

Fremont State Street Center, LLC

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

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July 25, 2017

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

**Transmittal
Vapor Mitigation System
Construction Completion Report
Building A
State Street Center
Fremont, California**

Dear Mr. Detterman:

Submitted herewith for your review is the *Vapor Mitigation System Construction Completion Report, Building A, State Street Center, Fremont, California* prepared by PES Environmental, Inc. dated July 25, 2017.

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.

Sincerely,

Summerhill Apartment Communities, Inc.



R. Bracken Richardson
Senior Vice President of Construction




A Report Prepared For:

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

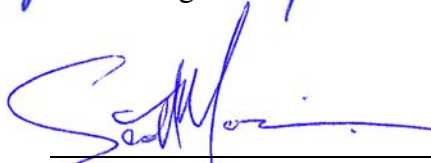
**VAPOR MITIGATION SYSTEM
CONSTRUCTION COMPLETION REPORT
BUILDING A
STATE STREET CENTER
FREMONT, CALIFORNIA**

JULY 25, 2017

By:



John T. Alexander, P.E.
Senior Engineer



Scott M. Morrison, P.E.
Associate Engineer



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DISTRIBUTION

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1.0 INTRODUCTION

This construction completion report has been prepared by PES Environmental, Inc. (PES) on behalf of Fremont State Street Center, LLC (FSSC), the current owner of this project, to document the vapor mitigation system (VMS) installation activities for Building A at the State Street Center in Fremont, California (the subject property or site; Plate 1). State Street Center is being redeveloped as a mixed use residential and retail project. A site plan showing the areas at the site requiring vapor mitigation is presented as Plate 2.

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). This report exclusively covers the installation of the VMS at Building A.

Alameda County Department of Environmental Health (ACDEH) is the lead agency for this project. As such, ACDEH has the authority to review, comment on, and approve VMS documents submitted by (or on behalf of) the owner. This report has been prepared at the request of ACDEH.

2.0 SCOPE OF WORK

The VMS design and trench dam and trench plug plan 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 (7) 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 for Building A consists of a vapor barrier installed directly beneath two below grade parking elevator pits. PES observed and documented that the VMS installation and quality control (QC) testing was conducted in accordance with the design and specifications.

3.0 CONSTRUCTION OBSERVATIONS

Construction observation, inspection, and testing services were performed during installation of the vapor barrier beneath the two below grade parking elevator pits in April 2017. The vapor barrier was installed by High End Development Inc. (High End) of Concord, California.

High End is an approved Geo-Seal applicator in good standing with Land Science Technologies, the manufacturer of the vapor barrier products.

Plates 3 and 4, attached to this report, show the final Building A vapor barrier configuration and cross sections of the two below grade parking elevator pits where the vapor barrier was installed. Photographs taken during observation and QC inspection of the VMS installation activities are provided in Appendix A.

3.1 Pre-Construction Meetings

Pre-construction meetings were convened on April 4, 2017 and April 11, 2017 at the subject property. The meetings were attended by: (1) PES engineer Mr. John Alexander, (2) representatives from SummerHill Apartment Communities (SummerHill), the general contractor, (3) SummerHill's subcontractor, RJS & Associates (RJS), and SummerHill's subcontractor High End (during the April 11, 2017 meeting only). The meeting topics consisted of subgrade and concrete forms preparation, installation schedule, methods for vapor barrier installation and sealing various penetrations.

3.2 Subgrade Preparation

Subgrade preparation included:

- Excavation of the elevator pit and footing areas to the appropriate depths and dimensions; and
- Smoothing and compaction of the soil surfaces in preparation for the vapor barrier installation and concrete pouring.

3.3 Base Layer and Spray-Applied Membrane Layer Installation

PES visually observed and documented the installation of the base layer (Geo-Seal BASE) and the spray-applied membrane layer (Geo-Seal CORE) by High End between April 11 and 21, 2017 at Building A as follows:

- An inventory of Geo-Seal materials used during application activities was conducted to verify consistency with the design documents and determined to be acceptable for use;
- High End overlapped adjacent sections of the Geo-Seal BASE layer by approximately 12 inches and confirmed proper coverage at pipe penetrations, in accordance with the intent and requirements of the design;
- Prior to installation, the weather conditions were confirmed to be appropriate for the spray application of Geo-Seal CORE;

- High End used the application equipment (i.e., pump, spray wands, and spray tips) and techniques recommended by Land Science;
- High End applied the Geo-Seal CORE per design requirements at Geo-Seal BASE layer seams and all subslab conduit penetrations within the elevator pits. In addition, High End applied Geo-Seal collars with cable ties to seal pipe penetrations through the membrane; and
- The Geo-Seal CORE layer was confirmed to have been applied consistent with design requirements and the manufacturer's recommendations.

