



Weiss Associates

Environmental Science, Engineering, and Management

2200 Powell Street, Suite 925, Emeryville, CA 94608-1879

Fax: 510-547-5043 Phone: **510-450-6000**

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

for

**San Francisco Public Works
19th Avenue Combined City Project
San Francisco, California**

prepared for

**San Francisco Public Works
Site Assessment and Remediation Division
30 Van Ness Avenue, 3rd Floor
San Francisco, California 94102**

July 2017

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Weiss Project No. 324-2092.01

Weiss Associates' work for the City and County of San Francisco was conducted under our supervision. To the best of our knowledge, the data contained herein are true and accurate and satisfy the scope of work prescribed by the client for this project. The data, findings, recommendations, specifications or professional opinions were prepared solely for the use of the City and County of San Francisco in accordance with generally accepted professional engineering and geologic practice. We make no other warranty; either expressed or implied, and are not responsible for the interpretation by others of the contents herein.

Andrew Miller, PE
Senior Staff Engineer

July 27, 2017

Date

Joyce Adams, PG
Senior Project Geologist

July 27, 2017

Date

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ACRONYMS/ABBREVIATIONS

AWSS	auxiliary water supply system
bgs	below ground surface
Caltrans	California Department of Transportation
CY	cubic yards
DTSC	Department of Toxic Substances Control
EDR	Environmental Database Resources, Inc.
ESA	Environmental Site Assessment
FCCP	Flexible Connection Construction Project
LF	linear feet
LUST	leaking underground storage tank
Project	19th Avenue Combined City Project
SFDPH	San Francisco Department of Public Health
SFMTA	San Francisco Metropolitan Transportation Authority
SFPUC	San Francisco Public Utilities Commission
SFPW	San Francisco Public Works
SWRCB	State Water Resources Control Board
UST	underground storage tank
Weiss	Weiss Associates

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EXECUTIVE SUMMARY

On behalf of the San Francisco Public Works (SFPW), Weiss Associates (Weiss) has prepared this Phase I Environmental Site Assessment (ESA) Report to identify potential environmental concerns along the alignment of the 19th Avenue Combined City Project (19th Avenue Project). This report was not prepared to meet the standards for a Phase I ESA set by the American Society for Testing and Materials, nor does it meet the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act for a Phase I ESA. For the purposes of this Phase I ESA, potential environmental concerns are defined as: the possible presence of any hazardous substances or petroleum products on a property under conditions that indicate the possibility of an existing release, a past release, or the threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. This Phase I ESA was prepared to meet the site history requirements of the Maher Ordinance, San Francisco Health Code Article 22A, Section 22A.6. However, SFPW has now determined that this project is exempt from the Maher process, as per Article 22A, Section 22A.17. CONSTRUCTION ON CITY PROPERTY – as no building or grading permit needs to be obtained pursuant to the San Francisco Building Code. During construction of the project, SFPW will use its Environmental and Health and Safety specifications to ensure that the goals of Article 22A to protect the environment and the public health and safety are achieved.

The 19th Avenue Project is part of the San Francisco Transit Effectiveness and Caltrans Roadway Rehabilitation Project, a joint venture between the San Francisco Metropolitan Transportation Authority, San Francisco Public Utilities Commission (SFPUC), SFPW, and the California Department of Transportation (Caltrans). The proposed improvements to transportation and utility facilities include pavement surfaces, sidewalks, traffic signals, bus zones, bus and pedestrian bulb-outs and islands, parking spaces, and replacement, repair, installation, and upgrade of water and wastewater systems. The proposed improvements are to take place on 19th Avenue bound by the curbs separating street from sidewalk to the east and west, the south side of Lincoln Way to the north, and the north end of Holloway Avenue to the south (the Project Alignment Footprint).

For the purposes of this Phase I ESA, the Project Area is defined as the 19th Avenue corridor from Lincoln Way to the north to Holloway Avenue to the south, up to 150 feet to the east and west of 19th Avenue (Figure 1). A review of Sanborn Maps, aerial photographs, California State Water Resource Control Board's (SWRCB) GeoTracker and the California Department of Toxic Substances Control's (DTSC's) Envirostor databases, indicates 42 sites of potential concern within the Project Area (Figure 2). The potential concerns are primarily based on current or former underground storage tanks (USTs) and leaking underground storage tanks (LUSTs) including current auto service and gas station sites and historic auto service and gas station sites. Other sites of potential environmental concern consist of current or former battery service, utility substation, upholsterer, paint shop, dry cleaner, fire station, and nursery sites.

A full discussion of the sites of potential concern within the Project Area is provided in Section 3 of this report.

Based on the information reviewed for this ESA, it is possible that hazardous substances may be present in soil and/or groundwater at the site. Weiss recommends soil sampling in the proposed construction areas to meet requirements of the Maher Ordinance. If groundwater is encountered, groundwater samples should be collected to meet Maher Ordinance requirements.

1. INTRODUCTION

On behalf of the San Francisco Public Works (SFPW), Weiss Associates (Weiss) has prepared this limited Phase I Environmental Site Assessment (ESA) to identify potential environmental concerns along the alignment of the 19th Avenue Combined City Project (19th Avenue Project). This ESA was prepared to meet the site history requirements of the San Francisco Health Code Article 22A (Maher Ordinance). However, SFPW has now determined that this project is exempt from the Maher process, as per Article 22A, Section 22A.17. CONSTRUCTION ON CITY PROPERTY – as no building or grading permit needs to be obtained pursuant to the San Francisco Building Code. During construction of the project, SFPW will use its Environmental and Health and Safety specifications to ensure that the goals of Article 22A to protect the environment and the public health and safety are achieved.

This report was not prepared to meet the standards for a Phase I ESA set by the American Society for Testing and Materials, nor does it meet the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act for a Phase I ESA.

1.1 Background

The 19th Avenue Project is part of the San Francisco Transit Effectiveness and Caltrans Roadway Rehabilitation Project, a joint venture between the San Francisco Metropolitan Transportation Authority, San Francisco Public Utilities Commission (SFPUC), SFPW, and the California Department of Transportation (Caltrans). The proposed improvements to transportation and utility facilities include pavement surfaces, sidewalks, traffic signals, bus zones, bus and pedestrian bulb-outs and islands, parking spaces, and replacement, repair, installation, and upgrade of water and wastewater systems (Figure 1; Appendix A).

