DRAFT NOA CAP OPERATIONS AND MAINTENANCE PLAN LAUREL SCHOOL UPPER CAMPUS 275 ELLIOTT DRIVE MENLO PARK, CALIFORNIA 94025

Prepared for

Menlo Park City District 181 Encinal Ave. Atherton, California, 94025

Prepared by

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January 22, 2015

Project Number 0084.001.001



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ACRONYMS AND ABBREVIATIONS

BAAG	Bay Area Geotechnical Group
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
C&T	Curtis & Tompkins Laboratories
Cal-EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CDE	California Department of Education
CHHSLS	California Human Health Screening Levels
COCs	constituents of concern
COPCs	constituents of potential concern
DOT	United States Department of Transportation
DTSC	California Environmental Protection Agency, Department of Toxic
	Substances Control
EPA	United States Environmental Protection Agency
ESLs	Environmental Screening Levels
HHRA	Human Health Risk Assessment
HASP	Health and Safety Plan
NOA	naturally-occurring asbestos
OCPs	organochlorine pesticides
OEHHA	Office of Ecological and Human Health Assessment
0&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PEA	Preliminary Environmental Assessment
QA/QC	quality assurance/quality control
RSL	Regional Screening Level
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SOP	Standard Operating Procedure
TEM	Transmission Electron Microscopy
U.S. EPA	United States Environmental Protection Agency

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1.0 OPERATIONS & MAINTENANCE OVERVIEW

1.1 Introduction

This draft version of the Operations and Maintenance (O&M) Plan was prepared for a cap remedy for Naturally-Occurring Asbestos (NOA) at the Laurel School Upper Campus located at 275 Elliott Drive, Menlo Park, San Mateo County, California (the "Site"); see Figure 1 (Site Location Map), Figure 2 (Site Plan Map) and Appendix C-A (Legal Description and Assessor's Parcel Map).

This draft O&M Plan has been prepared for review by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). The school and the cap discussed herein have not yet been constructed; all subsequent references to it herein are prospective.

The O&M Plan has been prepared on behalf of the Menlo Park City District (the "District"). It presents the policies and procedures of the District for long-term operation, maintenance and monitoring of engineering controls and management of base rock containing NOA for the Site.

Unacceptable concentrations of NOA were identified in base rock at the Site (Terraphase 2015). As a result, engineering controls in the form of a cap were placed over the NOAimpacted base rock to create barriers, preventing or greatly reducing exposures of students, faculty and staff at the facility to NOA. Long-term remedy O&M activities are required to monitor and protect the cap. Accordingly, the District and DTSC entered into an Agreement which required the District to complete cleanup activities and to implement an O&M Plan under DTSC oversight. NOA intrusive activities, as defined in Section 7, are prohibited at the Site unless conducted in accordance with applicable provisions of this O&M Plan.

This O&M Plan was implemented upon completion of NOA mitigation. Response actions and long- term O&M activities will continue to be conducted under DTSC oversight, as required under the California Education Code (CEC), §17213.1 and §17213.2, and Health and Safety Code (H&SC), Division 20, Chapter 6.8, commencing with § 25300 et. seq. The final O&M Plan, as modified and/or approved by DTSC, will remain in effect until DTSC has released the District in writing from the required O&M Plan, as specified in Section 10.3.

1.2 O&M Plan Goal and Objectives

The primary goal of the O&M Plan is to prevent uncontrolled NOA exposures and to protect the health of students, faculty, staff, O&M personnel, and visitors at the Site. To accomplish this goal, the O&M Plan will address the following objectives:

• to minimize disturbances of NOA-impacted base rock

- to describe the mitigation remedy, including installed cap systems
- to establish an inspection and monitoring program
- to identify areas of exposed NOA-containing base rock or damaged cap systems, and evaluate ongoing remedy effectiveness
- to provide for timely repair or replacement needed to restore damaged cap systems
- to train O&M inspectors, and other staff as needed, in personal health and safety protection and proper methods of inspection and repair of cap systems
- to provide for record-keeping of inspections and repairs, and reporting to DTSC
- to make O&M Plan available for public review, with copies maintained at the Site and the District office

1.3 Naturally-Occurring Asbestos (NOA) Hazard Summary

Asbestos is the common name for a series of naturally-occurring iron-magnesium-silicate minerals. Six asbestos minerals are currently referenced in state regulations; see Title 22 California Code of Regulations (CCR), § 66261.24(a)(2) and Appendix X to Chapter 11, Title 22, Division 4.5, CCR. These six minerals are classified in two different groups based on their fiber characteristics: a) chrysotile belongs to the "serpentine" mineral group; b) the remaining regulated asbestos minerals (amosite, crocidolite, actinolite, anthophyllite and tremolite) belong to the "amphibole" mineral group. All regulated forms of asbestos are considered hazardous, and classified as known human carcinogens by state, federal, and international agencies. As defined in H&SC §25316 and §25260 respectively, asbestos is both a hazardous substance and a hazardous material.

Human health effects of asbestos are dependent primarily upon exposure to airborne asbestos fibers, which can be inhaled deeply into lungs. Exposure to asbestos through inhalation can result in health impacts, including respiratory disease (asbestosis, a noncancerous fibrosis of the lungs) and lung cancer (mesothelioma, cancer of the lung lining). Breathing of asbestos dust has been related to scarring of lung tissue (asbestosis). In addition, asbestos and tobacco smoke have a strong interactive synergism, which can produce even higher incidences of lung cancer. The longer a person is exposed to asbestos, and the greater the intensity of exposure, the greater the chances for development of health problems.

1.4 O&M Personnel Roles and Responsibilities

The District will employ and designate the following key O&M personnel associated with implementation of the O&M Plan at the Site: NOA Coordinator; O&M Professional; and Site

Designee. The District will retain a qualified professional to conduct inspection training and a Competent Person (see Sections 4.2 and 7.4) to conduct asbestos awareness training. When necessary, the District will employ qualified contractors who will follow the Standard Operating Procedure (SOP) or a DTSC-approved revised SOP (as described in Section 7.3) to perform NOA intrusive work impacting the installed cap systems at the Site. Please see Appendix C-B, Matrix identifying O&M personnel roles and responsibilities. The District will notify DTSC within 14 days of any changes in the names, addresses, or telephone numbers for the key O&M personnel.

1.4.1 NOA Coordinator

Ahmad Sheikholeslami Chief Business and Operations Officer Menlo Park City District 181 Encinal Ave - Atherton CA - 94027 Office: 650-321-7140 ext 5614 Mobile: 650-303-6230 asheikholeslami@mpcsd.org

The responsibilities of the NOA Coordinator are to:

- implement the O&M Plan
- be familiar with site conditions and cap systems installed at the Site
- evaluate work orders to determine if work is NOA-intrusive
- oversee implementation of a DTSC-approved SOP for NOA-intrusive work
- receive and submit all notices, comments, documents, reports, approvals, decisions and other communications to and from DTSC on behalf of the District for the Site
- identify and oversee provision of inspection training and asbestos awareness training
- accompany O&M Professional during annual inspections
- submit O&M Plan and all subsequent reports, including Annual Inspection Summary Reports, Five Year Review Reports, and NOA Intrusive Work Completion/Incident Reports
- ensure that issues pertaining to O&M are brought to the attention of the District's Board as appropriate, including requests for ongoing appropriations of funds and notification in the event that any exposures of NOA occur at the Site

1.4.2 O&M Professional

Jeff Raines, P.E. (C51120) G.E. (2762) Principal Geotechnical Engineer Terraphase Engineering Inc. 1404 Franklin Street, 6th Floor Oakland, California 94612 510-645-1853 (direct) 510-507-3086 (cell) Jeff.Raines@terraphase.com

Pursuant to Business and Professions Code, Chapters 7 and 12.5, and the California Code of Regulations, Title 16, Chapters 5 and 29, the O&M Professional is a California-registered professional civil and geotechnical engineer with expertise in NOA investigation and remediation, e.g., engineer or geologist, who is familiar with the cap systems installed at the Site. The O&M Professional has additional expertise and experience with slope stability. To demonstrate expertise in NOA investigation and remediation, the resume of the O&M Professional, and the statement of qualifications of the consulting firm responsible for his/her work are included as Appendix C-C.

The responsibilities of the O&M Professional are to:

- conduct annual inspections (including five-year reviews)
- prepare and sign Annual Inspection Summary Reports and Five-Year Review Reports
- other environmental professional work related to NOA matters at the Site

1.4.3 Site Designee(s)

The School Principal has not yet been named Laurel School Upper Campus 275 Elliott Drive Menlo Park, California 94025 Telephone Number (Desk and Cellular) Facsimile Number E-Mail Address]

The responsibilities of the Site Designee(s) are to:

- ensure that all school staff with O&M roles have received appropriate training and direction
- ensure that activities which may potentially disturb NOA-impacted base rock will not be conducted at the Site without the knowledge and approval of the NOA Coordinator
- provide as necessary information to staff and parents concerning any releases of NOA at the Site

1.5 O&M Cost Estimate

O&M care began upon completion of remedy installation and, for the purpose of cost estimating, may continue for at least 30 years after that date. The routine annual O&M costs are estimated in current dollars in Table 1 below:

Table 1Annual O&M Cost EstimateLaurel School Upper Campus275 Elliott Drive, Menlo Park, California

Item	Hours / year	Hourly rate	Annual Cost
Training	6	\$170	\$1,020
Scheduled Inspections (by school staff)	8	\$60	\$ 480
Annual Inspection (by consultant)	4	\$170	\$ 680
Report Preparation (by consultant}	20	\$170	\$3,400
DTSC Oversight	12.5	\$181	\$2,262
Projected Costs (periodic repairs and maintenance)			0
Total Annual O&M Co	\$7,842		

Notes: DTSC costs based on 2014 rates for an Engineering Geologist. Some maintenance will likely be required every year, but maintaining the soccer field would occur whether the NOA-impacted base rock was consolidated under it or not, so the base rock does not increase school maintenance costs.

2.0 SITE DESCRIPTION

2.1 Location/Owner

The Site is located at 275 Elliot Drive, Menlo Park, San Mateo County, California 94025, approximately 2.1 miles northwest of downtown Palo Alto, California and about 2 miles southwest of the San Francisco Bay. The Site is located in an area of predominantly residential use and is surrounded by houses and subdivisions. The Site is located in the vicinity of the following prominent features:

- the Bayshore Freeway is located approximately 0.21 miles to the northeast
- the San Francisquito Creek is located approximately 0.16 miles to the south
- The O'Connor Tract Co-Op Water Company approximately 250 feet to the southwest

The Site is approximately 5.9 acres in area. The San Mateo County Assessor's Parcel Number for the Site is 063-430-310. The geographic coordinates of the site are 122.148° west, 37.460° north. The Site is owned by the Menlo Park City District.

2.2 Geology/Topography

The Site is flat, with an elevation that varies between 39 and 30 feet above mean sea level (North American Vertical Datum of 1988) sloping to the east northeast at about 1%. A geotechnical investigation of the Site was conducted by the Bay Area Geotechnical Group (BAGG 2014). BAGG found:

...the presence of inter-layered and inter-fingered deposits of gravels, sand, silt, and clay, and their mixtures, typical of alluvial deposits. The soil boring drilled at the site indicate the presence of stiff to very stiff lean clays and sandy lean clays in load bearing zones for the proposed buildings with the exception of Boring B-7 which revealed the presence of medium dense clayey sand with gravel between 8 to 11 feet bgs. Based on the results of the Atterberg Limits tests performed on the near surface soil samples, the near surface soils were judged to be moderately plastic.... With the exception of Boring B-7, only the deeper borings (B1 and B2) revealed the presence of granular soil deposits. Boring B-1 revealed the presence of loose to medium dense clayey sand between 23 to 25½ feet bgs, medium dense sandy gravel between 36½ to 39 feet, medium dense silty sand between 39 to 42 feet, medium dense clayey sand between 42 to 44½ feet and medium dense silty sand between 47 to 49 feet followed by very dense sandy gravel to the maximum depth of drilling. Boring B-2 revealed the presence of medium dense, well-graded sand between 40 to 44½ feet bgs.Free groundwater was encountered at approximately 23 feet bgs in the soil borings drilled at the site. As indicated earlier, the Seismic Hazard Zone Report for Palo Alto Quadrangle indicates the depth to historical high groundwater at the site to be between 10 to 20 feet below ground surface.

The nearest surface water bodies are the San Francisquito Creek located approximately 800 feet south of the Site and the San Francisco Bay located approximately 1.84 miles northeast of the Site. Two municipal water supply wells and an above ground water tank (owned and operated by the O'Connor Tract Water Coop) are located approximately 250 feet southwest of the Site.

2.3 Historical Site Use

The site was likely used as farmland from the early 1900s until 1961 (Terraphase 2014). The 1961 topographic map shows that O'Connor School has been built on the site. The 1968, 1974, and 1982 aerial photographs are blurry but it appears for this time period, the main building was the only structure and the rest of the land was used for playgrounds or fields for the school. According to the City Directory (EDR 2013d), the Site was occupied by the Charles Armstrong school from 1977 until 1985, when no owner is listed for the Site. In 1990, the Site is listed as the Cancer Support and Education Center, and from 1995 until the present, the German American School is listed as the occupant.

