytime hours and subsequent data analysis to determine if there would be an impact.

Noise measurements were conducted for 20 minutes during daytime hours at the nearest adjacent noise-sensitive location and were found well under the Caltrans NAC threshold for

impacts for Type I projects. Additionally, traffic increases on the project roadway due to the proposed improvements were analyzed and found to potentially increase noise levels by only 3 dBA throughout the project area, which is well under the Caltrans threshold for a substantial increase impact.

Therefore, noise-sensitive receivers in the project area would not be impacted by the proposed 13th Street Bridge Project in accordance with FHWA and/or Caltrans policy, and therefore would not require mitigation.

References

- 2019. Chen Ryan and Associates. 13th Street Bridge – Data Validation Memorandum.
- 2013. Linscott, Law, & Greenspan Engineers. 13th Street Bridge Traffic Impact Analysis Report.

Attachment A
Noise Measurement Field Data Sheet

Attachment B
Noise Measurement Photographs



Photograph 1

Date: 01/11/18

Comments:
ST1: Short-Term
Monitor 1

Located in the rear
of the northeastern
building at the
Peppertree
Apartments

33.042106
-116.876338

Camera facing
north



Photograph 2

Date: 01/11/18

Comments:
ST1: Short-Term
Monitor 1

Located in the rear
of the northeastern
building at the
Peppertree
Apartments

33.042106
-116.876338

Camera facing
west



Photograph 3

Date: 01/11/18

Comments:
ST1: Short-Term
Monitor 1

Located in the rear
of the northeastern
building at the
Peppertree
Apartments

33.042106
-116.876338

Camera facing
south



Photograph 4

Date: 01/11/18

Comments:
ST1: Short-Term
Monitor 1

Located in the rear
of the northeastern
building at the
Peppertree
Apartments

33.042106
-116.876338

Camera facing
east