Weiss understands that all excavation activities and disturbance of pavement and underlying soil or concrete associated with these improvements will be limited to within the roadway (19th Avenue) bound by the sidewalk curbs to the east and west, the south side of Lincoln Way to the north, and the north end of Holloway Avenue to the south (the Project Alignment Footprint). For the purposes of this Phase I ESA, the Project Area is defined as the 19th Avenue corridor from Lincoln Way to the north to Holloway Avenue to the south, up to 150 feet to the east and west of 19th Avenue.

The SFPUC has completed a comprehensive assessment of pipelines and associated collection system facilities (i.e., catch basins and culverts) at a high risk of failure. Existing vitrified clay and iron stone pipes will be replaced, repaired, or upgraded with new vitrified clay pipe. Existing ductile iron water pipelines will be upsized. As part of the auxiliary water supply system (AWSS), the flexible water supply system (FWSS) will occur at five locations between Lincoln Way and Ocean Avenue. As part of planned improvements, the replacement or relocation of some manholes, hydrants, vaults, drain inlets, and valve boxes will be required. The SFPW estimates that up to 25,000 cubic yards (CY) of earthwork will be associated with the project, as follows:

- Water pipe: approximately 3,675 linear feet (LF) of pipe will be replaced resulting in the disturbance of 3,200 CY of soil;
- Sewer pipe: approximately 15,855 LF of pipe will be replaced in 8,100 linear feet of open trench resulting in 15,000 CY of soil;

- Manholes, catch basins, and laterals: necessary replacement of these features will result in approximately 3,800 CY of soil;
- AWSS: approximately 1,500 LF of AWSS will be replaced resulting in 2,237 CY of soil; and
- FWSS: Five sections will be installed resulting in 727 CY of soil.

1.2 Scope of Work

This ESA was prepared to address the requirements of the Maher Ordinance and the specific items identified in the SFPW's Scope of Work dated February 19, 2016. Weiss contracted with Environmental Database Resources, Inc. (EDR) to provide Sanborn maps¹ and historical aerial photographs² for the Project Area.

Weiss performed a public records request from the San Francisco Department of Public Health (SFDPH) for the location of existing monitoring wells along the Project Area, and reviewed the Maher Map and entries on the following websites:

- California State Water Resource Control Board's (SWRCB) GeoTracker website;³ and
- California Department of Toxic Substances Control's (DTSC's) Envirostor website.⁴

As detailed in the SFPW's Scope of Work, a review of EDR databases was not performed.

1.3 Qualifications

This ESA was completed by Mr. Andrew Miller and Ms. Joyce Adams, who qualify as environmental professionals pursuant to Title 40 Code of Federal Regulations, Section 312.10(b). Mr. Miller and Ms. Adams have the specific qualifications based on education, training, and experience to assess a property on the nature, history, and setting of those discussed in this ESA. Mr. Miller is a California Professional Civil Engineer and Ms. Adams is a California Professional Geologist with five and 25 years of experience in site assessment and remediation, respectively.

Weiss is an environmental, engineering, and geological consulting firm established in 1980, engaged in the provision of professional and technical services involving environmental, engineering, and geological specializations. The professional staff at Weiss has completed hundreds of Phase I/II environmental site assessments and related programs for corporate acquisitions, divestitures, mergers, and financing activities on properties throughout the United States.

¹ EDR, 2016, *Certified Sanborn Map Report*, June 8.

² EDR, 2016, *Aerial Photo Decade Package*, June 9.

³ SWRCB, 2016. GeoTracker website: <http://geotracker.waterboards.ca.gov/>, accessed June 30.

⁴ DTSC, Envirostor website: http://www.envirostor.dtsc.ca_waterboards.gov/public/, accessed June 30.

1.4 Limitations of Assessment Methodology

Weiss has attempted to identify sites where contamination has been documented based on a review of the GeoTracker and Envirostor databases, SFDPH records, and historical maps. Current and historical land uses along the project alignment have included commercial, residential, and industrial uses since at least 1915, which may have resulted in site contamination. Given the age, potential type of land use, and historically poor documentation of these activities, it is possible that subsurface contamination may be found near or within the project area that is not identified in this ESA.

2. SITE DESCRIPTION

The site currently consists of a mix of residential buildings, commercial buildings, parks, and roadways.

2.1 19th Avenue Project Area

Topography along the Project Area is undulating with a low at the southern portion of the project at 19th Avenue and Holloway Avenue, a high between Rivera Street and Quintara Street, and a gradual downward slope toward the northern boundary of the project at Lincoln Avenue.

2.1.1 Site Geology

The regional topography of the San Francisco Peninsula is characterized by relatively rugged hills formed by Jurassic- to Cretaceous-aged bedrock surrounded by low flat-lying areas which are underlain by Quaternary sedimentary deposits. Bedrock consists of highly deformed and fractured sedimentary rocks of the Franciscan assemblage⁵.

The geology along the 19th Avenue Project consists primarily of alluvium (early Pleistocene) with some artificial fill and hillslope deposits (Quaternary) in the southern portion of the Project Area from Holloway Avenue to Vicente Street, and transitions to beach and dune sand (Quaternary) along the northern portion of the Project Area at Vicente Street to Lincoln Way with some artificial fill USGS.⁶

2.1.2 Groundwater

Based on groundwater investigations reviewed from the SRWCB's GeoTracker website, depth to groundwater is anticipated to be greater than 20 feet below ground surface (bgs). Groundwater flow direction data available from sites along the 19th Avenue Project indicate groundwater flow to the southwest.

2.2 Site Reconnaissance

No site visit was performed as part of this ESA.

⁵ U.S. Department of Transportation, Federal Transit Administration and Peninsula Corridor Joint Powers Board (1997), *Caltrain San Francisco Downtown Extension Project, Draft Environmental Impact Statement, Draft Environmental Impact Report and Draft Section 4(f) Evaluation*, March 5.

⁶ United States Geological Survey, 2016, U.S. Geologic Map overlay for Google Earth, accessed June 24.

3. EVALUATION OF SITE HISTORY

This section presents an evaluation of site history based on information available from historical Sanborn Fire Insurance maps, aerial photographs, and public databases.

3.1 Sanborn Map Review

Sanborn maps were obtained from EDR and reviewed for the following years: 1915, 1928, 1950, 1966, 1975, 1989, 1991, and 1999 (Appendix B). The findings of the Sanborn maps are summarized in Table 1.

