

**Fremont State Street Center, LLC**

c/o SummerHill Homes LLC  
3000 Executive Parkway, Suite 450  
San Ramon, CA 94583

**RECEIVED**

By Alameda County Environmental Health 8:42 am, Apr 13, 2017

April 11, 2017

Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94502  
Attention: Mr. Mark Detterman, PG, CEG

**Subject: Vapor Mitigation System, Trench Dams and Trench Plugs Operations  
and Maintenance Plan  
39155 and 39183 State Street  
Fremont, California**

Dear Mr. Detterman:

Submitted herewith is the Vapor Mitigation System, Trench Dams and Trench Plugs Operations and Maintenance Plan in regards to our State Street project for your reference and use.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Very truly yours,



Katia Kamangar  
Executive Vice President



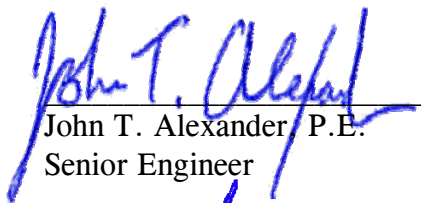
A Report Prepared for:

Fremont State Street Center, LLC  
Attention: Ms. Denise Cunningham  
3000 Executive Parkway, Suite 450  
San Ramon, California 94583

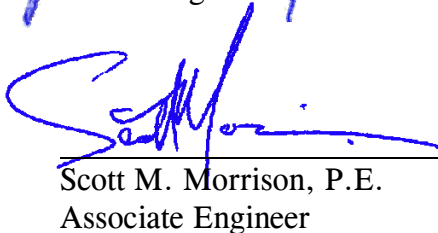
**VAPOR MITIGATION SYSTEM, TRENCH DAMS AND TRENCH PLUGS  
OPERATIONS AND MAINTENANCE PLAN  
STATE STREET CENTER  
FREMONT, CALIFORNIA**

**APRIL 11, 2017**

By:

  
John T. Alexander, P.E.  
Senior Engineer



  
Scott M. Morrison, P.E.  
Associate Engineer



**220.003.05.001**

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### DISTRIBUTION

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## 1.0 INTRODUCTION

This Operation and Maintenance (O&M) Plan has been prepared by PES Environmental, Inc. (PES) on behalf of Fremont State Street Center, LLC (FSSC), the current owner of this project, to describe O&M procedures for the vapor mitigation system (VMS) to be constructed at 39155 and 39183 State Street in Fremont, California (the subject property or site; Plate 1). The site is being redeveloped as a mixed use residential and retail project known as the State Street Center. A site plan showing the areas requiring vapor mitigation is presented as Plate 2. Alameda County Department of Environmental Health (ACDEH) is the lead environmental regulatory agency for this project. As such, ACDEH has authority to review, comment on, and approve VMS documents submitted by (or on behalf of) the owner. This O&M Plan has been prepared at the request of the ACDEH.

## 2.0 BACKGROUND INFORMATION

At a meeting on July 21, 2016 with ACDEH a request was made to summarize the work to-date, and to provide the basis for the selected remedy for the site to facilitate ACDEH approvals to begin construction. A Basis for Site Remedy memorandum (PES, 2016b) dated August 19, 2016, summarizes the case, provides the basis for the selected remedy, and addresses specific concerns raised by ACDEH staff at the meeting. The VMS and trench dam and trench plug plan design are presented in the following documents: (1) VMS Basis of Design Report (PES, 2016a); (2) Updated VMS Design Drawings and Specification (PES, 2016b); (3) VMS Design Drawings, 3rd Plan Check Response (PES, 2016c); (4) Basis for Site Remedy Memorandum (PES, 2016d); (5) Basis for Site Remedy Addendum Memorandum (PES, 2016e); (6) Basis for Site Remedy Revised Addendum Memorandum (PES, 2016f); and City Approved Trench Dam & Trench Plug Plan (RJA, 2016). The VMS design and trench dam and trench plug plan were approved by ACDEH on December 16, 2016 (ACDEH, 2016).