The Site was most recently used as the German American International School a primary and secondary (kindergarten through 8th grade) school (Terraphase 2014). The property contained two larger play areas, and one smaller play area with a mixture of grass, pavement, and wood chip mulch as the ground covering. The property also contained two lunch areas which are paved, a tennis court, basketball/volleyball court, and a baseball/soccer field. There was one main building used for administration and the preschool with multiple other smaller buildings that were used for higher level classrooms. There were several large metal containers on the site used for storage of school supplies, desks, chairs, sports equipment, etc. A small animal pen was observed during the site visit for housing a few guinea pigs. There was also an area where small raised vegetable planting boxes. With the exception of the parking lot, the entire area was fenced in for the school.

2.4 Current Site Use

The Site is currently the location of the Laurel School Upper Campus, a kindergarten through fifth grade elementary school. The school consists of a new two-story classroom building of approximately 55,600 square feet constructed at the northwest corner of the 6.0-acre site near the Elliot Drive entry to the school. The structure houses both the

academic and administrative functions. The building contains 19 classrooms, including 14 standard sized (960 square feet each), two larger (1,100 square feet each), and art, science and music classrooms along with a gymnasium. An attached multi-use building, with a stage, would be located in the southeast part of the new building. The existing turf playfield at the eastern part of the O'Connor site was expanded from 1.3 acres to 2.16 acres and includes facilities for both baseball and soccer. A six-foot wide running track was be installed around the circumference of the playfield. A hard court area for basketball, wall ball and a climbing structure, play apparatus, and a shade structure with seating for outdoor and classroom activities was developed to the east of the main building. An outdoor play and classroom area is provided at the northwest corner.

2.5 **Previous Site Investigations and Mitigation**

NOA is known to be present in base rock quarried in the Menlo Park area during the period in which the previous school was constructed. On April 15, 2014, Terraphase collected eight samples of base rock at the locations shown on Figure 3 and had the samples analyzed for asbestos using both polarized light microscopy (PLM) and Transmission Electron Microscopy (TEM). The PLM results were all non-detect however five of the eight TEM results exceeded 0.001% by weight (see Figure 3) which is the screening level used by DTSC to classify solids as being potentially hazardous.

As off-site disposal of the base rock was cost prohibitive and the NOA concentrations were low, the District consolidated the base rock under the playing fields below an orange warning geotextile separator and a minimum of 12 inches of clean fill¹ - Figure 4 shows the location where the NOA-containing base rock was consolidated. Figure 5 presents crosssectional diagrams of the cap system

2.6 Post-Mitigation Site Conditions

The District has developed the Site as a new elementary school, including one building, an associated parking area, playground areas and athletic fields. A copy of the site plan map, showing all buildings constructed on the Site as well as the mitigation areas, is included in this report as Figure 4.

¹ As of the date of this draft O&M Plan, DTSC had not accepted this remedy and the work has not been performed. This draft O&M Plan is prospective.

3.0 SUMMARY OF ENGINEERING CONTROLS - SELECTED CAP REMEDIES

DTSC allowed for the NOA-containing fill to be consolidated under the soccer and baseball fields located east of the new school building. The selected cap consists of a layer of orange warning geotextile (Mirafi[®] Orange Delineation Nonwoven Geotextile 140NL/O or equivalent) to delineate the interface between the consolidated base rock and the overlying soil overlain by a minimum of 12 inches of soil. Turf, approximately 3 inches thick, was placed over the majority of the consolidation area, though the baseball field infields are dirt. The fields are properly maintained, i.e., periodically replenished with additional clean fill and sod, to ensure the orange warning geotextile is adequately covered. The sports fields are flat, so water erosion is not anticipated.

Prior to consolidating the NOA-containing base rock in the sports fields, a 24-inch diameter storm drain was installed through the consolidation area. The storm drain is located below the impacted base rock.

Irrigation pipes are installed above the orange warning geotextile. This may require placing swales in the surface of the consolidated base rock to allow for placement of the irrigation pipes in some areas.

Table 2Summary of NOA Cap SystemsLaurel School Upper Campus275 Elliott Drive, Menlo Park, California

Area	Activity	Matoria	Extent	Geotextile	Thickness
Alea	Leve	Waterial	(acres)		(inches)
Landscape Area 1	High	Clean-fill.	<1	Yes	>=15
(Soccer fields)		Sod/Grass			
Landscape Area 2	Low	Clean-fill.	<1	Yes	>=15
(Baseball and softball		Sod/Grass			
outfields)					
Landscape Area 3	High	Clean-fill	<1	Yes	>=12
(Baseball and					
softball in-field)					

Areas 1, 2 and 3 are also shown on Figure 4, Map of Areas with Cap Systems.

4.0 TRAINING

4.1 Asbestos Awareness Training Requirements

Asbestos awareness training is provided to all District maintenance and custodial staff (custodians, electricians, heating/air conditioning engineers, plumbers, etc.) who may come into contact with NOA-containing base rock at the Site. In accordance with California Code of Regulations (CCR), Title 8, Subchapter 4, Construction Safety Orders, § 1529(k)(9)(g), persons who may at any time be exposed to concentrations greater than the permissible exposure limit (PEL) of 0.1 fibers per cubic centimeter (in 8 hours) for asbestos must attend asbestos awareness training within sixty (60) days of hire, and must also attend annual refresher training².

The asbestos work class definitions and training requirements specified in Title 8 CCR, §1529(b) and 1529(k) refer primarily to "asbestos" or "asbestos containing materials (ACM)" and do not specifically address NOA; however, asbestos awareness training for NOA O&M activities are consistent, i.e., work-equivalent, with these standards. See Appendix C-E for regulatory references.

Training provided to O&M employees is commensurate with the work class and will include, but not be limited to, the following subjects: methods of recognizing NOA (base rock); Site NOA locations; health effects associated with asbestos exposure, etc. Upon completion of training, O&M employees should have familiarity with appropriate hazard controls and work practices to avoid disturbing NOA and prevent NOA exposures (such as use of wet methods for dust suppression; protective clothing; dust or asbestos monitors; respirators; proper cleanup and disposal; decontamination of equipment and clothing; relationship between smoking, asbestos, and cancer).

4.2 Asbestos Awareness Trainer Requirements

The District will designate a Competent Person (§1529[b]) to carry out training requirements as described in§ 1529 (b) and (k) for O&M personnel. A "Competent Person" is one who:

- is capable of identifying existing and predictable conditions in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees
- is also capable of identifying existing asbestos hazards in the workplace, and selecting the appropriate control strategy for asbestos exposure

² If perimeter and personnel air monitoring during the consolidation of the base rock shows that less than 0.1 fiber per cubic centimeter was generated during the mass movement of the base rock, the training requirement will be waived as it is unlikely that any future operations at the Site will be as disturbing of the base rock as the initial consolidation activity.

 has authority to take prompt corrective measures to eliminate such identified hazards

The Competent Person is Jeff Raines P.E. (C51120), G.E. of Terraphase.

4.3 Asbestos O&M Inspection Training

Jeff Raines P.E. (C51120), G.E. of Terraphase will conduct NOA Inspection training. The curriculum for NOA Inspection training will include, but not be limited to, the following subjects:

- overview of O&M Plan;
- descriptions and locations of onsite mitigation measures/engineering controls;
- required inspection locations;
- recognition of deteriorated, eroded or damaged engineering controls;
- inspection checklist completion;

The project standard operating procedures (SOPs) (see Appendix C-G) outline policies and procedures for intrusive O&M work (see Appendices C-G and C-H), maintenance and repairs, documentation of repairs; roles and responsibilities of O&M personnel; and a contact list of responsible persons.

New maintenance staff employees assigned to the Site will attend NOA inspection training prior to performing inspections at the Site. Training for designated maintenance staff will meet applicable requirements of 40 Code of Federal Regulations (CFR) 763.92(a)(1) [see Appendix C-E, 40 CFR Training Requirements for Asbestos Containing Materials in Schools] and 8 California Code of Regulations (CCR) § 1529(k)(9)(G), Training Requirements for Asbestos in Construction (see Appendix C-E).

5.0 **O&M INSPECTIONS**

5.1 **Periodic Inspections**

Periodic inspections of the engineering controls are conducted quarterly by District maintenance staff under the direction of the NOA Coordinator and O&M Professional (Terraphase). To ensure that no control measures are overlooked, a checklist for the specific control measures and their locations is completed for each inspection. Upon completion, the checklists are reviewed and signed by the NOA Coordinator (see Appendix C-F, Inspection Checklist for NOA Mitigation Measure Areas).

The NOA-impacted material on Site is contained within a blueish-green base rock material which is readily discriminated from the native Site soils. The cap over the base rock is flat, so erosion of the cap is highly unlikely. All irrigation pipelines and sprinkler heads are mounted above the orange warning geotextile, so routine irrigation system maintenance workers are unlikely to encounter the NOA-containing base rock.

District employees who are assigned to conduct O&M inspections are responsible for Identification of any required repairs, and documentation of changes in site conditions or usage, descriptions of any onsite construction activities, or any other significant information relating to effectiveness of the NOA engineering controls. Examples of such conditions include cracks in caps, soil movement, rivulets, run-on or run-off, worn grass areas, visible orange warning geotextile, visible base rock or animal burrows.

Periodic inspection reports are maintained onsite at the Site, and in the District administrative files. All inspection records are available for DTSC and public review. District employees who conduct periodic inspections will take photographs during each inspection for documentation as appropriate to demonstrate stability and/or failure of engineering controls.

The NOA Coordinator is responsible for follow-up review to ensure that identified repairs are completed on schedule, and will sign-off in the completion blocks of the inspection reports. Copies of periodic inspection reports are included in the Annual Inspection Summary Reports and Five Year Reviews submitted to DTSC.

5.2 Inspections for Unplanned Events

District employees will also conduct inspections of engineering controls during or immediately following unplanned events, such as broken utility lines and floods. As the cap is flat, seismic events and heavy rainfalls are unlikely to affect the integrity of the cap. The NOA Coordinator documents all inspections and required repairs or maintenance, and incorporates such documents into the Annual Inspection Summary Report.

The NOA Coordinator notifies DTSC of any failures, i.e., compromised integrity or possible NOA exposures, of the engineering controls resulting from unplanned events that are not repaired, following the SOP, within 14 days of discovery; such notifications include a proposed schedule for completion of required repairs and maintenance.

5.3 Annual Inspections

The NOA Coordinator will notify DTSC at least 14 days in advance of each annual inspection. The first annual inspection was completed by August 14, 2016, and all subsequent annual inspections will be completed by August 14th of every year.

All NOA engineering controls are inspected annually by the O&M Professional with experience in evaluating cover systems. The NOA Coordinator may accompany the O&M Professional during the annual inspection. The purpose of this inspection is to identify and review completion of any required repairs, changes in site conditions or usage, descriptions of any onsite construction activities, or any other significant information relating to the NOA engineering controls that may have taken place over the previous twelve months. All annual inspections will include measurement and evaluation of the amounts of clean fill cover remaining over orange warning geotextiles overlying NOA-impacted base rock.

During inspections, all items flagged for required maintenance will have a specified action date for completion of required repairs. The NOA Coordinator is responsible for follow-up review to ensure that identified repairs are completed on schedule, and will sign-off in the completion blocks of the inspection reports. The NOA Coordinator will notify DTSC of any failures of the engineering controls that are not repaired following the SOP within 14 days of discovery; such notifications will include a proposed schedule for completion of required repairs and maintenance.

The Annual Inspection Summary Report will be submitted to DTSC for review and approval within 60 days after completion of each annual inspection, in accordance with reporting and notice requirements specified in Sections 8.2 and 8.5.1 of this O&M Plan.

6.0 FIVE-YEAR REVIEW

Five-Year Reviews will be conducted to evaluate ongoing remedy effectiveness where NOA remains in place. The purpose of five-year reviews is to determine whether the remedy: a) remains protective of human health and the environment; b) is functioning as designed; and c) is maintained appropriately by O&M activities. Each Five-Year Review will be conducted by the O&M Professional, who will prepare and sign the Five Year Review report, following the outline in Appendix C-K to summarize his/her findings and conclusions.

The NOA Coordinator will notify DTSC at least 14 days in advance of each Five-Year Review inspection. The first Five-Year Review inspection will be completed by August 15, 2021, and all subsequent annual inspections will be completed by the August 15th of every fifth year.

All NOA engineering controls are inspected by the O&M Professional in the same manner as in the annual inspection; see Section 5.3 above. The purpose of the fifth year inspection is to identify and review completion of any required repairs, changes in site conditions or usage, descriptions of any onsite construction activities, or any other significant information relating to the NOA engineering controls that may have taken place over the previous five years. All fifth- year inspections will include measurement and evaluation of the amounts of clean fill cover remaining over orange warning geotextiles overlying NOAimpacted base rock.