A review of the Sanborn maps indicates the project area has been used for residential, commercial, and recreational use dating back to the early 1900s.

3.2 Aerial Photograph Review

Aerial photographs were obtained from EDR and reviewed for the following years: 1938, 1946, 1956, 1968, 1974, 1982, 1993, 1998, 2005, 2009, 2010, and 2012 (Appendix B). Due to the nature of the project site and length of the alignment, the photographs do not provide significant details of many or most properties unless they are larger in size. A brief summary of the aerial photograph review is shown in Table 2.

The review of the aerial photographs (Appendix B) indicates the project was largely developed prior to 1938.

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns ^a
19th Avenue between Lincoln Way and Irving Street	1915	Map shows the area as a residential neighborhood.	4640251.3_5	
	1928	Additional residential development has taken place. A school has been constructed at the southeastern corner of 19th Avenue and Irving Street. Some commercial activity is indicated by the presence of a battery service business at the southeastern corner of 20th Avenue and Lincoln Way.		1
	1950	The battery service building has been converted to restaurant use and the area remains primarily residential. Service stations have been constructed at both southern corners of the 19th Avenue and Lincoln Way intersection. An auto repair business is located at approximately 1270 20th Avenue.		3
	1966	The map is largely the same as in 1950 with the exception of a new service station at the northeastern corner of 19th Avenue and Irving Street.		1
	1975	The map is largely the same as in 1966 with the exception of the removal of the service station at the northeastern corner of 19th Avenue and Irving Street.		
	1989	The map is largely the same as in 1975 with the exception of the removal of the service station at the southwestern corner of 19th Avenue and Lincoln Way		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		

^aThe number of sites of potential environmental concerns is only indicated where a unique site is first identified in the Sanborn map review. Details of the location and type of potential environmental concern are provided in the Comments. Some sites of potential environmental concern discussed in the Sanborn map review may also be addressed in Section 3.3 of this report.

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Irving Street and Kirkham Street	1915	Primarily residential development with a church at the intersection of 19th Avenue and Judah Street and a school on 19th Avenue between Irving and Judah Streets.	4640251.3_14	
	1928	Similar to the 1915 map with additional community developments including another church on 19th Avenue just south of the Jefferson School and a public library at the intersection of 19th Avenue and Irving Street. An auditorium has been constructed as an addition to Jefferson School as of 1929.		
	1950	Service stations have been constructed on the southwest and southeast corners of the 19th Avenue and Judah Street intersection.		2
	1966	The Jefferson School has undergone a remodel. The eastern portion of the building that extended south is gone and the building now appears to be a single rectangular structure.		
	1975	No notable changes are observed from the 1966 map.		
	1989	No notable changes are observed from the 1975 map.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		
19th Avenue between Kirkham Street and Lawton Street	1915	Sparse residential development with a Pacific Bell (Pacific Telephone and Telegraph) substation on 19th Avenue between Kirkham Street and Lawton Street.	4640251.3_23	
	1928	Additional residential development has taken place. A cistern has been constructed at 19th Avenue and Lawton Street and the North Ward first appears, located on the southwest corner of 19th Avenue and Lawton Street.		
	1950	The development on the Pacific Bell property has been expanded; a new service station has been constructed at the southeastern corner of 19th Avenue and Kirkham Street.		2
	1966	A church has been constructed at 20th Avenue and Lawton Street. Additional development has taken place at the southwest corner of 19th Avenue and Lawton Street. Further expansion to the construction on the Pacific Bell property has taken place.		
	1975	Continued construction and development of the Pacific Bell property has taken place.		
	1989	No notable changes are observed from the 1975 map.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Lawton Street and Moraga Street	1915	Limited residential development is shown.	4640251.3_32	
	1928	Additional residential units have been constructed and a children's hospital is located on 19th Avenue between Lawton Street and Moraga Street.		
	1950	The area shown is largely unchanged with the exception of some additional residential construction.		
	1966	Continued expansion of residential development has occurred. The children's hospital buildings have been expanded.		
	1975	The extent of the children's hospital property has been extended south such that a discontinuity in Moraga Street now exists between 19th Avenue and 20th Avenue. Building development of the children's hospital has expanded.		
	1989	No notable changes are observed from the 1975 map.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		
19th Avenue between Noriega Street and Ortega Street	1915	The map shows sparse dwellings in the area at this time.	4640251.3_1	
	1928	Some additional residential construction has taken place.		
	1950	Continued development of residential land use has taken place throughout the neighborhood. <ul style="list-style-type: none"> At the intersection of 19th Avenue and Ortega Street is an auto dealership, repair shop, and service station, located at the southeast corner; A gas station has been constructed at the northeastern corner; and An infant shelter is located on the southwest corner. Service stations are located at the northwest and northeastern corners of 19th Avenue and Noriega Street. Upholstery and paint shop business are located on Noriega Street between 19th Avenue and 20th Avenue.		6
	1966	The property previously identified as the infant shelter is now the San Francisco Conservatory of Music. The south-west corner of 19th Avenue and Noriega Street has been converted to office use. A transformer yard and dry cleaner have been established on Noriega Street between 21st Avenue and 20th Avenue.		2