3.4 Quality Control Measurements and Testing

Quality control tests of the membrane thickness and integrity were performed during installation of the base and spray-applied membrane layers in accordance with the design documents and manufacture's recommendations as follows:

- PES cut eight square testing coupons at each elevator pit footing area (each approximately 2 square inches), approximately at least one coupon per 200 square feet of vapor barrier surface. The thickness of each coupon was measured on all four sides using a digital caliper. Each membrane coupon sample was required to be at least 80 mils (0.080 inches) on each side (includes the Geo-Seal BASE and CORE layers thickness) to meet design requirements. All coupons were measured to be at least 80 mils to meet the acceptable vapor barrier membrane thickness; and
- Each coupon sample cut-out was immediately repaired by High End with a Geo-Seal BASE patch tacked to the membrane and Geo-Seal CORE applied to the patch and surrounding area. Coupon sampling and subsequent repairs were performed in accordance with the design requirements and the manufacturer's recommendations.

3.5 Post-Testing Observations

High End placed a protection layer (Geo-Seal BOND) over the vapor barrier membrane immediately following successful completion of quality assurance testing in accordance with the design plans. The purpose of this upper protection layer was to reduce the potential for inadvertent penetration of the vapor barrier membrane during rebar placement and installation related to the concrete elevator pit footings.

3.6 Post-Construction Observations

After installation of the vapor barrier system at the two Building A elevator pits was completed and approved by the project engineer, SummerHill (or its subcontractor) began assembly of the rebar frame for the elevator pit footings. PES' onsite engineer held vapor barrier membrane awareness discussions with SummerHill and its rebar installation subcontractor before the start of the rebar frame work. Topics during the vapor barrier awareness discussion included:

- All rebar cuts to be made outside the vapor barrier footprint and rebar to be cooled down (water can be used) before bringing onto the vapor barrier surface;
- No dropping or dragging rebar;
- Minimum two men when carrying large rebar;
- Remove rocks and debris from shoes before entering vapor barrier footprint;
- No smoking; and
- If barrier is damaged, mark and inform project engineer.

PES conducted spot checks of the vapor barrier during rebar placement and following removal of concrete footing formwork between April 14 and 21, 2017. No damage to the vapor barrier was identified.

4.0 CONSTRUCTION DOCUMENTATION

As described above, the attached drawings depict the as-built configuration of the vapor barrier systems at the two elevator pits. Photographic documentation of installation and quality assurance testing activities is presented in Appendix A.

5.0 ANNUAL INSPECTION RECOMMENDATIONS

Annual visual inspections of the Building A elevator pits by the property owner, or its designee, in accordance with the Operations and Maintenance (O&M) Plan (PES, 2017) is recommended to document the continued integrity of the vapor barrier system. During the annual inspection, the two elevator pits should be inspected for concrete deterioration (i.e., cracks, holes, settlement, discoloration), unusual moisture, or unauthorized construction that penetrates the elevator pit walls or surrounding floors.

If damage or other deleterious conditions of the subslab vapor barrier system are observed, the damaged component should be repaired or replaced to original condition.

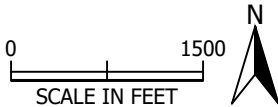
6.0 SUMMARY AND CONCLUSIONS

PES observed and documented the installation of the subslab vapor barrier systems associated with the two elevator pits at Building A at the subject property. The quality control observations and measurements of installed vapor barrier thickness were performed in accordance with the design specifications and manufacture's recommendations. Based on these observations and as described herein, installation of the subslab vapor barrier system at Building A was completed consistent with the design plans and specifications.