The VMS mitigates potential vapor intrusion risk from subsurface vapors entering the buildings through entry points (such as cracks, openings, or penetrations) in the building foundation, on-grade floor slab, and below grade elevator pits. The VMS is part of the design of Buildings 7, 8, 9, 10, 11 and 12 (residential on-grade townhomes located on the northern portion of the site) and at the elevator pits for Building A (a podium-style commercial retail/residential building with ventilated below-grade parking located near State Street). The VMS for the residential on-grade townhomes (Buildings 7, 8, 9, 10, 11 and 12) consists of a vapor barrier and passive vent system. The vapor barrier is directly beneath the concrete floor of these buildings. The passive vent system consists of subslab perforated vent lines installed in the gravel layer beneath the vapor barrier with vent risers that run from the subslab vent piping, through the building, and discharge at the roof. The vent risers have sample ports at the roof to allow for vent riser vapor sample collection. The VMS for Building A consists of a vapor barrier installed directly beneath the below grade parking elevator pits.

The building foundation system for the on-grade town homes consists of a post tension concrete slab foundation containing cables that are stressed to very high levels; therefore, any portion of the house slab, garage slab or porch are not to be removed or drilled as damage may result which could cause structural harm to the home. Drilling into the slab may cause serious injury and death. The wood-framed structure of the row-homes have bearing points throughout the walls and ceilings that are tied into beams, trusses, shear walls, etc., and ultimately attached to the building foundation; therefore, the removal or replacement of any wall section or roof portion is not to be undertaken as structural harm or collapse may result.

Additionally, trench dams will be installed in utility trenches that extend beneath the foundations of the Buildings 7, 8, 9, 10, 11 and 12 from areas outside the perimeter of the buildings. Trench dams function as a barrier to reduce the potential for gas migration to beneath the buildings along the utility. Trench plugs will be installed along the water, storm and sanitary sewer main lines near the intersection of Nation Avenue and State Street and near the intersection of Nation Avenue and Declaration Street to reduce the potential for migration of vapors along these main utility line corridors. The locations of these items are depicted on Plate 3.

### **3.0 OPERATION AND MAINTENANCE**

The VMS, trench dams, and trench plugs are intended to act as a long-term, passive approach to mitigating risks to indoor air and will be inspected and maintained. These systems do not require active operations or monitoring.

#### **3.1 Inspection and Maintenance Procedures**

The goal of the inspection and maintenance actions is to maintain the integrity of the VMS, trench dams, and trench plugs. Building and site conditions will be reviewed for any changes that may potentially impact the function of the VMS, trench dams, and trench plugs. The results of the inspection shall be documented (see attached Annual Inspection Log form) with the results of each annual inspection retained for submittal to ACDEH.

Annually, the owner, or its designee, will complete the following visual inspection and maintenance activities:

- Visual inspection of the ground surface condition within approximately 20 feet of the location of the subsurface trench plugs to assess whether site conditions have visibly changed in a way suggesting a potential impact to the functionality of the trench plugs, including evidence of significant settlement or subsurface disturbances, such as excavations or trenches;
- Visual inspection of the ground surface condition within approximately 10 feet of the exterior perimeter of the buildings to assess whether site conditions have changed in a way suggesting a potential impact to the functionality of the trench dams, including evidence of significant settlement or subsurface disturbance, such as excavations or trenches;

- Visual inspection of visible vent risers on the building exterior (including piping, system labels, sample ports and discharge caps) to assess for indications of system component degradation or unapproved modification; and
- Visual inspection of the vent riser discharge points at the roof to assess for indications of blockage, degradation, or unapproved modification.

If damage or other deleterious conditions of the subslab vapor barrier and passive vent system components are observed, the damaged component will be repaired or replaced to its original condition.