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Noriega Street and Ortega Street (continued)	1975	An unlabeled structure is shown on the north side of Noriega Street between 20 th Avenue and 19th Avenue. This has replaced previous residential and service station properties.	4640251.3_1	
	1989	The auto sales, repair, and service station at the southeast corner of 19th Avenue and Ortega Street have been converted to a Post Office. The previously unlabeled structure on Noriega Street is now redeveloped and designated as residential and office space.		
	1991	No notable changes are observed from the 1989 map.		
	1999	The service station located on the northeastern corner of 19th Avenue and Ortega Street is no longer listed as such; however, this location is currently a gas station.		
19th Avenue between Ortega Street and Pacheco Street	1915	Limited dwellings are shown on the map.	4640251.3_50	
	1928	Additional residential development has taken place along with construction of one office building at the northeast corner of the intersection of 19th Avenue and Pacheco Street. A veterinary hospital and office building exist at approximately 2043 19th Avenue.		
	1950	Changes include continued expansion of residential development along with a service station at the southeastern corner of the 19th Avenue and Pacheco Street intersection. An electrical contractor is located at 2038½ 19th Avenue. At the southeast and southwest extents of the map of 19th Avenue, buildings are described as housing gas and auto greasing, respectively. The southernmost portion of the map overlaps with the northernmost portion of Map ID 4640251.3_59, showing Quintara Street and Rivera Street.		2
	1966	The property at 2030 19th Avenue previously labeled with "Fuel" is now shown to be a woodworking facility. The building at the southern extent of 19th Avenue on the map previously described as housing an auto greasing business is not visible. The structure labeled with gas now appears to be a building with basement parking.		
	1975	The property formerly labeled as a veterinary hospital is now a rest home. No other notable changes.		
	1989	No notable changes are observed from the 1975 map.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Quintara Street and Rivera Street	1915	The only structure identified is a fire station building at 2154 19th Avenue; noted to be home to a chemical fire engine.	4640251.3_59	1
	1928	Residential development has occurred throughout much of the map. A Public Works storage facility is now located immediately north of the fire department. A service station is located at the northwestern corner of the 19th Avenue and Quintara Street intersection. The northernmost portion of the map is an overlap from the maps of 19th Avenue between Ortega Street and Quintara Street.		
	1950	Service stations are now located at the northwest, northeast, and southwest corners of 19th Avenue and Quintara Street. The property on the southwest corner of 19th Avenue and Quintara Street also contains a greenhouse. The service station at the northeastern corner houses an auto mechanic shop. Service stations are also located at the northwest and southeast corners of 19th Avenue and Rivera Street. The original fire station has been converted to dwellings and a new fire station is located at 2155 18th Avenue.		6
	1966	Office buildings have been constructed at 2195 and 2121 19th Avenue. The service station at the northeastern corner of 19th Avenue and Quintara Street has been converted to a 12-unit apartment building with a partial basement, located at 2098 19th Avenue. No structures are shown at the north-west corner of 19th Avenue and Quintara Street.		
	1975	The service station at the northwest corner of 19th Avenue and Rivera Street has been converted to residential use. There is a service station shown at the northwest corner of 19th Avenue and Quintara Street. The service station at the southwest corner has been removed, the property divided into two, the greenhouse removed, and is now labeled as parking and residential.		
	1989	The service station at the southeastern corner of 19th Avenue and Rivera Street has been removed.		
	1991	No other notable changes are observed from the 1989 map.		
	1999	A new building has been constructed at the southwest corner of 19th Avenue and Quintara Street, though the primary use appears to be parking.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Rivera Street and Taraval Street	1915	Minimal development is shown; only sparse residential buildings.	4640251.3_68	
	1928	Additional residential development has occurred.		
	1950	Greasing and storage facilities are shown at the southernmost extent on 19th Avenue. A San Francisco City garage/parking facility is located on the east side of 19th Avenue between Santiago Street and Taraval Street. Service stations are located on the southwest and northeast corners of 19th Avenue and Santiago Street. A clinic has been constructed at the northwest corner of 19th Avenue and Santiago Street.		3
	1966	A service station is shown at the southeastern extent of 19th Avenue and Taraval Street. The property formerly labeled as "greasing" appears to be re-designated, but the text is illegible.		
	1975	No notable changes are observed from the 1966 map.		
	1989	Service station at the northeast corner of 19th Avenue and Santiago Street has been replaced by a residential building.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		
19th Avenue between Santiago Street and Ulloa Street	1915	Some dwellings are present along 19th Avenue. A contractor is located at the northeast corner of 17th Avenue and Ulloa Street.	4640251.10_14	
	1928	Additional residential development has taken place. Some commercial activity including a theater, pharmacy, planing mill, and carpenter are present along Taraval Street. A printing business is located on the east side of 19th Avenue north of Taraval Street, and a service station is located at the northwest corner of 19th Avenue and Taraval Street.		1
	1950	Service stations are located on the northwest, northeast, and southeast corners of 19th Avenue and Taraval Street. An auto dealer, auto mechanic, and service station are located at the northeast corner of 18th Avenue and Taraval Street. Continued residential and commercial development has taken place. The northern portion of the map overlaps with the map of 19th Avenue between Rivera Street and Taraval Street (Map ID 4640251.3_68).		3