During inspections, all items flagged for required maintenance will have a specified action date for completion of required repairs. The NOA Coordinator is responsible for follow-up review to ensure that identified repairs are completed on schedule, and will sign-off in the completion blocks of the inspection reports. The NOA Coordinator will notify DTSC of any failure of the engineering controls that is not repaired following the SOP within 14 days of discovery; such notifications will include a proposed schedule for completion of required repairs and maintenance.

The Five-Year Review Report will be submitted to DTSC for review and approval within 60 days after completion of each fifth-year inspection, in accordance with reporting requirements specified in Section 8.4. The District will perform additional NOA investigation, monitoring, and/or mitigation as required by DTSC based upon the findings of each Five-Year Review report.

7.0 INTRUSIVE WORK ACTIVITIES

O&M personnel will submit all Site construction and maintenance work order requests that impact the sports fields at the Laurel School Upper Campus to the NOA Coordinator. The NOA Coordinator will evaluate in writing whether or not activities described in the work orders are considered "non-NOA intrusive" or "NOA intrusive". "NOA intrusive" activities are prohibited at the Site unless conducted in accordance with applicable provisions of the O&M Plan. "NOA intrusive" work includes any construction or maintenance work activities that disturb NOA-impacted base rock, including but not limited to: digging, drilling, excavating, grading, repairing, removing, trenching, filling, gardening, and other soil movement that may penetrate or otherwise compromise the caps in place, thereby opening pathways for possible human exposures to NOA If work is determined to be NOA intrusive, the NOA Coordinator will ensure that work practices are followed as specified in Sections 7.2, 7.3, and 7.4 of the O&M Plan. The NOA Coordinator will provide advance notice of scheduled work to DTSC in accordance with provisions in Section 8.5 of this O&M Plan.

7.1 Non-NOA Intrusive Work

Construction, repair, and/or maintenance activities at the Site are restricted by DTSC in accordance with this O&M Plan only when exposures of NOA-containing base rock is reasonably anticipated or when releases occur. Notification to DTSC of construction, repairs, and maintenance activities is not required unless NOA base rock is expected to be disturbed, or is inadvertently disturbed. "Non-NOA intrusive work" is defined as including construction, repairs, and/or maintenance activities at the Site where exposure of NOA-containing base rock is not anticipated and where the integrity of the landscaped caps is not compromised. Non-NOA-intrusive work includes work where the orange warning geotextile, if present, will not be penetrated or breached, even though work may be performed in upper layers of a cap system, e.g., clean fill. District policies require the following procedures be taken when conducting non-NOA intrusive work at the Site:

The NOA Coordinator will provide information regarding location of cap systems and base rock containing NOA to selected contractors and O&M personnel to minimize likelihood of NOA intrusion O&M Professional and/or O&M personnel will conduct inspections during construction and/or maintenance activities at the Site to ensure NOA-containing base rock is not being disturbed.

In the event that NOA-containing base rock is inadvertently disturbed, the integrity of engineered controls is compromised, or the orange warning geotextile is breached, the NOA Coordinator is responsible for notifying DTSC and implementing the appropriate procedures in accordance with the provisions described in Sections 7.2 and 8.5 of this O&M Plan.

7.2 NOA Intrusive Work

The following procedures are required by the District when performing NOA-impacted base rock intrusive construction, repair or maintenance activities to: a) ensure that safeguards are in place to prevent or minimize NOA exposures to anyone at the Site; b) prevent untrained or unauthorized personnel from performing intrusive work in NOA areas; and c) restore the integrity of engineering controls (cap systems) in place if impaired or compromised by such activities. These procedures are overseen by the NOA Coordinator for all NOA intrusive work (as defined in Section 7.0 of this O&M Plan) performed by, or on behalf of, the District at the Site:

- provide information regarding location of cap systems, cross-section construction details, and locations of all base rock containing NOA to selected contractors
- verify that selected contractors and their employees will comply with federal and state OSHA requirements (see Appendix C-E)
- require District employees to follow established site-specific health and safety requirements (see Section 7.4) before starting NOA intrusive work
- require that construction and maintenance work be performed under and in accordance with a DTSC-approved SOP (see Appendix C-G)
- evaluate timelines, school and work schedules to ensure that NOA intrusive work is completed as soon as possible to minimize exposure risks
- require reasonable restrictions to Site access to reduce exposures to non-workers
- implement dust control practices that utilize water
- manage any NOA-containing or impacted base rock brought to the surface in accordance with the soil management plan (see Appendix C-H) and in compliance with applicable, relevant and appropriate provisions of state and federal law
- comply with all applicable, relevant and appropriate federal, state, and local requirements, such as the California Air Resources Board (CARB) Final Regulation Order, Section 93105, Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations; also Section 93106, Asbestos Airborne Toxic Control Measure for Surfacing Applications this CARB regulation was implemented as Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 14 which does not require that any action be taken to monitor for asbestos or protect workers from NOA in the base rock at the Site as the NOA concentrations are below the BAAQMD threshold.

7.3 Standard Operating Procedure (SOP)

Whenever possible, NOA intrusive construction or maintenance work activities are conducted in accordance with the DTSC-approved SOP (see Appendix C-G). Except in unplanned situations, advance notification to DTSC will be submitted in accordance with requirements found in Section 8.5.

The SOP identifies procedures to be followed for NOA-intrusive work, including:

- stabilization of the site
- limitation on site access as appropriate
- NOA exposure monitoring of workers
- required notification to DTSC
- management of excavated base rock including dust control and soil segregation
- decontamination procedures for excavation equipment and workers
- orange warning geotextile, cap repair, or fill replacement procedures including temporary measures
- evaluation and use of new fill materials

If site conditions are not adequately addressed in the pre-approved SOP, modification or revision of the SOP may be required. For example, the SOP does not include provisions for conducting air monitoring at fence lines, or use of a meteorological air station. If such air monitoring is required pursuant to CalOSHA or other regulatory requirements, such as CARB's ATCMs (see Section 7.4), a modified or new SOP detailing such procedures will be submitted in advance for DTSC's review.

7.4 Health and Safety Requirements

The District has designated Jeff Raines, P.E., G.E., of Terraphase as the Competent Person (§ 1529[b]) to conduct an exposure assessment at the initiation of any construction operation (§ 1529[f][2][A]) to ascertain where airborne asbestos fibers may exceed the PELs (§ 1529[c]) during that operation. A "Competent Person" is one who:

- is capable of identifying existing and predictable conditions in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees
- is also capable of identifying existing asbestos hazards in the workplace, and selecting the appropriate control strategy for asbestos exposure

 has authority to take prompt corrective measures to eliminate such identified hazards

The Competent Person may be an asbestos consultant, safety officer or technician familiar with sampling techniques and potentially asbestiform mineral formations; the Competent Person may utilize the assistance of the O&M Professional or other trained professionals as appropriate. All personnel performing the O&M activities specified in the O&M Plan are responsible for operating in compliance with the most current requirements of:

- Title 8, California Code of Regulations, §5192 (8 CCR 5192), General Industry and Construction Safety Orders
- Title 8, California Code of Regulations, § 1529 (8 CCR 1529), Asbestos, Construction Safety Orders
- Title 29, Code of Federal Regulations, §1910.120 (29 CFR 1910.120), "Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER)"
- Title 29, Code of Federal Regulations,§ 1926 (29 CFR 1926), Construction Industry Standards
- Title 40, Code of Federal Regulations,§ 763, Subpart E (40 CFR 763), Asbestos Containing Materials in Schools
- CARB Section 93105, "Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations" and CARB Section 93106-"Asbestos Airborne Toxic Control Measure for Surfacing Applications" as applicable
- Other pertinent requirements (e.g., local ordinances, etc.)

Site-specific health and safety requirements will be identified for the Site under the supervision of a certified industrial hygienist in accordance with current health and safety standards as specified by the federal and California OSHA agencies. These requirements will be addressed in a Health and Safety Plan (HASP) that identifies proposed NOA intrusive work activities, and specifies site characteristics, current conditions, history, physical and chemical hazards, and methods of handling and controlling NOA so as to prevent or minimize exposures.

All personnel who perform NOA intrusive work at the site must follow these requirements. Contractors doing fieldwork in association with this O&M Plan will either adopt and abide by these site-specific requirements or develop their own health and safety plans, which, at a minimum, meet the site-specific requirements. A copy of a "Plan Acceptance Form" will be included in the HASP; all onsite personnel will read the requirements and sign the "Plan Acceptance Form" before starting the specified NOA intrusive work.

8.0 **REPORTING AND RECORDKEEPING**

8.1 DTSC Reporting Requirements

The NOA Coordinator will maintain records of training provided to O&M personnel, compile appropriate information, develop, and timely submit the following reports to regulatory agencies:

- annual inspection summary reports
- completion reports for NOA intrusive work
- Five Year Review reports

8.2 Annual Inspection Summary Reports

Annual Inspection Summary Reports will summarize reports from periodic inspections, and will document completions, delays, or failures to repair any items identified as needing repairs. The Annual Inspection Summary Report will be signed by the O&M Professional and NOA Coordinator, and will be submitted by the NOA Coordinator for DTSC's review and approval no later than 60 calendar days after the annual inspection has been conducted. Annual Inspection Summary Reports will follow the format outlined in Appendix C-J, and will be included and maintained in files at the Site and at the District

Annual Inspection Summary Reports will include the following:

- copies and a summary of the signed periodic inspection checklists completed since preparation of the previous annual inspection summary report
- results of the annual visual inspection, measurements and an evaluation of the conditions and amounts of cap materials remaining over the orange warning geotextile, and if necessary, analytical sampling data and analyses
- description of actions taken since completion of the previous O&M annual inspection, including:
 - \circ any repairs to the installed cap remedy that were identified and carried out
 - any significant changes in site conditions or usage, e.g., paving, grading, utility trenching, playgrounds, or picnic areas
 - any additional onsite construction or other significant information that may relate to the installed cap remedy or impact their function, e.g., installation of portable buildings or maintenance facilities

- copies of work orders and Completion Reports for any NOA intrusive work (see Section 7 of the O&M Plan) including emergencies, since the previous O&M annual inspection
- description of any maintenance or repairs identified as needed during the O&M annual inspection
- description of recommendations for O&M Plan modifications
- description of actions planned or expected to be undertaken before the next O&M annual inspection that will impact the engineering controls (caps) in place
- recommendations concerning any repairs to the installed caps that are still needed
- photographs depicting site conditions with brief identifying captions or descriptions ("View looking east across the capped soccer field"). During the annual inspection, the O&M Professional will take photographs for documentation as appropriate to demonstrate stability and/or failure of engineering controls.
- conclusions regarding the ongoing effectiveness of the cap systems
- documentation of additional NOA investigation, monitoring and/or mitigation activities required by DTSC

8.3 **Completion Report for NOA-Intrusive Work**

Within 60 days of completion, NOA intrusive work activities are documented in a Completion Report, prepared by the O&M Professional to summarize the NOA-intrusive work that has been done, and include the following information:

- date work performed
- work location, with maps and figures
- work activities performed, including restoration of cap systems where necessary
- work practices taken to prevent potential exposures
- variance or modifications (if any) of the approved SOP
- summary of finished site conditions

The O&M Professional will incorporate all Completion Reports for NOA intrusive work conducted during the year into the Annual Inspection Summary Report. The format for Completion Reports will follow the outline in Appendix C-I.

8.4 Five-Year Review Reports

The first Five-Year Review report for the Site will be completed five years from the date when DTSC issued site certification. All subsequent five-year review reports will be completed by the 15th day of October of every fifth year. The NOA Coordinator will submit the Five-Year Review report to DTSC for review and approval within 60 days after completion of each scheduled Five-Year Inspection. Five-Year Review reports will be maintained in files at the Site and District, in accordance with Section 8.6 of the O&M Plan.

The Five-Year Review report will follow the format in Appendix C-J to summarize remedy effectiveness in the five-year period. The Report will identify any incidents or problems with the cap systems, and will evaluate system and component performance, effectiveness, and protectiveness. The Five-Year Review report will state conclusions and make recommendations for any changes needed to maintain remedy protectiveness. Five-Year Review reports will include the following components: Introduction; Site Background; Physical Setting; Site Chronology; Removal Actions; Five-Year Review Process; Technical Assessment; Issues; Conclusions; Recommendations and Cost Impacts. The "Technical Assessment" component will include a summary of the previous four annual reports and the information identified in the annual O&M inspection.

In addition to the information required in the Annual Inspection Summary Reports (see Section 8.2), the Five-Year Review Report will include a Technical Assessment and evaluation of the ongoing protectiveness of the remedy during the Five-year review. This evaluation will address the following questions:

- Is the remedy functioning as intended at the Site by the remedy selection decision documents?
- Are the removal action objectives, goals, and criteria used at the time of the remedy selection still valid?
- Have there been any significant changes in the distribution or concentration of the subsurface NOA at the Site?
- Has any other information come to light that could call into question the protectiveness of the remedy?
- Are any modifications needed to make the O&M Plan more effective?