7.0 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.
- 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.
- PES, 2017. *Vapor Mitigation System, Trench Dams and Trench Plugs Operations and Maintenance Plan, State Street Center, Fremont, California.* April 11.
- Ruggeri, Jensen, Azar (RJ), 2016. *Trench Dam & Trench Plug Plan, Approved by the City of Fremont Building and Inspection Division on November 10, 2016.*

ILLUSTRATIONS



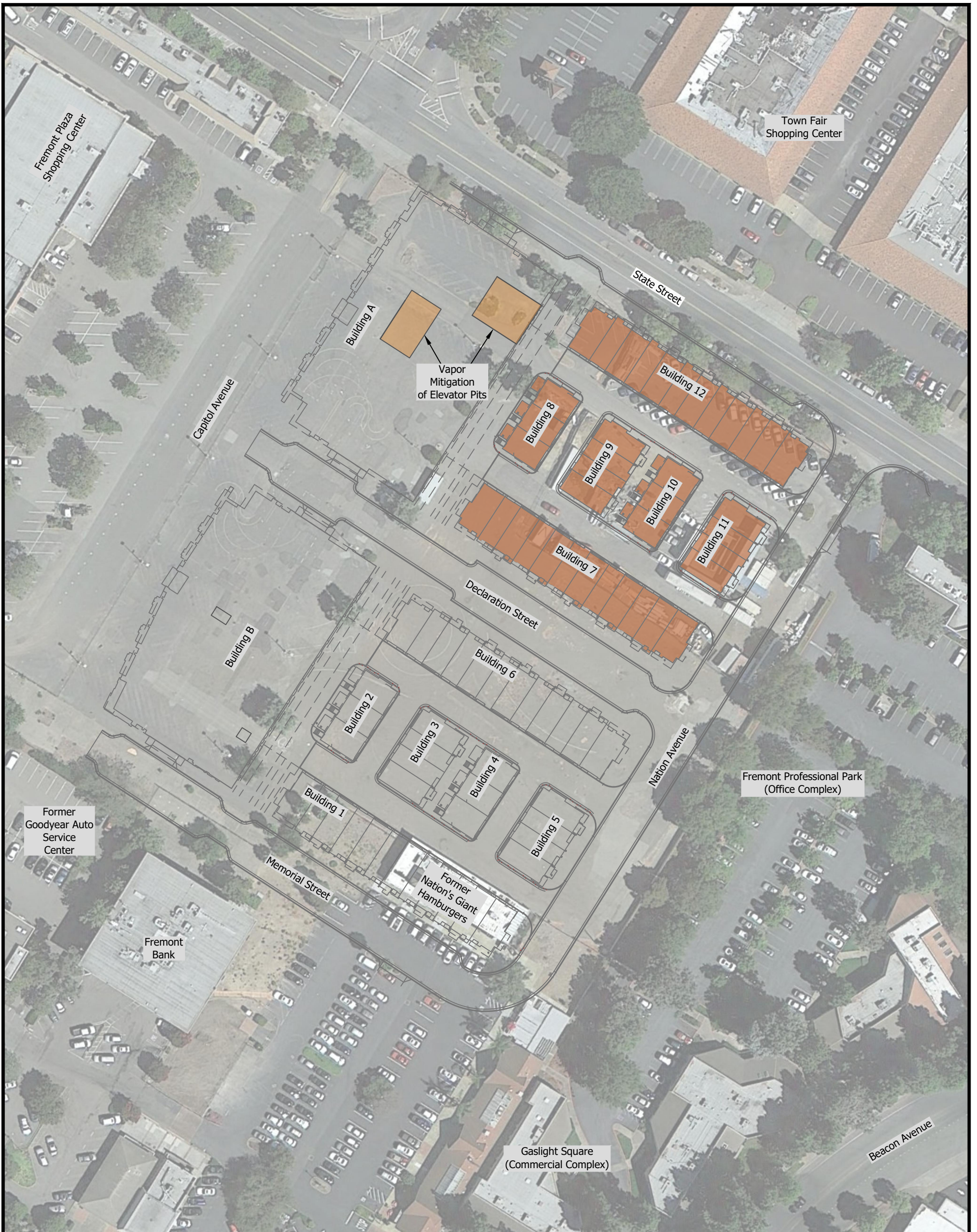
Aerial Photo: October 30, 2015 (Google 2016)



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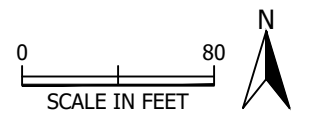
Site Location
State Street Center
Fremont, California