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Santiago Street and Ulloa Street (continued)	1966	The auto dealer and service center have expanded to also include the parcel at the northwest corner of 17th Avenue and Taraval Street. The service station at the southeast corner of 19th Avenue and Taraval Street has been converted into a used auto dealer and service center. A motel is located at 821 Taraval Street. Another used auto dealer is located just to the east of the southeast corner of 18th Avenue and Taraval Street.	4640251.10_14	
	1975	Auto dealer and service center on the north side of Taraval Street between 18th Avenue and 17th Avenue have been converted to parking. The service station on the southeast corner of 19th Avenue and Taraval Street is no longer present, and the property consists of unidentified structures. The service station at the northwest corner of 19th Avenue and Taraval Street are now unlabeled iron structures.		
	1989	The used auto dealer on the south side of Taraval Street between 18th Avenue and 17th Avenue has been converted to a parking lot. No other notable changes are observed from the 1975 map.		
	1991	Portions of the parking lot on the south side of Taraval Street between 18th Avenue and 17th Avenue have been converted to a mixed use residential and commercial building.		
	1999	No notable changes are observed from the 1991 map.		
19th Avenue between Ulloa Street and Vincente Street	1915	A minimal number of dwellings are present.	4640251.10_23	
	1928	A park has been developed and is bounded by 20th Avenue and 19th Avenue to the west and east and Ulloa Street and Vincente Street to the north and south. More dwellings are present.		
	1950	A church and convent have been constructed on about the southern two-thirds of the block bounded by 18th Avenue and 17th Avenue and Ulloa Street and Vincente Street.		
	1966	Further residential development and expansion on the church property to include a school have taken place.		
	1975	No notable changes are observed from the 1966 map.		
	1989	No notable changes are observed from the 1975 map.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue and Sloat Boulevard	1915	Very minimal development and sparse buildings. Few dwellings located on the east side of 19th Avenue to the north of Sloat Boulevard.	4640251.10_1	
	1928	Canyon Avenue and Avon Way have been constructed to the northeast of 19th Avenue and Sloat Boulevard intersection. Canyon Avenue intersects 19th Avenue north of Sloat Boulevard; and Avon Way intersects Sloat Boulevard east of 19th Avenue. Minor expansion of dwellings on Sloat Boulevard east of Avon Way. Still minimal structures.		
	1950	Dense development shown south of Sloat Boulevard, noted as being formerly shown on Sheet 1252 of Volume 11 of the Sanborn Maps. A church and nursery school have been constructed immediately east of the intersection of Sloat Boulevard and Avon Way. New steel structures, including a greenhouse, are located on the northeast corner of 19th Avenue and Sloat Boulevard.		1
	1966	The California Scottish Rite Memorial Temple now exists at the northeast corner of 19th Avenue and Sloat Boulevard. The Lutheran Church and school have expanded to include a junior high school. Avon Way is now a dead-end street to access the Lutheran Church and school property (and adjacent residential lots). Canyon Avenue is no longer shown. A greenhouse is now located to the north of the California Scottish Rite Memorial Temple.		1
	1975	No notable changes are observed from the 1966 map.		
	1989	Open parking lots are located east of 19th Avenue, north of the California Scottish Rite Memorial Temple where the greenhouse was located. Stern Grove Court has been constructed and is labeled as a private road.		
	1991	No notable changes are observed from the 1989 map.		
	1999	Avon Way is more clearly defined. No other significant changes from the 1991 map.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Vincente Street and Wawona Boulevard	1915	Minimal development shown; only one dwelling shown on 19th Avenue between Wawona Street and Sloat Boulevard. A school and possible dwellings are located on the east side of 18th Avenue between Wawona Street and Sloat Boulevard.	4640251.10_32	
	1928	Significant development of roadways has occurred, mainly to the east of 19th Avenue. A large residential development is present along 20th Avenue between Vincente Street and Wawona Street, as is a park, both of which are shown on the southern portion of the map detailing 19th Avenue between Taraval Street and Wawona Street.		
	1950	A large residential development is now present along 19th Avenue between Vincente Street and Wawona Street, as shown on the southern portion of the map detailing 19th Avenue between Taraval Street and Wawona Street. A club house and bowling green are located in the park to the southeast of 19th Avenue and Wawona Street.		
	1966	The Christian Science Benevolent Association on the Pacific Coast Home (currently known as Arden Wood) is on the southeast corner of 19th Avenue and Wawona Street. One additional dwelling and a storage shed are located just to the south. A natatorium (indoor swimming facility) is located on the northwest corner of 19th Avenue and Wawona Street.		
	1975	No notable changes are observed from the 1966 map.		
	1989	Open parking lots located east of 19th Avenue, south of the California Scottish Rite Memorial Temple. Stern Grove Court has been constructed and labeled as a private road. This overlaps with the northernmost portion of the map showing 19th Avenue and Sloat Boulevard, Map ID 4640251.10_1.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Ocean Avenue and Rossmoor Drive	1950	Significant development shown on the maps, mainly residential properties with some commercial use (shops/ offices). A church is located on the southwest corner of 19th Avenue and Eucalyptus Street. A paint business is located to the southeast of the intersection of Lagunitas Drive and Ocean Avenue.	4640251.10_50	1
	1966	Additional development has taken place on the south side of Eucalyptus Street, on both the east and west sides of 20th Avenue, including an auto dealer to the east and a YMCA gymnasium and auto repair business to the west. A bank and a medical office building (with underground parking structure), are located to the southeast of the intersection of Lagunitas Drive and Ocean Avenue. An upholstery business is located to the northeast of the intersection.		2
	1975	No notable changes are observed from the 1966 map.		
	1989	No notable changes are observed from the 1975 map.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		
19th Avenue between Rossmoor Drive and Winston Drive	1950	The northernmost portion of the map overlaps with the map which shows 19th Avenue between Sloat Boulevard and Rossmoor Drive. Some residential buildings are located to the east of 19th Avenue. The Temple Baptist Church is located northwest of 19th Avenue and Winston Drive.	4640251.10_59	
	1966	The auto repair/garage, auto dealer, and church are shown on the maps of 19th Avenue between Ocean Avenue and Rossmoor Drive (Map ID 4640251.10_50). On the west side of 20th Avenue, south of Buckingham Way, a shopping center has been constructed. Mercy High School is shown east of 19th Avenue between residential developments and Rossmoor Drive and Stonecrest Drive. Residential development has also expanded.		
	1975	Expansion of the shopping center and Mercy High School are shown on this map.		
	1989	Some buildings that were part of the shopping center are no longer shown, however there is an annotation indicating multiple commercial buildings in the area. Much of the text, particularly on the eastern portion of the maps, is illegible.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		

Table 1. Review/Findings of Sanborn Maps for the 19th Avenue Project (continued)

Description	Year	Comments	Sanborn Map ID Number	No. of Potential Environmental Concerns
19th Avenue between Winston Drive and Denslowe Drive	1950	In the southwest portion of the map (across 19th Avenue from Denslowe Drive), there are two heating plants, multiple laundry buildings, and a property labeled as containing transformers. A contractor's storage yard is at the intersection of 19th Avenue and Denslowe Drive. Minimal residential development shown on 19th Avenue, though some dwellings are present to the east (along Broadmoor Drive).	4640251.10_68	2
	1966	Substantial increase in housing development throughout the mapped area. The contractor storage yard has been converted to dwellings. Junipero Serra Park, with a clubhouse building, is located on Stonecrest Drive, adjacent to the former contractor storage yard. There is a San Francisco Public Library located at the southeast corner of 19th Avenue and Winston Drive. A service station is located north of Buckingham Way at the intersection with 19th Avenue; this area was formerly occupied by office buildings. The southern portion of the shopping center development is seen in the northwest portion of the map; this is an overlap of the maps of 19th Avenue between Eucalyptus Drive and Winston Drive. However, shops/restaurants are shown on the south side of Winston Drive, which were not previously observed.		
	1975	No notable changes are observed from the 1966 map.		
	1989	As with the maps of 19th Avenue between Eucalyptus Drive and Winston Drive, some buildings which are part of the shopping center are no longer shown. There is an annotation indicating multiple commercial buildings in the area.		
	1991	No notable changes are observed from the 1989 map.		
	1999	No notable changes are observed from the 1991 map.		
19th Avenue between Denslowe Drive and Holloway Avenue	1950	The majority of the eastern side of the maps shows dense residential development. The northern portion is overlapped from the maps showing 19th Avenue between Winston Drive and Denslowe Drive (Map ID 4640251.10_68).	4640251.10_77	
	1966	The only significant changes are the same as those described in the 1966 map of 19th Avenue between Winston Drive and Denslowe Drive (Map ID 4640251.10_68).		
	1975	School buildings are shown on the west side of 19th Avenue. These buildings are part of the current San Francisco State University.		
	1989	No notable changes are observed from the 1989 map.		
	1991	No notable changes are observed from the 1991 map.		