### **3.2 Vapor Mitigation System Repairs**

Breeches of the VMS shall be repaired in a timely manner under the direction of a qualified environmental professional. It is possible that penetrations of the ground floor slab may be required (e.g., for utility repairs, tenant improvements that involve sub-slab work, etc.). Prior to any repair or penetration of the VMS, the owner shall be responsible for informing any employee or contractor who will perform the repair or penetration of: (1) the existence of the VMS and provide a copy of this O&M Plan for review; (2) environmental conditions beneath the VMS; and (3) the need for worker health/safety considerations.

If a planned penetration of the ground floor slab is to occur, it is recommended that the owner retain a qualified environmental professional to prepare an action plan specific to the proposed penetrations and verify it is properly implemented. The action plan should include: provisions to collect data to verify that the work will not result in a health risk to building occupants; steps to protect the vapor barrier system, or (if it is to be breached) procedures to repair the barrier to its original condition in accordance with the design specifications; and, quality control procedures to verify the adequacy of any barrier repairs.

## **4.0 CONTINGENCY PLAN**

If information becomes available that indicates a possible failure of the VMS, the owner shall take the following actions. A qualified environmental professional should be retained to evaluate the information indicating a suspected vapor intrusion mitigation system failure. The environmental professional should be asked to prepare, and the owner should implement, an assessment plan to determine whether there is an actual failure of a mitigation system and whether there is an associated health risk concern. As recommended by the environmental professional in the assessment plan, additional information may be collected to ascertain the condition and functionality of the mitigation systems. Based on its evaluation of the data, the environmental professional should be asked to prepare, and the owner should implement, a corrections plan to remedy identified vapor intrusion problems.

## 5.0 REPORTING

Annually, the site owner or its designee will submit an annual inspection report to ACDEH within 60 days of the inspection. The report will include a summary of the visual observations made at the time of inspection, inspection photographs, and a description of any maintenance or repairs that were performed.

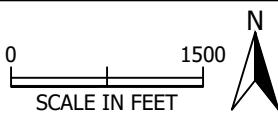
Every 5 years, the site owner of its designees will submit a five-year review report to ACDEH. The five-year review will describe the inspection and maintenance activities conducted over the past five years and include a review of the status and protectiveness of the VMS, trench dams, and trench plugs, and make recommendations, as appropriate. A copy of annual inspection reports for the prior 5-year period will also be included in the report. The five-year review report will be submitted to ACDEH within 90 days of the end of the 5-year review period.

## 6.0 REFERENCES

- ACDEH, 2016. *Approval of Vapor Mitigation Plans; Site Cleanup Program Case No. RO0003176 and Geotracker Global ID T10000007102, Fremont Plaza Shopping Center, 39155 and 39183 State Street, Fremont, CA 94538.* December 16.
- KTGY Group, Inc., 2016. *Building A Building Permit Plan Set (Revision 3), Approved by the City of Fremont Building and Inspection Division on July 1, 2016.*
- KTGY Group, Inc., 2016. *On-Grade Townhomes Building Permit Plan Set (Revision 3), Approved by the City of Fremont Building and Inspection Division on July 1, 2016.*
- PES, 2016a. *Vapor Mitigation System Basis of Design Report, State Street Center, Fremont, California.* March 24.
- PES, 2016b. *Updated Vapor Mitigation System Design Drawings and Specifications.* June 15.
- PES, 2016c. *Vapor Mitigation System (VMS), Locale @ State Street, On-Grade Townhomes, Fremont, California, Design Drawings, 3rd Plan Check Response Revision.* August 18.
- PES, 2016d. *Memorandum: Basis for Site Remedy, 39155 and 39183 State Street, Fremont, California.* August 19.
- PES, 2016e. *Memorandum: Basis for Site Remedy Addendum, 39155 and 39183 State Street, Fremont, California.* September 6.
- PES, 2016f. *Memorandum: Basis for Site Remedy Revised Addendum, 39155 and 39183 State Street, Fremont, California.* October 31.
- Ruggeri, Jensen, Azar (RJA), 2016. *Trench Dam & Trench Plug Plan, Approved by the City of Fremont Building and Inspection Division on November 10, 2016.*