PLATE
1

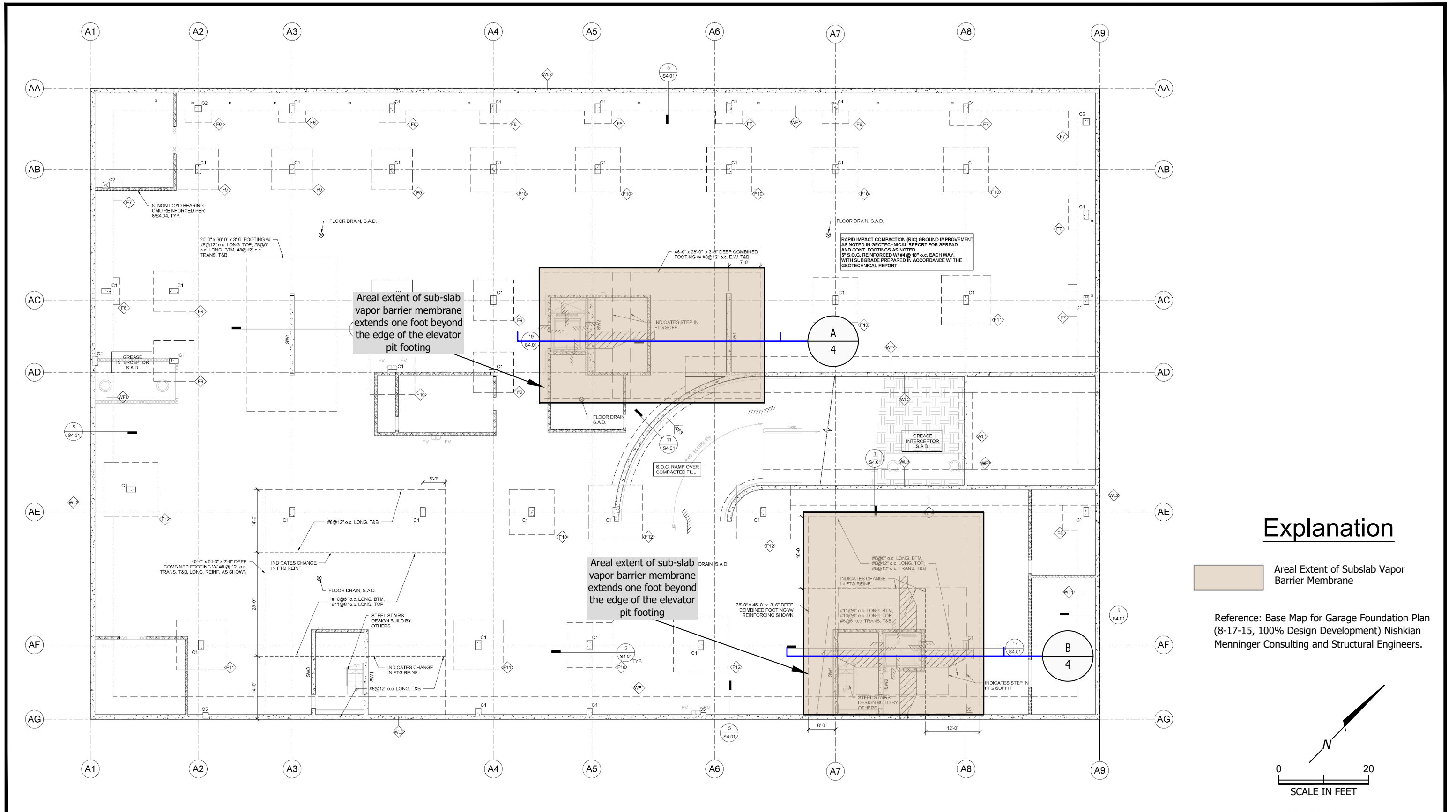


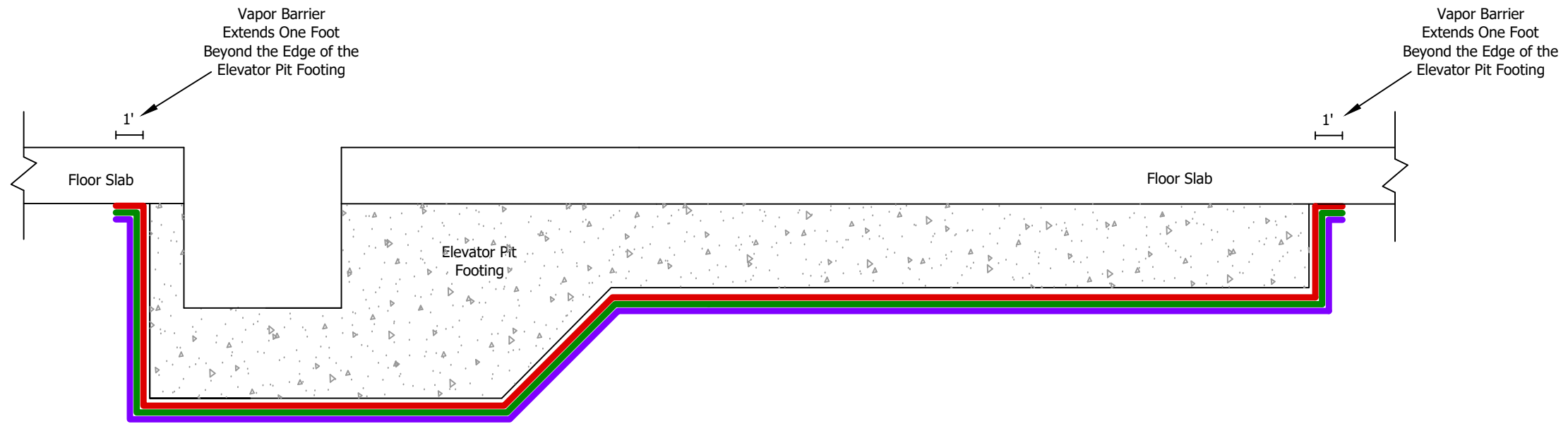
Explanation

- Proposed Development Plan
- Vapor Mitigation Areas for Slab-On-Grade Townhomes