Table 2. Aerial Photograph Review for the 19th Avenue Project

Description	Year	Comments	Aerial Photograph ID Number
Lincoln Way to Vincente Street	1938	Aerial photograph shows primarily residential development that is already fairly dense. Some vacant lots to the west of 19th Avenue and park space to the east. Golden Gate Park is situated to the north of Lincoln Way.	4640251.5_3
	1946	Density of buildings has increased. Vacant lots appear to have been developed. Some park land and apparent school buildings located on and near 19th Avenue.	
	1956	Density of buildings has increased, particularly on the hillside to the east of 19th Avenue.	
	1968	Abraham Lincoln High School near 22nd Avenue and Quintara Street shows a track and athletic field. Able to discern the expansion of the hospital across Moraga Street as noted in the Sanborn maps.	
	1974	Map is of poor quality. Unable to discern if any appreciable changes have been made.	
Lincoln Way to Wawona Street	1982	Development of Sunset Reservoir clearly shown; development continues to expand.	4640251.5_2
Lincoln Way to Noriega Street	1993	No notable changes observed from the 1982 aerial photo.	
Noriega Street to Vincente Street	1993	No notable changes observed from the 1982 aerial photo.	
Lincoln Way to Vincente Street	1998	No notable changes observed from the 1993 aerial photos.	
Lincoln Way to Noriega Street	2009	No notable changes observed from the 1998 aerial photos.	

Table 2. Aerial Photograph Review for the 19th Avenue Project (continued)

Description	Year	Comments	Aerial Photograph ID Number
Noriega Street to Vincente Street	2009	Appears to be some construction at Abraham Lincoln High School. No other notable changes observed.	4640251.5_1
Lincoln Way to Noriega Street	2010	No notable changes observed from the 2009 aerial photo of the same area.	
Noriega Way to Vincente Street	2010	Construction at Abraham Lincoln High School appears to be complete. A new paved lot is present. A park located at the corner of 19th Avenue and Vincente Street appears to be redeveloped into a ball field. No other notable changes observed.	
Lincoln Way to Noriega Street		No notable changes observed from the 2012 aerial photo of the same area.	
Noriega Street to Vincente Street	2012	Only change of note appears to be the removal of storage containers/temporary buildings from the southern portion of the Abraham Lincoln High School property.	
Quintara Street to Junipero Serra Boulevard	1938	Northern/eastern portion of the photo shows moderate to high density residential development. The southwestern portion of the photo is largely undeveloped. Park land is bordered by Sloat Boulevard to the south and Wawona Street to the north. A surface water body is present in the eastern portion.	4640251.12_3
	1946	The southwestern portion of the map is largely undeveloped, west of Lake Merced Boulevard and between Eucalyptus Drive and Holloway Avenue. Substantial new development south of Holloway Avenue to the west of 19th Avenue including what appears to be an athletic track and the start of construction of San Francisco State University.	
	1956	The formerly undeveloped space between Eucalyptus Drive and Holloway Avenue is now fully developed with commercial spaces and buildings as part of San Francisco State University.	
	1968	Additional development as taken place near the intersection of the current Lake Merced Boulevard and Winston Drive. Development appears to be athletic fields and surface parking.	
	1974	No notable changes observed from the 1968 aerial photo of the same area.	
	1982	No notable changes observed from the 1974 aerial photo of the same area.	4640251.12_2
Quintara Street to Ocean Avenue	1993	No notable changes observed from the 1982 aerial photo of the same area.	
Sloat Boulevard to Holloway Avenue	1993	No notable changes observed from the 1982 aerial photo of the same area.	

Table 2. Aerial Photograph Review for the 19th Avenue Project (continued)

Description	Year	Comments	Aerial Photograph ID Number
Quintara Street to Ocean Avenue	1998	No notable changes observed from the 1993 aerial photo of the same area.	
Quintara Street to Ocean Avenue	2005	No notable changes observed from the 1998 aerial photo of the same area.	4640251.12_2
Sloat Boulevard to Holloway Avenue	2005	No notable changes observed from the 1998 aerial photo of the same area.	
Quintara Street to Ocean Avenue	2009	No notable changes observed from the 2005 aerial photo of the same area.	
Sloat Boulevard to Holloway Avenue	2009	No notable changes observed from the 2005 aerial photo of the same area.	4640251.12_1
Quintara Street to Ocean Avenue	2010	No notable changes observed from the 2010 aerial photo of the same area.	
Sloat Boulevard to Holloway Avenue	2010	No notable changes observed from the 2010 aerial photo of the same area.	
Quintara Street to Ocean Avenue	2012	No notable changes observed from the 2012 aerial photo of the same area.	
Sloat Boulevard to Holloway Avenue	2012	No notable changes observed from the 2012 aerial photo of the same area.	

3.3 Database Review

The following sections summarize the findings from a review of the SWRCB's GeoTracker and DTSC's Envirostor sites. Review of the Project Area was performed beginning at the intersection of Lincoln Way and 19th Avenue and progressing southbound to the intersection of Junipero Serra Boulevard and 19th Avenue. Sites located in the Project Area are summarized in the following sections.

3.3.1 GeoTracker Review

A review of the following GeoTracker databases was performed: leaking underground storage tank (LUST) sites, Cleanup Program Sites (formerly known as Spills, Leaks, Investigations, and Cleanup Sites), Military sites, and Land Disposal sites (Landfills). The review focused on sites in the Project Area, but also identifies sites at adjacent properties that may impact environmental conditions in the vicinity. The findings of the search are summarized below and identified on Figure 2.