## **ILLUSTRATIONS**



Aerial Photo: October 30, 2015 (Google 2016)



**PES Environmental, Inc.**  
Engineering & Environmental Services

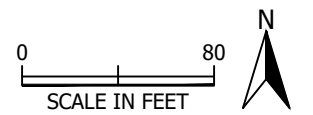
**Site Location**  
O&M Plan, VMS, Trench Dams and Trench Plugs  
State Street Center  
Fremont, California

PLATE  
**1**

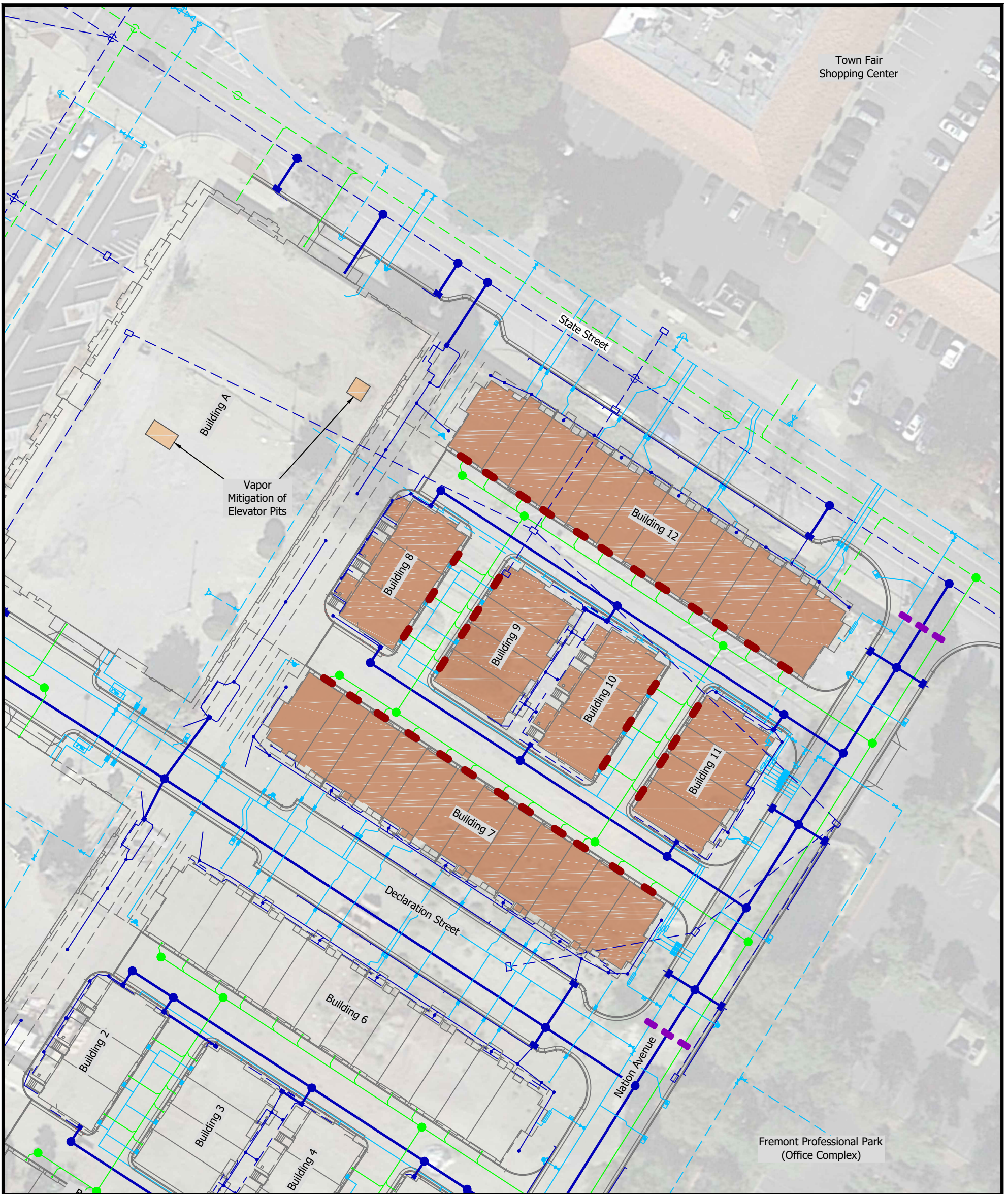


**Explanation**

- Proposed Development Plan
- Orange shaded area: Vapor Mitigation Areas for Slab-On-Grade Townhomes
- Light orange shaded area: Vapor Mitigation Areas for Below Grade Parking Elevator Pits



Aerial Photo: October 30, 2015 (Google 2016)



Town Fair Shopping Center

State Street

Building A

Vapor Mitigation of Elevator Pits

Building 8

Building 9

Building 10

Building 12

Building 11

Building 7

Declaration Street

Building 6

Building 2

Building 3

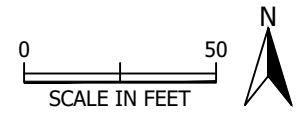
Building 4

Naton Avenue

Fremont Professional Park (Office Complex)

**Explanation**

- Proposed Development Plan
- - - Approximate Former Building Location
- Vapor Mitigation Areas for Slab-On-Grade Townhomes
- Vapor Mitigation Areas for Below Grade Parking Elevator Pits
- SS Sanitary Sewer Line
- Storm Drain Line
- Water Line
- Trench Dam
- Trench Plug



Aerial Photo: October 30, 2015 (Google 2016)

**APPENDIX**

**ANNUAL INSPECTION LOG FORM**

**ANNUAL INSPECTION LOG**  
**Vapor Mitigation System, Trench Dams, and Trench Plugs**  
**State Street Center**  
**Fremont, California**

Inspection of Building No: \_\_\_\_\_

Task No.	Inspection Task	Observations	Recommendations	Repair Date