- Vapor Mitigation Areas for Below Grade Parking Elevator Pits

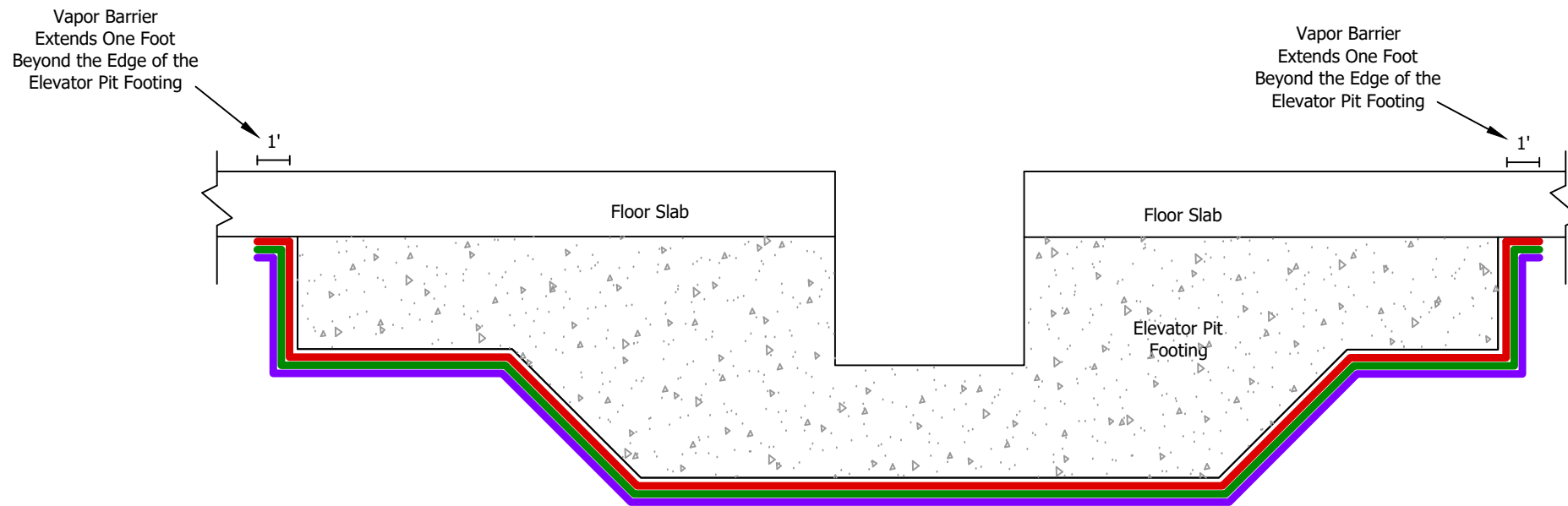


Aerial Photo: October 30, 2015 (Google 2016)