- **Global ID T0607500285, 1200 19th Avenue** – Closed LUST site (2016) and active underground storage tank (UST) site. Consists of three gasoline USTs, a station building, and four fuel dispenser islands. A waste oil UST was removed in June 2006.
- **Global ID T0607500472, 1288 19th Avenue** – Closed LUST site (2014) and active UST site. Consists of three double-walled fiberglass gasoline USTs (replacing three single-walled USTs in 1994), two dispenser islands, and a convenience store. Product piping has been replaced twice since 1994. Used oil USTs and lube bays were removed to construct the convenience store in 2000.
- **Global ID T0607500430, 1401 19th Avenue** – Closed LUST site (2012) and active UST site. Currently consists of a station building with two auto service bays, two fuel dispenser islands, and four USTs (one 12,000-gallon, one 10,000-gallon, one 6,000-gallon gasoline UST, and one double-walled 1,000-gallon waste oil UST). A combination soil vapor extraction and ozone sparge system was activated in 2006 and shut-off in 2009.
- **Global ID T0607501334, 1500 19th Avenue** – Closed LUST site (2008). Three gasoline tanks and one waste oil tank were removed from the site in 1999, along with 1,100 gallons of fuel and tank residuals and 445 gallons of tank rinseate. Analytical data available on GeoTracker indicate residual concentrations of 1,200 parts per million of total petroleum hydrocarbons as gasoline and 2,000 parts per million of oil and grease, with minor concentrations of associated contaminants including benzene, toluene, ethylbenzene, xylenes, and diesel. The property still operates as an auto service station, indicating there may be USTs present on-site.
- **Global ID T0607501003, 1890 19th Avenue** – Closed LUST site (1998) and active UST site. GeoTracker indicates soil was impacted and excavated; no further details are available. Site currently operates as a fueling station, indicating there may be USTs present on-site.
- **Global ID T10000003361, 1199 Ortega Avenue** – Closed LUST site (2011). An 800-gallon waste oil tank was removed from the property along with 400 gallons of residual waste oil and water and 14.24 tons of soil prior to closure.

- **Global ID T0607501150, 2000 19th Avenue** – Closed LUST site (1999) and active UST site. Minor soil impacts of gasoline and gasoline additives; no action was required and the case was closed. Site currently operates as a fueling station with three active USTs.
- **Global ID T0607500318, 2298 19th Avenue** – Closed LUST site (2014). Former gas station consisting of three USTs, two fueling dispenser islands, and a station building. The USTs were removed in 1985; the property was sold for redevelopment for residential use beginning in 1996.
- **Global ID T0607501257, 2301 19th Avenue** – Closed LUST site (2007) and active UST site. On-site contamination was determined to be confined to groundwater as a result of the former upgradient Super 7 Gas Station. Currently operates as a gas station with three double-walled USTs and three dispenser islands.
- **Global ID T0607500389, 2399 19th Avenue** – Closed LUST site (1997) and active UST site. GeoTracker records indicate soil excavation occurred prior to closure proceedings. The site currently operates as a gas station with three USTs, two dispenser islands, and a station building.
- **Global ID T0607500083, 3451 19th Avenue** – Closed LUST site (2010). Three gasoline tanks and one waste oil tank and associated piping were removed in August 1987, along with 37 gallons of free product and unknown quantities of soil and groundwater. The property is now part of the parking lot for the Stonestown Galleria.
- **Global ID T0607500052, 1600 Holloway Avenue** – Closed LUST site (1994). No additional information is available from the sources used for this ESA.
- **Global ID T0607501223, 1600 Holloway Avenue** – Closed LUST site (1999). A single 1,000-gallon gasoline tank was removed in July 1998 along with the associated fuel dispenser island.
- **Global ID T0607524652, 1100 Junipero Serra Boulevard** – Open LUST site and active UST site. Active gasoline station consisting of three 10,000-gallon USTs, five dispenser islands, and a station building. The site is currently undergoing remediation by an on-site multi-phase extraction system.

3.3.2 Envirostor Review

A review of the following Envirostor databases was conducted: Federal Superfund, State Response, Voluntary Cleanup, School Cleanup, Evaluation, School Investigation, Military Evaluation, Tiered Permit, and Corrective Action sites. The review focused on sites within the project alignment, but also identifies sites at adjacent properties that may impact environmental conditions in the project area.

Only one site, located at 2350 19th Avenue (Envirostor ID 60000543), was identified in the target area. The property is currently under evaluation for development as a child care and senior citizen community center. The property has a history of automotive repair dating back to 1944, and it appears that a UST was removed in 2005. DTSC transferred oversight to SFDPH in 2003. It is unlikely that historical site activities on this property will impact project construction.

3.3.3 San Francisco Department of Public Health Review

Weiss obtained and reviewed records from the SFDPH on existing USTs⁷ and current and abandoned monitoring wells⁸ along the project work zone by completing a public information request. Some information provided in these records overlaps with information obtained through the GeoTracker review. Sites with monitoring wells and USTs are summarized below and identified on Figure 2.

3.3.3.1 Monitoring Well Locations

No existing wells were identified within the alignment footprint of the Project. Numerous properties adjacent to the 19th Avenue Project alignment have soil borings and monitoring wells outside of the alignment footprint, and monitoring wells associated with remediation systems installed within the property boundaries. For the purposes of this ESA, only monitoring wells formerly or currently located in the sidewalk, bus lane, parking strip, or roadway are listed. The following is a list of former monitoring wells, all of which have been destroyed, and were identified within the project alignment footprint (Figure 2):

- **1200 19th Avenue** – There are five destroyed monitoring wells associated with this address. Two former wells are located in the parking strip on the north side of Lincoln Way, two former wells are located in the parking strip on the western side of 19th Avenue, and one former well is located in the parking strip on the eastern side of 19th Avenue. Wells range in maximum depth from 45 to 50 feet bgs.
- **1401 19th Avenue** – This property has seven former monitoring wells and 10 former sparge and vapor extraction wells. Only two monitoring wells were located in or near the 19th Avenue Project work zone. One former well is located in the western parking strip just north of the 19th Avenue and Judah Street intersection. The other former well is located in the western parking strip just south of the 19th Avenue and Judah Street intersection. Wells range in maximum depths from 55 to 60 feet bgs.
- **2298 19th Avenue** – One former monitoring well located in the sidewalk on the north side of Santiago Street. The total depth of the destroyed well is 40 feet bgs.
- **2301 19th Avenue** – There are three destroyed monitoring wells associated with this address located in the 19th Avenue Project work zone. One well is located in the sidewalk on the north side of Santiago Street, one is located in the sidewalk on the east side of 19th Avenue between Santiago Street and Taraval Street, and one is located in the sidewalk on the west side of 19th Avenue between Santiago Street and Taraval Street. The wells range in maximum depths from 40 to 60 feet bgs.

⁷ SFDPH, 2016. Public records query for existing USTs along the 19th Avenue Project Alignment, accessed June 20.

⁸ SFDPH, 2016. Public records query monitoring wells along the 19th Avenue Project Alignment, accessed June 23.