8.5 Notification and Reporting of NOA Intrusive Work

Activities that disturb NOA containing base rock are restricted by DTSC in accordance with this approved O&M Plan. The NOA Coordinator will submit notice to DTSC in writing in advance of any NOA-intrusive activity that is anticipated to exceed seven days in duration

from start to completion whenever NOA intrusive work is conducted at the Site, that is, where cap systems or orange warning geotextile may be breached or otherwise compromised during the course of construction, repair, or maintenance activities. Given the location of the NOA-impacted base rock, it is unlikely that any activities that would breach the orange warning geotextile would last longer than 7 days. All NOA intrusive work activities will be conducted in accordance with a DTSC-approved SOP (see Appendix C-G); advance notification to DTSC is required if the pre-approved SOP is modified or substantially rewritten.

8.5.1 Notification Timeframes

Notification to DTSC is not required for the following activities at the Site:

- The activities are non-NOA work (whether or not intrusive) that are not anticipated to disturb NOA containing base rock
- The projected NOA intrusive work duration is less than seven days from start to completion, and will follow the SOP

Notification to DTSC by the NOA Coordinator is required tor the following activities:

- Notify DTSC 14 days in advance if the activities are for NOA intrusive work, are anticipated to exceed seven days in duration from start to completion, and will follow the SOP
- Notify DTSC at least 14 days in advance if the activities are for NOA intrusive work, and will follow a modified SOP. DTSC's approval of the modified SOP must be obtained prior to implementation of work.
- Notify DTSC at least 30 days in advance if the activities are for NOA intrusive work, and will follow a new SOP. DTSC's approval of the new SOP must be obtained prior to implementation of work.
- Notify DTSC of unplanned events (e.g., broken storm drain) if not repaired within 14 days; submit a Completion Report within 60 days after completion of work.

8.5.2 Electronic Mail Notice Format

Written communication to DTSC may be submitted via e-mail. A sample e-mail notification to DTSC project manager and unit supervisor might read as follows:

"The Menlo Park City School District plans to perform maintenance at the Laurel School Upper Campus soccer field located at 275 Elliott Drive in Menlo Park (please see attached pdf figure showing the location) to repair a 24-inch diameter storm drain. As noted on the figure, the area has an orange warning geotextile and a cap of 12 inches of clean fill over NOA-impacted base rock. We need to cut through the existing marker and remove approximately [two] cubic yards of NOA-impacted base rock during the activity. The action is proposed for [start date] and will be completed on [end date]. The marker will be restored by overlapping new orange warning geotextile six inches over the adjacent inplace geotextile. We will follow the SOP Workplan provided in the Laurel School Upper Campus O&M Plan approved by DTSC in a letter dated XXXXXX. If you have any questions or would like to visit during the activity, please contact [name and address of NOA Coordinator and/or O&M Professional and contact telephone numbers]..."

Table 3

Notice and Reporting Requirements for NOA Intrusive Work Laurel School Upper Campus 275 Elliott Drive, Menlo Park, California

Activity	NOA Intrusive Work				
	Duration <7 calendar days	Duration >7 calendar days	Unplanned Events	Annual/5 Year Inspection	
1. Notify DTSC	Not Required	Yes- before work begins	If not repaired within 14 days after discovery	Yes - 14 days before inspection	
1.a) Using SOP Workplan		14 days before work begins			
1.b) Using Modified SOP Workplan	14 days before wo				
1.c) Using New SOP Workplan	30 days before wo				
2. Reports	Document in Annual Report	Completion Report in Annual Report	Completion Report to DTSC within 60 days and in Annual Report	Annual/5-Year Report submitted to DTSC within 60 days of inspection	

8.6 **Record Keeping and Retention**

All documentation records (e.g., data, reports, and other documents) prepared under the O&M Plan are maintained by the NOA Coordinator at the Site and in the District administrative offices. The records are available for inspection upon request by the public and DTSC representatives. The records will include, but are not limited to:

- Periodic inspection checklists; annual inspection summary reports; five-year review reports; Completion Reports for NOA-intrusive work; photographs associated with all of the above
- Records of training for Asbestos Awareness and NOA inspections
- All NOA training sessions are logged and recorded for the administrative record, and documented in the Annual Inspection Summary Report submitted to DTSC
- At a minimum, the log will identify the name of the company providing the training, instructor's name and title and qualifications, names and signatures of staff persons attending training, with staff job title, and date(s) of training
- Records of personal air monitoring and perimeter air sampling for asbestos concentrations during construction and maintenance work activities
- Records of public inquiries for information about NOA at the Site
- Investigation and Mitigation Documents, e.g., PEA, RAW, Removal Action Completion Report, O&M Agreement and Plan for school, including surveys, photographs, design specifications and as-built drawings, and appendices

All records are preserved by NOA Coordinator for a minimum of 7 years after the conclusion of each relevant activity. The NOA Coordinator will notify DTSC in writing at least six (6) months prior to destroying any documents prepared pursuant to the O&M Plan. If requested by DTSC, the NOA Coordinator will make requested documents available for review or copy.

Because of the potential volume of paper that could be generated or stored, the NOA Coordinator may elect to maintain paper copies of the previous 12 months reports and the latest five-year report, if applicable, and keep the rest as electronic files (e.g., in pdf format). DTSC's Administrative Record for the Site is available for public inspection during office hours at the following DTSC location:

8800 Cal Center Drive Sacramento, California 95826 The DTSC project manager, as of January 2015 is:

Mellan P. Songco, MPA Project Manager Northern California Schools Brownfields and Environmental Restoration Program Department of Toxic Substances Control 8800 Cal Center Drive Sacramento, California 95826 916 255-6527 (phone) 916 255-3734 (fax)

9.0 SITE ACCESS

Upon request, access to the Site will be arranged and provided by the NOA Coordinator at all reasonable times to DTSC representatives or O&M personnel.

10.0 VARIANCE, MODIFICATION AND TERMINATION OF O&M PLAN

The NOA Coordinator may seek variance, modification, and/or termination of the O&M Plan at any time during the life cycle of the cap remedy. "Variance" refers to possible release from specific individual O&M Plan requirements for a limited time period, while "modification" refers to permanent revision of specific individual O&M Plan requirements. DTSC may allow variance, modification or termination of the O&M Plan if DTSC determines that:

- such variance, modification or termination is protective of public health and safety and the environment
- it is neither feasible nor appropriate to continue the O&M Plan as a component of the remedy selected for the Site.

10.1 O&M Plan Variance

The NOA Coordinator may apply to DTSC for a written variance from the provisions of the O&M Plan. DTSC will evaluate each request, and will grant a variance request only after determining that such a request would be protective of human health and the environment.

10.2 O&M Plan Modifications

When long-term performance of the selected cap remedies has been confirmed, the NOA Coordinator may apply to DTSC to modify the requirements of the O&M Plan based on site-specific monitoring results and conditions. Additionally, DTSC reserves the right to independently initiate appropriate O&M Plan modifications. As a result, DTSC may require the following O&M Plan modifications:

- changes in the frequency of O&M activities
- modification, replacement, or addition of components to the O&M Plan if O&M activities fail to achieve the O&M objectives of protecting public health, safety and the environment
- evaluation, design, construction, and/or operation of additional remedial measures to achieve the O&M objectives

10.3 Termination of O&M Plan

Based on review of a Five-Year Review Report or a subsequent Annual Inspection Summary Report, DTSC may determine if the cap remedy has met either of the following performance criteria required for termination of O&M activities:

- availability of new scientific information resulting in changes or modifications to DTSC's technical criteria for evaluating unacceptable risk levels of NOA concentrations in base rock
- change in land use, where the Site is no longer used as an educational facility

As required by H&SC §25359.7, prior to the sale, lease or sublease of the Site, or any portion thereof, the NOA Coordinator will provide the buyer, lessee, or sub-lessee with notice that NOA-impacted base rock are located on or beneath the Site,.

DTSC will notify the NOA Coordinator in writing when continued O&M activities for the cap remedies are no longer required. Because caps are not anticipated to have any adverse impacts on building foundation systems or other components, removal and/or decommissioning of the caps following termination of the O&M activities will not be required by DTSC.

11.0 **REFERENCES**

Bay Area Geotechnical Group (BAGG). 2014. Geotechnical Engineering Investigation and Geologic Hazard Evaluation Proposed O'Connor Elementary School, 275 Elliott Drive, Menlo Park, San Mateo County, California. February.

California Air Resources Board. 2001. California Code of Regulations §93105, Air Toxics Control Measure 2002-07-29 Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (Construction/Quarrying ATCM). Adopted July 26. http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm

California Air Resources Board. 2000. California Code of Regulations §93106, Air Toxics Control Measure 2002-07-29 Asbestos Airborne Toxic Control Measure for Surfacing Applications. Amended July 20.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2004. Interim Guidance - Naturally Occurring Asbestos (NOA) at Sites, Revised 9/24.

Health Canada. 2008. Chrysotile Asbestos Consensus Statement and Summary - Chrysotile Asbestos Expert Panel

Terraphase Engineering Inc. (Terraphase). 2014. Draft Phase I Environmental Assessment 275 Elliot Drive Menlo Park California 94025. February 7.

______. 2015. Preliminary Endangerment Assessment 275 Elliot Drive Menlo Park California 94025. In preparation.

U.S. EPA. 1993. Asbestos", Integrated Risk Information System. http://www.epa.gov/iris/subst/0371.htm#refinhal
12.0 FIGURES, TABLES AND APPENDICES

TABLES

- 1 Cost Estimate
- 2 Summary of Cap Systems
- 3 Notice & Reporting Requirements for NOA Intrusive Work

FIGURES

- 1 Site Plan Map
- 2 NOA Sampling Location Map (from PEA)
- 3 Site Plan Map Showing Areas with Cap System
- 4 Site Survey with Elevations
- 5 Cross-Section Cap Designs

APPENDICES

- C-A Legal Description and Assessor's Parcel Map
- C-B Matrix O&M Personnel Roles and Responsibilities
- C-C Resume of O&M Professional
- C-D As-Built Drawings and Specifications
- C-E Training Requirements
- C-F Inspection Checklist for NOA Cap Remedies
- C-G Standard Operating Procedure (SOP) Outline
- C-H NOA Annual Inspection Summary Report Outline
- C-I NOA Intrusive Work Completion Report Outline
- C-J NOA Five Year Review Report Outline



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APPENDIX C-A

LEGAL DESCRIPTION OF ASSESSOR'S PARCEL MAP



APPENDIX C-B

MATRIX - O&M PERSONNEL ROLES AND RESPONSIBILITIES

	NOA Coordinator	O&M Professional	School Principal	Maintenance Staff	
1. Training	·	·		·	
Coordinate training and refresher requirements for district administrators, faculty and maintenance personnel	х				
Track and schedule training and refresher requ irements for district staff	х				
Coordinate NOA awareness training for designated contractors working at site	х				
2. Inspections, Maintenance, and Repairs					
Direct monthly/annual/5-year inspections of engineered controls and completion of the inspection checklists in compliance with O&M Plan	х				
Monitor onsite maintenance activities for compliance with dust mitigation and air monitoring requirements		х	Х		
Direct and oversee maintenance activities involving disturbance of NOA-containing soils to ensure that SOP is followed	Х	Х			
Direct and oversee implementation of contingency plan in compliance with O&M Plan; obtain DTSC approval of workplan when required	Х				
Notify district staff and parents regarding the O&M Plan; respond to questions	х				
Perform Inspections, maintenance and repairs.				х	

	NOA Coordinator	O&M Professional	School Principal	Maintenance Staff
3. Record Keeping and Checklists				[
Maintain records of all O&M- related activities	Х			
Document activities that will potentially disturb NOA-containing soils	х			
Maintain and conduct monthly review of site files of maintenance reports	х			
Complete and submit maintenance reports and records for agency review	Х			
Document provision of NOA awareness training for designated contractors and staff	х			
Complete Inspection checklist and file checklist		Х		
4. Reporting				l
Coordinate reporting to regulatory agencies	Х			
Notify regulatory agencies of planned activities that disturb NOA-containing soils but conducted pursuant to SOP	х			
Notify regulatory agencies of planned or unplanned activities conducted in accordance with a workplan approved by DTSC	х			

APPENDIX C-C

RESUME OF OPERATION AND MAINTENANCE PROFESSIONAL



Jeff Raines, P.E., G.E.

Principal Geotechnical Engineer

Mr. Raines has over 30 years of experience in Civil, Geotechnical and Environmental Engineering. He is a registered geotechnical engineer in California and a registered civil engineer in California, Hawaii, Nevada, Oregon, and Washington.

He has served as the geotechnical engineer of record for the Chabot College modernization project since 2005 in which he has designed foundations for three new buildings, overseen the reconstruction of the campus sports facilities and provided pavement section recommendations for more than 12 acres of new and temporary parking lots.

Mr. Raines has prepared more than a dozen geological hazards assessments in accordance with the California Geological Survey (CGS) Note 48 including geological hazards assessments for schools located in the Sierra foothills where naturally-occurring asbestos (NOA) is a significant hazard. He has prepared asbestos abatement specifications and overseen air monitoring at asbestos abatement and other hazardous substance cleanup sites.