A Cross Section A - Vapor Barrier at Elevator Pit
 (Not to Scale)



B Cross Section B - Vapor Barrier at Elevator Pit
 (Not to Scale)

Explanation

- Protection Layer = Geo-Seal BOND Layer
- Spray-Applied Membrane Layer = Geo-Seal CORE Spray
- Base Layer = Geo-Seal BASE Layer

APPENDIX A

**PHOTOGRAPHIC DOCUMENTATION OF VMS INSTALLATION
AND QC INSPECTIONS**



Photo 1.
Land Science Geo-Seal CORE Spray product label. Photograph taken on April 10, 2017.



Photo 2.
Land Science Geo-Seal BASE Layer product label. Photograph taken on April 11, 2017.



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Site Photographs
Vapor Mitigation System, Construction
Completion Report, Building A
State Street Center
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PLATE

A-1

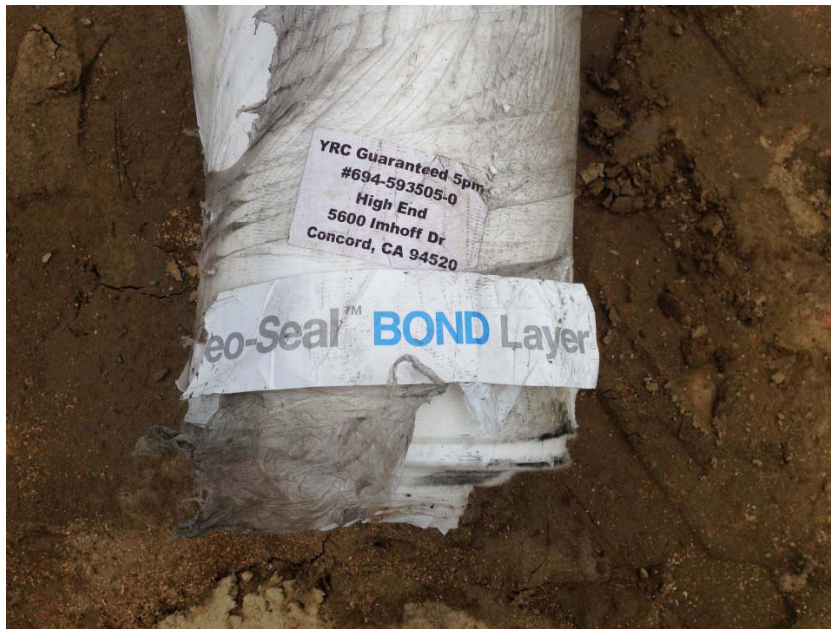


Photo 1.
Land Science Geo-Seal BOND Layer product label. Photograph taken on April 11, 2017.



Photo 2.
Excavation of the northeastern elevator pit footing area of Building A prior to the placement of the Geo-Seal BASE Layer fabric. Photograph taken on April 12, 2017.