3.3.3.2 UST Locations

No existing USTs were identified within the Project Alignment Footprint. Based on an SFDPH database query of sites located on 19th Avenue between Lincoln Way and Holloway Avenue, the following summary of current USTs within the Project Area was generated.

- **1200 19th Avenue** – Currently operates as a Shell gas station with three USTs.
- **1288 19th Avenue** – Currently operates as a Chevron gas station (No. 091000) with three USTs.
- **1400 19th Avenue** – Currently operates as 19th Avenue 76 Station #2 with three USTs.
- **1401 19th Avenue** – Currently operates as the 19th Avenue 76 Station with four USTs.
- **1515 19th Avenue** – SFDPH records indicate this address is a Pacific Bell/AT&T facility with one UST.
- **1890 19th Avenue** – Currently operates as a Chevron gas station (No. 095910) with four USTs.
- **2000 19th Avenue** – Currently operates as a Flyers gas station (No. 232) with three USTs.
- **2301 19th Avenue** – Currently operates as a Flyers gas station (No. 233) with three USTs.
- **2399 19th Avenue** – Currently operates as a Parkside Shell gas station with three USTs.

4. CONCLUSIONS AND RECOMMENDATIONS

This ESA reviews and identifies prior activities along the 19th Avenue Project and other properties on or near the proposed project site which suggest a potential for encountering soil and/or groundwater impacts that could affect project construction, particularly if construction activities involve soil excavation and/or dewatering activities. Historical industrial uses as determined from Sanborn maps, aerial photograph, GeoTracker, and Envirostor reviews (Appendix B) generate a reasonable expectation that hazardous substances may be present in the soil and/or groundwater at the site.

Weiss recommends that the SFPW prepare a work plan for the collection and analysis of soil samples to characterize potential subsurface contamination that may be encountered during construction of the 19th Avenue Project. Samples should be collected from borings advanced to the maximum depth of the proposed excavation and analyzed for the contaminants of concern listed in the Maher Ordinance, Section 22A.7(b).

In the event that groundwater is encountered in soil borings, groundwater samples should also be collected and analyzed in accordance with the Maher Ordinance. Based on the results of the evaluations and investigation, a site-specific health and safety plan and soil management plan may be warranted, and if required, would be recommended in the Phase II Environmental Assessment Report.



Figure 1. Site Vicinity, 19th Avenue Combined City Project, San Francisco, California

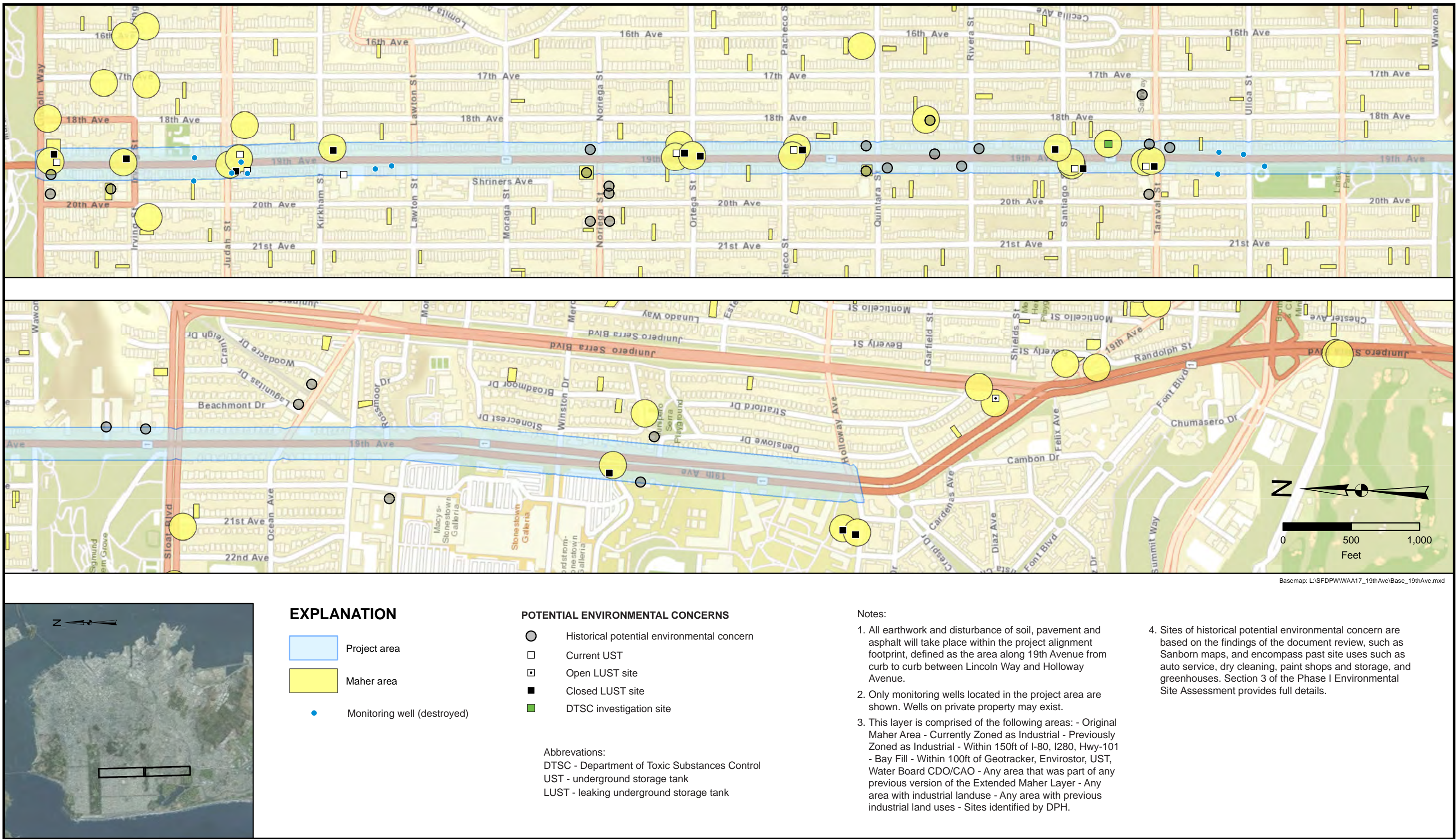


Figure 2. 19th Avenue Project Alignment with Potential Environmental Concerns, Current and Former Underground Storage Tanks, and Groundwater Monitoring Wells, 19th Avenue Combined City Project, San Francisco, California