Mr. Raines has prepared a more than two dozen pipeline risk assessments for school districts in California including for the Anaheim Union High School District, Aspire Public Schools, Dublin Unified School District, Las Virgenes Unified School District, Lodi Unified School District, Marysville Unified School District, North Monterey County Unified School District, Oakley Union Elementary School District, Palo Verde Unified School District, Pittsburg Unified School District, Rocketship Charter Schools, Salida Union School District, Twin Rivers School District, and the Visalia Unified School District. He has also prepared railroad risk assessments for two school districts. He was one of six consultants invited by the California Department of Education to a meeting to address changes to the department's pipeline risk assessment protocol.

Mr. Raines designed and was the engineer of record for a petroleumimpacted soils excavation project in the High Sierra. The project was located on a steep slope above Highway 80 and below a high-pressure gasoline pipeline. The work required the installation of soldier piles through a boulder field into Sierra Nevada granite and the installation of tiebacks below the high-pressure gasoline pipeline. He was the engineer of record for the construction of a \$130 million pipe mill on Bay Mud in Pittsburg, California. The project involved preloading of the foundation soils with wick drains because of the unusually high floor loads inside the pipe mill. The selected foundation consisted of both piles and spread footings for economy.

Education

University of Connecticut Bachelor of Science, Civil Engineering, 1980

Northeastern University Master of Science, Mechanical Engineering, 1983

Stanford University Master of Science, Geotechnical Engineering, 1985

Stanford University Engineer, Civil Engineering, 1988

Professional History

Terraphase Engineering Inc. Principal Geotechnical Engineer 2010 – present

LFR/ARCADIS Principal Geotechnical Engineer 2005 – 2010

TechLaw, Inc. Director of Engineering, 1998 – 2005

Geosyntec Consultants/MAA Senior Project Engineer, 1992 – 1998

Amblin Entertainment, Screenwriter 1991 – 1992

Stanford University, Graduate Research Assistant, 1984 – 1991

Stone & Webster Engineering Corporation, Engineer, 1980 – 1984

Licenses

California Civil Engineer 51120 California Geotechnical Engineer 2762 California QSP/QSD 21402 Hawaii Civil Engineer 12190 Oregon Civil Engineer 79510PE Nevada Civil Engineer 17953 Washington Civil Engineer 47547



Representative Project Experience

Chabot Community College Modernization Project, Hayward, California CLPCCD Geotechical Engineer 9/2006 to the present

Central Commissary

Oakland Unified School District Geotechnical Engineer 2013 – on-going

Peralta Community Colleges

Various projects Geotechnical Engineer 2008 – on-going

Musco Family Olive Company Brine Pond Construction Musco Geotechnical Engineer 2013 – on-going Mr. Raines has served as the Geotechnical Engineer of Record for the Chabot Community College Modernization project since 2005. Mr. Raines has provided geotechnical engineering services for the District for three different companies (LFR, ARCADIS, and Terraphase) over the past five years. His most recent assignment was the preparation of a geotechnical investigation and design report for the proposed Building 1200 Annex (dated December 9, 2010). He designed foundations for the recently completed Student and Community Access Center, which is the centerpiece of the Community College District's modernization project. He designed the foundations for the new Instructional Office Building (finished) and the new Physical Education Building (currently under construction). He provided foundation and drainage recommendations for the conversion of the football field to artificial turf (completed 2007) and for the realignment of the campus Tennis Center. He provided pavement section recommendations for the repaying of the campus parking lots (1.5 inches thinner than the existing lots) and provided construction support to the District to mitigate an area of pumping foundation soils. He designed a temporary parking lot to handle parking during repaying of the parking lots and provided dust control recommendations that were successfully implemented. He provided litigation support services to the District for a construction claim against a Contractor regarding the deck around the Campus swimming pool.

Mr. Raines was the geotechnical engineer of record for the design and construction of a central commissary facility where all of the hot meals for Oakland students will be prepared. He oversaw the subsurface investigation and prepared the geotechnical design report. He is currently managing the excavation and disposal of 2,100 cubic yards of soil impacted by lead-based paint.

Mr. Raines was the engineer of record for the design and construction of the new Building Efficiency for a Sustainable Tomorrow (BEST) Center at Laney College. He is currently performing environmental and geotechnical services for a new facility at Berkeley City College. He previously designed a foundation system for a new atrium to be constructed for the Laney College Student Center. The new atrium would be supported on micropiles installed through the women's shower locker room. The micropiles would be located within 30 feet of the BART tubes.

Mr. Raines was the engineer of record for the design and construction of two, 4.5 acre brine evaporation ponds located in Tracy, California. The ponds were constructed to Title 27 Class 2 standards. They consist of a bottom liner of scrim-reinforced polypropylene, a geosynthetic drainage media, and an upper liner of 80-mil high density polyethylene (HDPE). The ponds were constructed on time and on-budget and are currently being filled.



Campus Bay (former Zeneca Inc. Facility), Richmond, California Zeneca Geotechnical Engineer 9/2006 - present

Emeryville Corporate Yard, Emeryville, California City of Emeryville Geotechnical Engineer 2012

Permanente Quarry, Santa Clara County, California

Santa Clara County Geotechnical Engineer 2013

WDI Landfill, Belleville, Michigan US EPA Geotechnical Engineer 2003 Since 2005 Mr. Raines has provided engineering support for the remediation of the former 86-acre chemical manufacturing plant located on San Francisco Bay in Richmond, California. He has provided temporary cap design and maintenance oversight for a 30-acre waste consolidation cell; cost estimating for the final remedial action for the cell; input into the feasibility study for a proposed 25-million dollar remedial action for two waste water lagoons; and stormwater compliance services for the facility.

Mr. Raines is the geotechnical engineer of record for the construction of an Emergency Operations Center (EOC) to be constructed inside the Emeryville Corporate yard – a 1-acre under roof facility. The project involves the excavation of material from beneath the existing floor of the yard adjacent to a bearing wall, and the installation of a vapor barrier and subslab depressurization system. Excavation adjacent to the wall will be performed using slot digging under the direction of Mr. Raines in Level B personal protective equipment. Underpinning of the wall may be required.

Mr. Raines was retained by the County to provide a geotechnical peer review of the reclamation plan for the Lehigh Cement - Permanente Quarry located in Santa Clara County, California. The quarry is the source of most of the cement used in construction in the Bay Area. The Quarry has been mined since the late 1930s resulting in cutslopes up to approximately 1,000 feet in height. The quarry has historically experienced areas of localized instability in the excavated pit walls including the main slide which consists of approximately 10,000 tons of rock sliding over an area of around 6 acres. Terraphase performed independent assessments of the quarry slopes, including developing rock mass strength properties using Hoek-Brown criteria to assess the stability of the quarry in its interim and final configurations. Based on concerns regarding weak matrix material in the mélange formation of the south quarry wall and operational impacts to Permanente Creek, Terraphase recommended mitigation measures including the installation of geotechnical monitoring equipment.

Mr. Raines was tasked with assessing the design of a vertical expansion of a PCB landfill over a closed hazardous waste landfill. The final cover of the closed landfill incorporated a composite liner consisting of a clay cover with an overlying geomembrane. Mr. Raines's assessment was that the weight of the new waste would compress the underlying clay strata to the point of saturation at which point the effective stress on the clay/geomembrane interface would be reduced to the point of instability. Mr. Raines proposed the redesign of ripping out the geomembrane (which the owner had been reluctant to do because they had received final closure of the cell) and designing the new cell with positive, inherently stable, slopes. Mr. Raines recommended, and the regulators required, that an extensive settlement monitoring system be installed in the new cell liner to verify that the liner was not being stressed in excess of the design allowables. Based on Mr. Raines's work, the new cell was permitted, which provided the landfill owner with a new revenue stream and the regulators with a permitted PCB landfill cell in the Midwest. The USEPA project manager received a cash bonus based on the successful completion of the work.



Kinder Morgan Canada Terminals, Vancouver, British Columbia KMCT Geotechnical Engineer 2008 - 2010

Santa Fe Pipeline Partners (SFPP) Exit 174 Release, Soda Springs, California SFPP Geotechnical Engineer 2007-2008

Sinkhole Claims Review, Florida Confidential Geotechnical Engineer 2012

Rumpke Landfill, Cincinnati, Ohio Rumpke Geotechnical Engineer 3/1996 - 1998 Mr. Raines designed a containment system for on-site groundwater impacted by operations at one of the largest marine terminals in Canada. The containment system consisted of more than 1,000 meters of slurry wall installed using the vibrating beam method along with a groundwater extraction and treatment system consisting of 15 extraction wells and treatment for metals removal.

SFPP operates a high-pressure petroleum products pipeline between Nevada and California running parallel to Highway 80 and the Santa Fe Railroad alignment through Donner Summit in the High Sierra. A slow leak from the pipeline resulted in impacts to soil above Highway 80, which threatened water quality in the wild and scenic Yuba River. Responding to the release, SFPP authorized the installation of a groundwater collection system at the toe of the slope in the Highway 80 median. After operating the system for two years, SFPP opted to excavate the petroleum-impacted soils to restore the site to its pre-release condition. Mr. Raines organized both a physical (boring) and geophysical exploration program for the site to assess the quantity of soils requiring excavation and the need for shoring below the active pipeline. Mr. Raines designed a shoring system for the top of the excavation consisting of soldier piles and lagging with optional tie-backs, which would be installed if the excavation exceeded a critical depth. The petroleum-impacted soils were successfully excavated during the summer of 2009. The groundwater extraction system and treatment system were decommissioned in 2010 with the assent of the Nevada County Department of Environmental Health.

Mr. Raines was retained to review sinkhole claims in Florida. Under then Florida law, homeowners could claim sinkhole "activity" was affecting their home (a single crack in stucco was sufficient), leaving the insurance company to investigate the claim and prove the negative (that sinkhole "activity" was not occurring). Between 2006 and 2010, there were 24,671 open and closed sinkhole claims in Florida with \$1.4 billion in total sinkhole costs. Mr. Raines prepared a methodology to assess sinkhole "activity" claims that could be implemented cost-effectively and which shifted the burden of proof, in most cases, onto the insured property that hairline cracks in stucco surfaces were due to sinkholes rather than expected wear and tear.

On March 9, 1996, the north slope of the Rumpke Landfill, located near Cincinnati, Ohio, failed. Approximately 1.4 million cubic yards of municipal solid waste (MSW) moved 1,000 feet in about two minutes, completely filling a new landfill cell, which had just been constructed below the existing slope. The landslide left a vertical scarp in waste more than 100 feet high. A few days later the landfill caught on fire. Mr. Raines designed and supervised the installation of the slope monitoring system for the failed slope to verify that additional slope movement was unlikely. The monitoring system consisted of vibrating wire piezometers and inclinometers. Mr. Raines performed the slope stability analyses for the forensic analysis to assess the causes of the slide and also performed the stability analyses for the redesign of the landfill.



San Bernardino County Department of Public Health Landfills, San Bernardino, CA SB County Geotechnical Engineer 1993

Puente Hills Landfill, Los Angeles County, California LA County Geotechnical Engineer 1997-1998

Orange County Integrated Waste Management Department, Orange County, California OCICW Geotechnical Engineer 1992 - 1997

Tracy Tire Pile Fire Site, Tracy, California *CIWMB Geotechnical Engineer* 2006 Designed and permitted two non-standard final covers for landfills in the high desert. The Title 27 prescriptive cover, a geomembrane over 2 feet of low permeability clay supporting a vegetative cover, was deemed unworkable in the high desert because the vegetative cover would not support sufficient vegetation to prevent erosion and the high temperatures would degrade both the geomembrane and the underlying clay. Negotiated approval of the designs with the Lahontan Water Board, convincing them that a prescriptive Subtitle D landfill cover was inappropriate for desert conditions. The final covers selected were a geomembrane with a soil erosion layer and a geotextile covered by cobbles.

Design of a grading plan for a landfill expansion was complicated by slopes with adversely oriented bedding planes containing weak claystone and the need to preserve a ridge for visual mitigation. Grading the existing slopes to 4 Horizontal to 1 Vertical (4H:1V) would have reduced the permitted fill volume and used up earthfill needed for landfill operations. Mr. Raines designed a slope stabilization system that consisted of passive soil anchors tied into surface bearing blocks, which allowed the slopes to be cut on 2H:1V. This saved more than \$4.2 million compared to other systems and greatly increased the available air space for waste disposal. More than 260 soil anchors up to 52 m long (at the time, the longest ever installed in North America) with capacities up to 4,450 kN were distributed over the three upper benches by the specialty contractor, who completed the project in 39 working days, three months ahead of schedule, with no change orders.

Designed a geomembrane-only liner system for a canyon fill at the Olinda-Alpha Landfill that transitioned into a prescriptive liner system in the canyon base. Required the analysis of geomembrane/waste interfaces on steep slope and the design of a groundwater control system to route groundwater from below the liner system. Implemented the Subtitle D statistical program for five Orange County Landfills. Developed the methods to be used at the Orange County IWMD landfills. As the landfills were all canyon fills with dramatically different geology up and down canyon, Analysis of Variance was of limited use. Shewart-CUSUM Control Charts (intrawell analysis) were selected to assess landfill monitoring data.