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Site Photographs

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PLATE

A-2

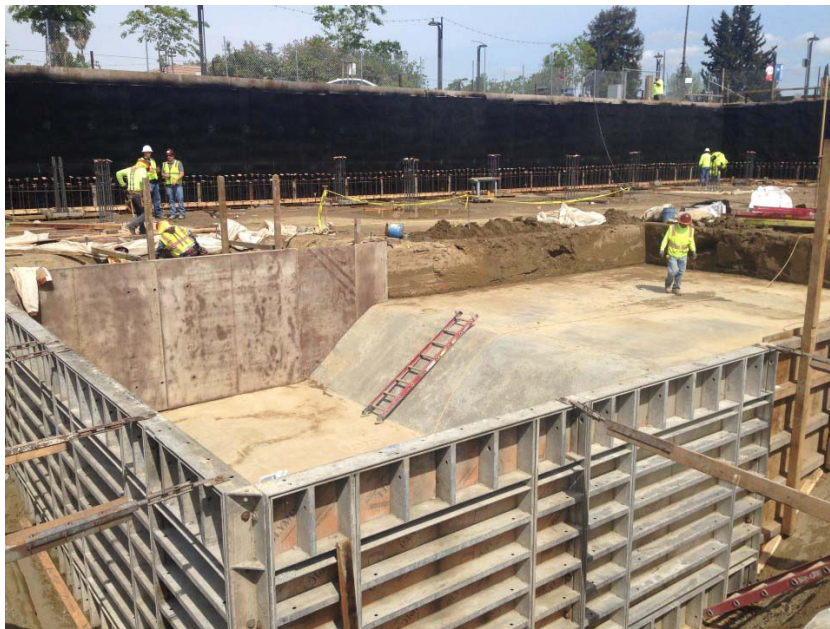


Photo 1.
Preparation of the subsurface area prior to the placement of the Geo-Seal BASE Layer fabric at the southwestern elevator pit footing of Building A. Photograph taken on April 10, 2017.



Photo 2.
Beginning of the installation of the Geo-Seal BASE Layer fabric at the southwestern elevator pit footing of Building A. Photograph taken on April 11, 2017



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Site Photographs
Vapor Mitigation System, Construction
Completion Report, Building A
State Street Center
Fremont, California

PLATE

A-3



Photo 1.
Installation of the Geo-Seal BASE Layer fabric and spray application of the Geo-Seal CORE Spray at the southwestern elevator pit footing of Building A. Photograph taken on April 12, 2017.



Photo 2.
Spray application of the Geo-Seal CORE Spray at the southwestern elevator pit footing of Building A. Photograph taken on April 10, 2017.
Photograph taken on April 12, 2017.



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Site Photographs

Vapor Mitigation System, Construction
Completion Report, Building A
State Street Center
Fremont, California

PLATE

A-4



Photo 1.
Typical termination of the vapor barrier fabric, extending one foot or more beyond the edge of the elevator pit footing. Installation of the Geo-Seal BOND Layer fabric on top of the cured Geo-Seal CORE Spray at the southwestern elevator pit footing of Building A. Photograph taken on April 12, 2017.



Photo 2.
Installation of the Geo-Seal BOND Layer fabric on top of the cured Geo-Seal CORE Spray at the southwestern elevator pit footing of Building A. Photograph taken on April 12, 2017.



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Vapor Mitigation System, Construction
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PLATE

A-5



Photo 1.
Installation of the Geo-Seal BOND Layer fabric on top of the cured Geo-Seal CORE Spray at the northeastern elevator pit footing of Building A. Photograph taken on April 14, 2017.



Photo 2.
Installation of the Geo-Seal BOND Layer fabric on top of the cured Geo-Seal CORE Spray at the northeastern elevator pit footing of Building A. Photograph taken on April 14, 2017.



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Site Photographs

Vapor Mitigation System, Construction
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PLATE

A-6



Photo 1.
Installation of rebar at the southwestern elevator pit footing of Building A during follow up inspection to check for any penetrations. Photograph taken on April 14, 2017.



Photo 2.
Installation of rebar at the northeastern elevator pit footing of Building A during follow up inspection to check for any penetrations. Two plumbing penetrations can be seen at the upper left of the photograph. Photograph taken on April 20, 2017.



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Site Photographs

Vapor Mitigation System, Construction
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State Street Center
Fremont, California

PLATE

A-7



Photo 1.
A plumbing penetration of the vapor barrier at the northeastern elevator pit footing of Building A. Photograph taken on April 20, 2017.



Photo 2.
Repair of a plumbing penetration of the vapor barrier at the northeastern elevator pit footing of Building A. Photograph taken on April 21, 2017.



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Site Photographs

Vapor Mitigation System, Construction
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PLATE

A-8



Photo 1.
Repair of a plumbing penetration of the vapor barrier at the northeastern elevator pit footing of Building A. Photograph taken on April 21, 2017.



Photo 2.
Repair and addition to the vapor barrier at a plumbing penetration at the northeastern elevator pit footing of Building A. Photograph taken on April 21, 2017.



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Vapor Mitigation System, Construction
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PLATE

A-9

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CONSTRUCTION COMPLETION REPORT
BUILDING A
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FREMONT, CALIFORNIA**

JULY 25, 2017

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