1	<b>Building Interior:</b> Inspect the ground floor surface (leaving floor coverings intact) of the building interior for evidence of settlement, cracking, other damage to the floor slab, or unauthorized construction that penetrates the floor slab.			
2	<b>Building Perimeter &amp; Trench Dams:</b> Inspect the ground surface within approximately 10 feet of the building exterior for evidence of disturbance (such as excavation) or settlement.			
3	<b>Vent Risers:</b> Inspect exposed vent piping and vent piping on the roof for proper labeling and for evidence of degradation or unapproved modifications. Inspect vent riser discharge for evidence of blockage.			
4	<b>Trench Plug Locations:</b> Inspect the ground surface within approximately 20 feet of the trench plug locations for evidence of disturbance (such as excavation) or settlement.			
5	<b>Elevators:</b> Inspect elevator pits for concrete deterioration (cracks, holes, settlement, discoloration), unusual moisture, or unauthorized construction that penetrates floor or walls.			
6	<b>Other observations:</b> Provide description of other observations, as applicable.			

Name of Inspector: \_\_\_\_\_

Affiliation: \_\_\_\_\_

Signature of Inspector: \_\_\_\_\_

Inspection Date: \_\_\_\_\_

**DISTRIBUTION**

**VAPOR MITIGATION SYSTEM, TRENCH DAMS AND TRENCH PLUGS  
OPERATIONS AND MAINTENANCE PLAN  
STATE STREET CENTER  
FREMONT, CALIFORNIA**

**APRIL 11, 2017**

**COPY NO. \_\_\_\_\_**

		<u>Copy No.</u>
Email	Fremont State Street Center, LLC 3000 Executive Parkway, Suite 450 San Ramon, California 94583  Attention: Ms. Denise Cunningham	--
Email	Alameda County Environmental Health 1131 Harbor Bay Parkway Alameda, California 94502  Attention: Mr. Mark Detterman	--
3 Copies	PES Job Files	1 – 3
1 Copy	Unbound Original	4