For the California Integrated Waste Management Board, assessed the mass stability of a 100-foot high, 1H:1V cut slope at a former waste tire facility. The slope had to be 1H:1V because the top of slope was at the property line. The slope consisted of all cemented sands of uncertain shear strength. Developed recommendations for: safe work practices for further excavations at the site, a final slope configuration, and measures to be taken to revegetate and mitigate erosion on the final slope.



United Spiral Pipe Pipe Mill, Pittsburg, California USP Geotechnical Engineer 2007-2009

Alexander Dam, Kauai, Hawaii

Alexander & Baldwin Geotechnical Engineer 2005 - 2006

Regional Oversight Contract, San Francisco, California US EPA Program Manager 9/98-9/2006 Mr. Raines was the geotechnical engineer of record for the \$130 million United Spiral Pipe pipe mill located in Pittsburg, California. The project involved the construction of a 10-acre under roof spirally welded pipe mill. The project was interesting because of the unusually high floor loads resulting from the storage of more than 120 35-ton (each) steel coils inside the mill on a foundation constructed over compressible clays. In addition, the project roads were subject to unusually high traffic indices and the pipe laydown yard had a traffic index higher than the Santa Monica Freeway's. The high floor loads were mitigated by installing a 35-foot-high preload on the site with wick drains. The purpose of the wick drains was to accelerate consolidation to meet the project's accelerated construction schedule. The high traffic indices on the site roads were addressed through the use of geogrids and thick sections of gravel with the understanding that routine preventative maintenance would be required to address rutting in the yard. Operations began at the facility in October 2009.

Mr. Raines was the project manager for the rehabilitation of the Alexander Dam Spillway located on the island of Kauai in Hawaii. The Alexander Dam is the tallest dam in Hawaii. It was constructed using hydraulic mining techniques in the late 1920s. In the spring of 2005, record rainfall in the dam watershed resulted in serious erosion of the dam spillway. The resulting construction project, all in a natural resources protection zone, involved the rehabilitation of 2 miles of access road, the grading of 50,000 cubic yards of material off the spillway canyon wall to provide safe working conditions in the spillway canyon bottom, the installation of 12,000 cubic yards of boulders in the spillway canyon to serve as the base for a new spillway, and the installation of a siphon system across the damaged spillway to reduce the likelihood of a spillway event during construction. The project was successfully completed in 2006. Mr. Raines worked on more than 30 Phase I Dam Inspections for the same client.

Mr. Raines was the program manager for the USEPA Regional Oversight Contract (ROC), a \$7.2 million dollar indefinite delivery/indefinite quantity (ID/IQ) contract that used 80% of its authorized budget and which was extended twice. As the program manager, Mr. Raines expanded the project staff from one person (himself) to 12 fulltime equivalent employees and operated the most profitable office in the company. In addition to his programmatic and corporate duties, Mr. Raines was also the site manager for McClellan Air Force Base, the largest of the 35 federal facility cleanups, for which his staff was providing support to USEPA Region IX. In addition, Mr. Raines provided technical reviews for Corrective Action Management Unit (CAMU) designs, natural attenuation remedies for chlorinated organic compounds and petroleum hydrocarbon plumes, slurry wall specifications, Engineering Evaluations/Cost Assessments (EE/CA) for groundwater contamination remedies, statistical analysis of removal action data for soils and groundwater, RI/FS reports, RCRA facility investigations (RFI) reports, and landfill designs. He worked with the USEPA project manager for the Treasure Island Naval Station remedial action project to oversee Navy cleanup of Treasure Island.

Selected Publications and Presentations

Seed, Raymond B., and Raines, Jeffery R. 1988. "Failure of Flexible Long-Span Culverts Under Exceptional Live Loads", Transportation Research Record, 1191 Culverts and Tiebacks, Transportation Research Board, National Research Council.



Raines, Jeffery R., Borja, R.I., Anwar, H., and Seed, Raymond B. 1984. "Numerical Analysis of Membrane Penetration Effects on Undrained Triaxial Tests", in Proceedings of the Third International Conference on Soil Dynamics and Earthquake Engineering, Princeton, New Jersey, June 22-24, Elsevier Press Series, Advances in Geotechnical Engineering, Vol. 42, pp 353-364.

Seed, Raymond B., Koseff, Jeffrey R., and Raines Jeffery R. 1987. "Scale Model Hydraulic Flow Tests of Corrugated Box Culverts and Smooth-walled Flexible Box Structures", Geotechnical Report No. SU/GT/87-02, Stanford University. July.

Raines, Jeffery R. 1987. The Big Island, William Morrow Company.

Raines, Jeffery R. 1989. Unbalanced Acts, Avon Books.

APPENDIX C-D

AS-BUILT DRAWINGS AND SPECIFICATIONS

APPENDIX C-E

TRAINING REQUIREMENTS

40 CODE OF FEDERAL REGULATIONS FOR ASBESTOS-CONTAINING MATERIALS (ACM)

TITLE 8 CALIFORNIA CODE OF REGULATIONS FOR ASBESTOS IN CONSTRUCTION

Note: As of June 2005, there are no federal or state health and safety training requirements regarding work related to NOA. The requirements cited below apply to work with Asbestos Containing Materials (ACM) and Potentially Asbestos Containing Materials (PACM), and will be used as guidelines for "best available management practices when determining the level of training required for District maintenance staff. Because the NOA levels are low in the base rock, the base rock is not classified as Asbestos Containing Material by the BAAQMD or OSHA.

Class I Asbestos Work

In accordance with 8 CCR, §1529 (b) and (k)(9)(E), "Class I asbestos work" means activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM. Training for Class I operations and for Class II operations that require the use of critical barriers (or equivalent isolation methods) and/or negative pressure enclosures under this section shall be the equivalent in curriculum training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training (40 CFR Part 763, Subpart E, Appendix C-C).

Class II Asbestos Work

In accordance with 8 CCR, §1529 (b) and (k)(9)(E), "Class II asbestos work" means activities involving the removal of ACM which is not TSI or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Training for other Class II work.

- 1. For work with asbestos containing material involving roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, training shall include at a minimum all the elements included in subsection (k)(9)(H) of this section and in addition, the specific work practices and engineering controls set forth in subsection (g) of this section which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours.
- 2. An employee who works with more than one of the categories of material specified in subsection (k)(9)(0)1 of this section shall receive training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

3. For Class II operations not involving the categories of material specified in subsection (k)(9)(D)1 of this section, training shall be provided which shall include at a minimum all the elements included in subsection (k)(9)(H) of this section and in addition, the specific work practices and engineering controls set forth in subsection (g) of this section which specifically relate to the category of material being removed, and shall include "hands- on" training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

Class III Asbestos Work

In accordance with 40 CFR §763.92 (a)(1) and 8 CCR §1529 (k)(9)(E), "Class III asbestos work" means repair and maintenance operations, where asbestos-containing materials are likely to be disturbed. Training for Class III employees shall be- consistent with United States Environmental Protection Agency (US-EPA) requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include "hands- on" training and shall take at least 16 hours.

Exception: For Class III operations for which the competent person determines that the US-EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in subsection (k)(9)(H) of this section and in addition, the specific work practices and engineering controls set forth in subsection (g) of this section which specifically relate to that activity, and shall include "hands-on" training in the work practices applicable to each category of material that the employee disturbs.

Class IV Asbestos Work

In accordance with 40 CFR § 763.92 (a)(1) and 8 CCR §1529 (k)(9)(F), "Class IV asbestos work" means maintenance and custodial activities during which employees contact but do not disturb ACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Training for employees performing Class IV operations shall be consistent with US-EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR § 763.92(a)(1). Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet

been certified; and instruction in recognition of damage, deterioration, and decontamination of asbestos- containing building materials. Such course shall take at least 2 hours.

Other Training

In accordance with 8 CCR (k)(9)(G), training for employees who are likely to be exposed in excess of the Permissive Exposure Limit (PEL) and who are not otherwise required to be trained under subsections (k)(9)(C) through (F) of this section, shall meet the requirements of subsection (k)(9)(H) of this section.

(H) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in subsections (k)(9)(C) through (F) of this section, the employer shall ensure that each such employee is informed of the following:

- Methods of recognizing asbestos, including the requirement in subsection (k)(1) of this section to presume that certain building materials contain asbestos;
- 2. The health effects associated with asbestos exposure;
- 3. The relationship between smoking and asbestos in producing lung cancer;
- 4. The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures where Class III and IV work will be or is performed, the contents of EPA 20T-2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;
- 5. The purpose, proper use, fitting instructions, and limitations of respirators as required by Section 5144;
- 6. The appropriate work practices for performing the asbestos job;
- 7. Medical surveillance program requirements;
- 8. The content of this standard including appendices;
- 9. The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking

cessation. The employer may distribute the list of such organizations contained in Appendix C-I to this section, to comply with this requirement; and

10. The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

Access to Training Materials

(A) The employer shall make readily available to affected employees without cost, written materials relating to the employee training program, including a copy of this regulation.

(B) The employer shall provide to the Chief and the Director, upon request, all information and training materials relating to the employee information and training program.

(C) The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89-1647, or equivalent self-help material, which is approved or published

Training Specific to the Lauren School Upper Campus

A sealed jar of base rock, or several jars if visually different varieties of base rock are encountered during demolition of the existing asphalt surfaces at the Site, and a sample of the orange warning geotextile will be maintained at the school to show school maintenance workers and contractors what the base rock and geotextile look like.

APPENDIX C-F

INSPECTION CHECKLIST FOR NOA CAP REMEDIES
Inspection Checklist Laurel School Upper Campus 275 Elliott Drive, Menlo Park, California

Date	Inspector Name/Signature	
Inspection Frequency	Supervisor Name/Signature-	

Area	Surface Condition	Maintenance Required?	Recommended Action Schedule		
	OK?		Plan	Implement	Completion
Landscape Area 1: Soccer Field	Yes 🛛 No 🗆	Yes 🛛 No 🗆			
Landscape Area 2: Baseball/Softball Outfields	Yes 🗆 No 🗆	Yes 🗆 No 🗆			
Landscape Area 3: Baseball/Softball Infields	Yes 🗆 No 🗆	Yes 🛛 No 🗆			

1. All areas are shown on Figure 3, Map of Areas with Cap Systems

2. Inspection for the landscape cover systems should ensure that vegetation on the surface remains healthy, that there are no bare soil areas are without vegetation (other than the baseball and softball infields which should not be allowed to rut; and that fencing is intact.

APPENDIX C-G

STANDARD OPERATING PROCEDURE (SOP) FOR NOA INTRUSIVE WORK AT LAUREL SCHOOL UPPER CAMPUS, MENLO PARK, CALIFORNIA

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1.0 INTRODUCTION

1.1 Objectives

The primary goal of this Standard Operating Procedure (SOP) is preventing uncontrolled exposures to asbestos particles from base rock containing Naturally-Occurring Asbestos (NOA) and to protect the health of students, faculty, staff, O&M personnel, and visitors at the Laurel School Upper Campus located at 275 Elliott Drive, Menlo Park, California (the "Site"). This SOP is available for public review, with copies maintained at the Site and at the Menlo Park City District (the "District") offices. Any changes to the SOP for a NOA intrusive project must be approved by the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) (Section 2.1.2 of this SOP) and documented in the Completion Report (Section 8.5 of the O&M Plan).

1.2 Naturally-Occurring Asbestos (NOA) Hazard Summary

Asbestos is the common name for a series of naturally-occurring iron- magnesium-silicate minerals. Six asbestos minerals are currently referenced in state regulations; see Title 22 California Code of Regulations (CCR), Section 66261.24(a)(2) and Appendix X to Chapter 11, Title 22, Division 4.5, CCR. These six minerals are classified in two different groups based on their fiber characteristics: a) chrysotile belongs to the "serpentine" mineral group; b) the remaining regulated asbestos minerals (amosite, crocidolite, actinolite, anthophyllite, and tremolite) belong to the "amphibole" mineral group. The NOA at the Site appears to be amphibole. All regulated forms of asbestos are considered hazardous, and classified as known human carcinogens by state, federal, and international agencies. As defined in H&SC Section 25316 and Section 25260 respectively, asbestos is both a hazardous substance and a hazardous material.

Human health effects of asbestos are dependent primarily upon exposure to airborne asbestos fibers, which can be inhaled deeply into lungs. Exposure to asbestos through inhalation can result in health impacts, including respiratory disease (asbestosis, a non-cancerous fibrosis of the lungs) and lung cancer (mesothelioma, cancer of the lung lining). Breathing of asbestos dust has been related to scarring of lung tissue (asbestosis). In addition, asbestos and tobacco smoke have a strong interactive synergism, which can produce even higher incidences of lung cancer. The longer a person is exposed to asbestos, and the greater the intensity of exposure, the greater the chances for development of health problems.

1.3 Intrusive Work Activities

1.3.1 Intrusive Work Activities

Construction, repair, and/or maintenance activities at the Site are restricted by DTSC in accordance with the O&M Plan only when exposures of NOA-impacted base rock are reasonably anticipated or when releases occur. Notification to DTSC as described in Section 8.5

of the O&M Planof construction, repairs, and maintenance activities is not required unless NOAimpacted base rock are expected to be disturbed, or are inadvertently disturbed.

O&M personnel will submit all NOA intrusive Site construction and maintenance work order requests to the NOA Coordinator. The NOA Coordinator will evaluate in writing whether or not activities to be performed are considered "non- NOA intrusive" or "NOA intrusive".

"NOA intrusive" work includes any construction or maintenance work activities that disturb NOA-impacted base rock, including but not limited to: digging, excavating, grading, repairing, removing, trenching, filling, gardening, and other soil movement that may penetrate or otherwise compromise the caps in place, thereby opening pathways for possible human exposures to NOA.

If work is determined to be NOA intrusive, the NOA Coordinator will ensure that work practices are followed as specified in Section 7 of the O&M Plan. The NOA Coordinator will provide advance notice of scheduled work exceeding seven days in duration to DTSC in accordance with provisions in Section 8.5 of the O&M Plan.

"NOA intrusive" activities are prohibited at the Site unless conducted in accordance with applicable provisions of the O&M Plan and this SOP.

1.3.2 Non-NOA Intrusive Work

"Non-NOA intrusive work" is defined as including construction, repairs, and/or maintenance activities at the Site where exposure of NOA-impacted base rock is not anticipated and where the integrity of the cap, is not compromised. Non-NOA intrusive work includes work where the orange warning geotextile, if present, will not be penetrated or breached, even though work may be performed in upper layers of a cap system, e.g., clean fill. District policies require the following procedures be taken when conducting non-NOA intrusive work at the Site.

- NOA Coordinator or designee will provide information regarding location of cap systems and base rock containing NOA to maintenance workers or appropriate employees and selected contractors and O&M personnel to minimize likelihood of NOA intrusion.
- O&M Professional and/or O&M personnel will conduct inspections during construction and/or maintenance activities at the Site to ensure NOA-impacted base rock are not being disturbed.
- In the event that NOA-impacted base rock is inadvertently disturbed, the integrity of engineered controls is compromised, or the orange warning geotextile is breached, the NOA Coordinator is responsible for notifying DTSC in accordance with provisions in Section 8.5 of the O&M Plan.

1.3.3 NOA Intrusive Work

The following procedures are required by the District when performing

NOA intrusive construction, repair, or maintenance activities to:

- a) ensure that safeguards are in place to prevent or minimize NOA exposures to anyone at the Site;
- b) prevent untrained or unauthorized personnel from performing intrusive work in NOA areas; and
- c) restore the integrity of engineering controls (cap systems) in place if impaired or compromised by such activities.

These procedures are overseen by the NOA Coordinator for all NOA intrusive work (as defined in Section 7 of the O&M Plan) performed by, or on behalf of, the District at the Site:

- provide information regarding location of cap systems, cross-section construction details, and locations of all base rock containing NOA to selected contractors and O&M personnel.
- verify that O&M personnel and selected contractors and their employees will comply with federal and state OSHA requirements.
- require District employees to follow established site-specific health and safety requirements before starting NOA intrusive work.
- require that construction and maintenance work be performed under and in accordance with a DTSC-approved SOP.
- evaluate timelines, school and work schedules to ensure that NOA intrusive work is completed as soon as possible to minimize exposure risks.
- require reasonable restrictions to Site access to reduce exposures to non-workers.
- implement dust control practices that utilize water.
- manage any NOA-containing or impacted base rock brought to the surface in accordance with the base rock management plan in SOP Section 4.5 and in compliance with applicable, relevant, and appropriate provisions of state and federal law.
- comply with all applicable, relevant, and appropriate federal, state, and local requirements, such as the California Air Resources Board (CARB) Final Regulation Order, Section 93105, Asbestos Airborne Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations; also Section 93106, Asbestos

Airborne Toxic Control Measure for Surfacing Applications and BAAQMD Regulation 14, Rule 12.

1.4 NOA Coordinator

Ahmad Sheikholeslami Chief Business and Operations Officer Menlo Park City District 181 Encinal Ave - Atherton CA - 94027 Office: 650-321-7140 ext 5614 Mobile: 650-303-6230 asheikholeslami@mpcsd.org

In event of the absence of the NOA Coordinator, responsibilities will be temporarily performed by the On-Site NOA Coordinator. The On-Site NOA Coordinator is the Principal of the Site whose office is located at the Site.

The responsibilities of the NOA Coordinator are as follows:

- reporting planned activities that will potentially disturb NOA to the appropriate regulatory agencies, if required, including the BAAQMD Air Pollution Control Officer (APO) and the DTSC, prior to commencement of the activities.
- notify teachers, students, parents, maintenance personnel, and administrators of the implementation of the plan and answer questions about plan requirements;
- ensure that any contractors or community/parent groups working at the school are aware of the plan;
- maintain records associated with the plan, including mitigation reports, air sampling reports, periodic surveillance documentation, etc.;
- coordinate project-related air monitoring and periodic surveillance activities;
- coordinate maintenance activities involving the disturbance of potentially NOAimpacted base rock; and,
- coordinate all maintenance staff NOA awareness training.

Campus occupants such as teachers, maintenance staff, athletic coaches, community/ parent groups, the principal, and other administrators also have responsibilities under the O&M Plan. Campus occupants must ensure they do not conduct activities which may disturb NOA-impacted base rock without first contacting the NOA Coordinator or his/her designated representative. The following table includes personnel included in the plan and their basic responsibilities.

District NOA O&M Plan	Personnel Responsibilities	
NOA Coordinator	The NOA Coordinator is responsible for the implementation and maintenance of the Site NOA O&M Plan. This includes approval of all non-emergency work requests and all notification and record keeping requirements.	
On-Site NOA Coordinator	The On-Site NOA Coordinator is the primary contact with community and parent groups in regards to the Site NOA O&M Plan and its requirements. The On-Site NOA Coordinator reports to the NOA Coordinator on all areas.	
the Site Maintenance Staff	The Site Maintenance Staff are responsible for conducting and recording monthly inspections of the NOA mitigation controls at the Site. Under this Plan the Maintenance Staff reports to the NOA Coordinator and On-Site NOA Coordinator.	
the Site Occupants	Campus occupants such as the teachers, athletic coaches, other staff, and community/parent groups are responsible for conducting all the Site campus activities in accordance with this NOA O&M Plan.	

1.5 **O&M Professional**

Jeff Raines, P.E. (C51120), G.E. (2762) Principal Engineer 1404 Franklin Street, 6th Floor Oakland, California 94612 Jeff.Raines@terraphase.com 510-645-1850 510-645-1853 (direct) 510-507-3086 (cell) 510-380-6304 (fax)

Pursuant to Business and Professions Code, Chapters 7 and 12.5, and the California Code of Regulations, Title 16, Chapters 5 and 29, the O&M Professional is a California-registered professional with expertise in NOA investigation and remediation, e.g., engineer or geologist, who is familiar with the cap systems installed at the Site. To demonstrate expertise in NOA investigation and remediation, and the statement of

qualifications of the consulting firm responsible for his/her work are included as Appendix C-C of the O&M Plan.

The responsibilities of the O&M Professional are to:

- conduct annual inspections (including five-year reviews);
- prepare and sign Annual Inspection Summary Reports and Five-Year
- Review Reports; and
- other environmental professional work related to NOA matters at the Site.

1.6 NOA Contractor Qualification

Asbestos awareness training is recommended for all contractors who may come into contact with NOA-impacted base rock at the Site. In accordance with California Code of Regulations (CCR), Title 8, Subchapter 4, *Construction Safety Orders*, Section 1529(k)(9)(g), persons who may at any time be exposed to concentrations greater than the permissible exposure limit (PEL) for asbestos (0.1 fibers/cc in eight hours) must attend asbestos awareness training within 60 days of hire, and must also attend annual refresher training¹.

Training provided to contractors is commensurate with the work class and will include, but not be limited to, the following subjects:

- methods of recognizing base rock;
- Site NOA locations;
- health effects associated with asbestos exposure;
- appropriate hazard controls; and
- work practices to avoid disturbing NOA and prevent NOA exposures (e.g., wet methods; protective clothing; respirators; proper cleanup and disposal; decontamination of equipment and clothing; relationship between smoking, asbestos, and cancer).

1.7 Modified or New SOP

It is the responsibility of the NOA Coordinator to notify the DTSC if there is any change to the Standard Operating Procedure (SOP), whether or not the change is permanent (new) or

¹ If perimeter and personnel air monitoring during the consolidation of the base rock shows that less than 0.1 fiber per cubic centimeter was generated during the mass movement of the base rock, the training requirement will be waived as it is unlikely that any future operations at the Site will be as disturbing of the base rock as the initial consolidation activity.

temporary (modified). It is required that the DTSC be notified of any modifications to the SOP 14 days before intrusive work begins, regardless of the duration of the project. The DTSC requires 30 days' prior notice of a new SOP, regardless of the duration of the project.

2.0 NOTIFICATION

2.1 Notification to DTSC

2.1.1 NOA Intrusive Work Duration Longer Than Seven Days

It is the responsibility of the NOA Coordinator to notify the DTSC if scheduled NOA intrusive work exceeds seven days in duration. In instances where an unscheduled repair is required due to base rock disturbance from an unplanned event (i.e., emergency repair of storm drain), it is the responsibility of the NOA Coordinator to notify DTSC if the problem is not repaired within a period of 14 days after the discovery of the problem.

2.1.2 Implementation of Modified or New SOP

In the event that a new SOP or modification to an existing SOP is implemented, it is the responsibility of the NOA Coordinator to make sure that the new or modified SOP is given to all necessary parties.

2.1.3 Notice of Contingencies or Emergencies

In the event of an emergency that disturbs potential NOA-impacted base rock, contact the On-Site NOA Coordinator (Principal) and the NOA Coordinator. The NOA Coordinator will evaluate the situation, document the repair plan, and then notify the DTSC.

2.2 Public Right to Know

2.2.1 Notification to School Community Members

Appropriate public participation activities is conducted as needed.

2.2.2 Notification to Contractor

Any contractor working at the Site will be made aware of the different engineering controls for NOA and how to avoid them if possible. The contractor and his/her employees must comply with federal and state OSHA requirements.

3.0 WORK ORDER

Prior to conducting any intrusive work in the soccer field or baseball/softball diamond, the On-Site NOA Coordinator (school principal) will prepare a work order indicating the scope of the intrusive activities and will forward the work order to the NOA Coordinator for his/her signature. The work will not begin until the work order has been signed by the NOA Coordinator.

All work orders are appended to the annual report.

4.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

4.1 Health and Safety Requirements

This document is provided as a basis of worker health and safety for maintenance workers of the District for work activities that may impact NOA at the Site. Base rock at the Site has been previously sampled and NOA has been identified in the base rock. The base rock was excavated from the Site and consolidated below the soccer and baseball fields during development of the Site in 2015. The consolidated base rock is covered by a minimum of 12 inches of soil. There is an orange warning geotextile fabric between the base rock and the overlying soil. As a result of this work, the potential for exposure to NOA containing base rock has been reduced.

The purpose of this SOP is to address health and safety requirements for those activities that will result in disturbing any base rock that is currently capped.

4.1.1 Activities Identified Which May Disturb NOA

Custodians

The primary functions of custodial staff at the Site involves sweeping, clean- up of walking surfaces, cleaning interior of buildings and cleaning exterior of buildings.

The potential impact to NOA by the Custodial Staff at the Site is considered minimal. Since the Site has been mitigated, there are no exposed areas of NOA that would result in "tracking" NOA material into the buildings on the shoes of students and staff. Future cleaning of the interior of the classrooms by dusting, vacuuming, and sweeping by the custodial staff using existing methods is not anticipated at causing elevated exposures to asbestos.

Maintenance Staff and Athletic Maintenance and Grounds

The maintenance staff at the Site are the primary workers who might impact NOA at the Site through planned projects and unplanned emergency projects. The primary duties identified for maintenance staff that may impact NOA include, but are not limited to:

- Maintenance on the 24-inch diameter storm drain
- Tree planting
- Utility installations

4.1.2 Responsibilities of Key Personnel

The NOA Coordinator is in charge of all operations at the school and oversee enforcement of the health and safety of all employees who may impact NOA. The onsite Maintenance Staff

Supervisor is responsible for day to day enforcement of the health and safety provisions of all work activities on the Site.

4.1.3 Hazard Evaluation

Airborne dust levels have been identified as the primary means of potential exposure to asbestos during disturbance of NOA. Reduction of airborne dust levels by water suppression methods is the method of choice for minimizing airborne dust. Hand watering using hoses attached to existing water faucet hose bibs, or by hand sprayers will be used to wet those areas where NOA will actively be disturbed. Visible dust emissions of suspect or known areas of NOA is not allowed during any phase of work activity. It is not anticipated visible dust emissions will be a major factor when the water suppression measures are employed.

Mechanical safety hazards and other hazards associated with the various work activities the maintenance staff may potentially face with regards to the operation of personal vehicles, trucks, and other heavy equipment will be addressed by the maintenance staff and will be covered by their own project specific health and safety plan and the school Injury and Illness Prevention Program (IIPP). These items will not be addressed in this document.

4.1.4 Personal Protection Requirements

The following requirements apply for personal protection of maintenance staff when NOA is disturbed:

- Based on the very limited amount of disturbance of suspect or known NOA and the strict requirement for water suppression and no visible dust emissions, respirators <u>will not</u> be required for any of the small scale activities anticipated on the campus during earth disturbance by the maintenance staff.
- 2. The primary basis for not requiring respirators is that no visible dust emissions are created when disturbing suspect areas of NOA or known areas of NOA. No work is allowed to proceed if there are visible dust emissions generated and all work will stop until sufficient wetting of the base rock is achieved. The exposed NOA-impacted base rock is adequately wetted to assist in no visible emissions, but care should be made so as not to add too much water to make the work difficult.
- 3. The workers will wear high leather work boots or rubber boots depending upon the work activity and wetness (muddy conditions). Leather gloves and rubber gloves are made available for use by the workers and are used as the conditions dictate. In most cases, gloves may not be necessary. Good personal hygiene is necessary for all maintenance staff who are disturbing NOA.

 Disposable Tyvek[™] overalls and boot covers are supplied to maintenance workers exposing NOA-impacted baserock. The disposable overalls and boot covers are disposed of a minimum of once per day.

4.1.5 Decontamination Procedures

Clean potable water is available in the immediate work area to provide washing of lower arms and hands of workers at the end of each work period. The use of this water for worker cleaning is self-enforced.

Vehicular decontamination procedures will include washing the tires at the site to prevent tracking out onto paved and non-paved access roads and paths to the different work areas. Since any work activity conducted by the maintenance staff will include collection and stockpiling NOA-impacted base rock onto either plastic or sheets of plywood, the likelihood of significant track-out potential is very low.

4.1.6 Tailgate Meetings

The NOA Coordinator and onsite Maintenance Supervisor will hold an initial "tailgate" meeting to discuss the specific requirements of this Health and Safety Plan, dust mitigation measures, required personal protective equipment, and personal hygiene requirements for every project where NOA is impacted.

A worker sign-in sheet is used to document participation in all tailgate meetings and the topics discussed.

4.1.7 Protection from the Public

The uninvited public, students, and staff will not be allowed in the immediate work areas on site and will be asked to leave by the District maintenance personnel conducting the work. The work area will be delineated using construction "cones," construction ribbon, and/or fencing to keep people out of the immediate work area.

4.2 Dust Control- Non-NOA Intrusive

Dust control for construction projects is regulated by the BAAQMD, and the requirements are stated in Regulation 6 - Particulate Matter - Rule 1 General Requirements. The purpose of this Rule is to reduce the generation of particulate matter entrained into the air as a result of manmade fugitive dust sources. The provisions of this Rule are applicable to specified outdoor fugitive dust sources. The Rule indicates:

6-1-305 Visible Particles: A person shall not emit particles from any operation in sufficient number to cause annoyance to any other person, which particles are large enough to be visible as individual particles at the emission point or of such size and nature as to be visible individually as incandescent particles. This Section 6-1-305 shall

only apply if such particles fall on real property other than that of the person responsible for the emission.

4.2.1 Dust Mitigation Plan - Air Quality Management District

Chapter 8, Division VII, San Mateo County Ordinance Code requires that an owner/ operator submit a Fugitive Dust Control Plan prior to the start of any construction activity requiring a grading permit to be issued by San Mateo County.

4.2.2 Wet Control

Enough water is supplied via water truck or irrigation system to adequately dampen any disturbed base rock so as to not generate dust.

4.2.3 Engineering Controls

The engineering controls that have been put into place at the school that may possible be encountered during non-NOA intrusive work include:

- Orange warning geotextile visible barrier;
- Imported clean fill; and
- Landscaping.

4.2.4 Cease Operation

When sustained wind speeds result in visible dust emissions that leave the property despite the application of dust suppression measures, activity except for application of water will be suspended.

4.3 **Dust Control - NOA Intrusive Activities**

The BAAQMD does not consider the base rock at the Laurel School Upper Campus to be asbestos containing material and hence the County regulations govern the control of dust during activities that may disturb the base rock.

4.3.1 Wet Control

Enough water is supplied via water truck or irrigation system to adequately dampen any disturbed base rock so as to not generate dust.

4.3.2 Engineering Controls

The engineering controls that have been put into place at the school that may possibly be encountered during NOA intrusive work include:

• Geotextile visible barrier;

- Imported clean fill;
- Landscaping; and
- Hardscaping.

4.3.3 Cease Operation

When sustained wind speeds result in visible dust emissions in excess of the standards in BAAQMD Regulation 6, despite the application of dust mitigation measures, grading and earthmoving operations, except for dust mitigation activities, will be suspended.

4.4 Run-on and Runoff Control

4.4.1 Storm Water Pollution Prevention Plan (SWPPP)

For any earthwork activity that exceeds 1.0 acre of disturbed material, a Storm Water Pollution Prevention Plan and permit are required by San Mateo County. However, even if the area of disturbed material does not exceed 1.0 acre, all construction activities still have to meet water quality standards. The State of California Water Resources Control Board (SWRCB), in conjunction with the National Pollutant Discharge Elimination System (NPDES), has adopted a statewide General Permit to Discharge Stormwater Associated with Construction Activity (General Permit) to address discharges of storm water runoff associated with applicable construction activities. The Regional Water Quality Control Board (RWQCB) is the responsible agency for implementing and enforcing General Permit provisions. The General Permit requires all dischargers where construction activity disturbs one acre or more to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) to prevent discharge of sediments to the storm drains and drainages in the area. California Stormwater BMP Handbook, Construction Manual, may be obtained from http://www.cabmphandbooks.com. It is suggested that the contractor obtain copies of this manual. Other appropriate publications exist and may have applicable BMP methods.

4.5 NOA-Impacted Base Rock Stockpiling Operation

If NOA is handled by grading or other development operations (e.g., stockpiling) within the same general area of concern, it will not be subject to hazardous waste regulations. No specific offsite disposal is required – the asbestos concentration in the base rock is below the regulatory standards that would govern disposal of asbestos-containing materials (ACM).

Base rock staging and storage operations must be stabilized. Stockpiles that are within 100 yards of off-site occupied buildings must not be greater than eight feet in height, and must have a road bladed to the top to allow for a water truck to have access or have an operational irrigation system that is capable of complete stockpile coverage. It is recommended that any removal or addition of material to the stockpile occur on the downwind side of the storage

area to minimize dust exposure. It is also recommended that there be regular maintenance of the stockpile to prevent any material from sliding.

- Excavated base rock should be accumulated on an impermeable surface, e.g., plastic tarp, dumpster, concrete foundation.
- Excavated base rock should be covered (e.g., with plastic tarp or building roof) to prevent windblown dispersion, and bermed to prevent run-on and runoff.
- The contractor should inspect the stockpiled base rock area routinely (e.g., daily) and after storms to ensure that controls for windblown dispersion and precipitation run-on and runoff are functioning properly.

4.5.1 Off-Site Disposal of NOA-impacted base rock

After completion of grading or mitigation actions, excess base rock will be managed properly for off-site disposal. Hazardous waste requirements do not apply to the movement or disposal of the base rock as the NOA concentrations in it are below the regulatory threshold of 0.25% (assuming no other hazardous constituent than asbestos presents). Excess NOA materials may be disposed of at a landfill (Class I, II, or III) permitted to accept such a waste.

5.0 **IMPLEMENTATION OF SOP**

5.1 Field Documentation

5.1.1 Field Logs

It is important that all NOA intrusive work be documented. Daily field reports should contain key information including, but not limited to:

- Project name;
- Project location;
- Contractor;
- Name of the person who approved the work;
- Any persons present at the site;
- Weather;
- Field Representative; and
- Detailed description of the events that took place during the course of the day.

The daily field log should be filled out by a competent person and submitted to the NOA Coordinator.

5.1.2 Photos

Photo documentation should be completed periodically in order to have a visual account on file of what tasks were performed throughout the project. These photos should be filed with the NOA CIA Permit Application submitted to the NOA Coordinator.

5.2 Site Preparation

Primary consideration is given to the protection of building occupants and workers. The following steps are taken for any work that may involve disturbing NOA-impacted base rock:Restrict entry to the area for all personnel other than those needed to perform the work.

5.2.1 Work Area Delineation and Security Measures

The uninvited public, students, and staff will not be allowed in the immediate work areas on-site, and will be asked to leave by the construction superintendent or designee.

The plant supervisor, site principal, and NOA Coordinator should be informed of all unauthorized persons who enter the immediate work area. The work area is delineated using construction "cones," construction ribbon, and/or fencing to keep people out of the immediate work area.

5.2.2 Utility Survey and Clearance

Prior to initiating any NOA intrusive work, review the Site plans for the location of any:

- NOA mitigated areas;
- Utility lines; and
- Previously undisturbed areas.

5.3 **Decontamination**

5.3.1 Work Area

Decontaminate the work area by using water and spraying any dirt toward a NOA containment area. Do not dry sweep any material, as that will generate dust.

5.3.2 Decontamination of Workers

Clean potable water is available in the immediate work area to provide washing of lower arms and hands of workers at the end of each work period. Use of the water for worker decontamination will be self-enforced.

5.3.3 Decontamination of Equipment and/or Truck

Vehicular decontamination procedures will include washing the tires at the site to prevent tracking out onto paved and non-paved access roads and paths to the different work areas.

5.4 Backfill, Compaction, and Site Restoration

Any disturbed area will be restored to original condition. If any NOA engineering controls have been damaged, for example, any tears made in the geotextile fabric, they must be repaired or replaced so that it is restored to its original specification. All backfill and compaction will meet all the specifications set forth in the original geotechnical report for the school.

5.5 Work Completion Inspection

For any NOA intrusive work completed, the NOA Coordinator will inspect any site repairs or improvements to ensure that everything has been fixed and restored in an acceptable manner before that area is opened for public use.

APPENDIX C-H

NOA INSPECTION SUMMARY REPORT OUTLINE

Annual Report Outline

1.0 **GENERAL INFORMATION**

- 2.0 NARRATIVE OF OBSERVATIONS
 - 2.1 Purposes of Current Annual Inspection
 - 2.2 Site Walkthrough
 - 2.3 Annual Inspection Checklist and Field Log
 - 2.4 Discussion
 - 2.4.1 Landscape Areas - Cap Integrity
 - **Corrective Action Schedule**
- i. 3.0 CONCLUSIONS AND RECOMMENDATIONS
 - 3.1 Conclusions
 - 3.2 Recommendations
- 4.0 SIGNATURE

Appendices

- 01 Site Location Map
- 02 Site Plan Map
- 03 Periodic (Monthly) Inspection Checklists
- 04 **Training Records**
- 05 NOA Intrusive Work Completion Reports (if applicable)
- 06 Annual Inspection Checklist and Field Notes
- 07 Photo Log: Include photographs depicting site conditions

APPENDIX C-I

NOA INTRUSIVE WORK COMPLETION REPORT OUTLINE

NOA INTRUSIVE WORK COMPLETION REPORT OUTLINE

- 1.0 GENERAL INFORMATION
- 2.0 PUBLIC NOTIFICATION ACTIVITIES (if applicable)
- 3.0 SUMMARY OF WORK ORDER
 - 3.1 Work Location (maps and figures for larger projects)
 - 3.2 Description of Work Activities
- 4.0 SITE PREPARATION
 - 4.1 Field Documentation
 - 4.1.1 Field Logbooks
 - 4.1.2 Photographs
 - 4.2 Site Preparation and Security Measures
 - 4.2.1 Work Area Delineation and Security Measures
 - 4.2.2 NOA Control
 - 4.2.3 Permits and Plan (if applicable)
- 5.0 REPAIR, MAINTENANCE, AND SITE RESTORATION
 - 5.1 Excavation
 - 5.1.1 Soil Staging, Segregation and Storage Operations
 - 5.1.2 Excavation Plan
 - 5.1.3 Decontamination
 - 5.2 Repair or Maintenance
 - 5.3 Compliance with Health and Safety Requirements
 - 5.4 Dust Control
 - 5.6 Transportation Plan for Offsite Disposal (if applicable)
 - 5.7 Backfill and Site Restoration
- 6.0 FIELD VARIANCE OR CHANGE ORDER (if applicable)
- 7.0 SIGNATURE

APPENDIX C-J

5-YEAR REPORT OUTLINE

NOA FIVE YEAR REVIEW REPORT OUTLINE

1.0 GENERAL INFORMATION

- 1.1 Purpose of Current Five Year Review and Inspection
- 1.2 Citation and Location of Previous Annual and Five Year Reviews, Removal Action Workplan
- 1.3 Summary of Cap Systems
- 1.4 Changes since Previous Five Year Review
- 2.0 NARRATIVE OF OBSERVATIONS
 - 2.1 Site Walkthrough
 - 2.3 Annual Inspection Checklist and Field Log
 - 2.4 Discussion
 - 2.4.1 Landscape Areas- Cap Integrity
 - i. Corrective Action Schedule
- 3.0 TECHNICAL ASSESSMENT
- 4.0 CONCLUSIONS AND RECOMMENDATIONS
- 5.0 SIGNATURE

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- 01 Site Location Map
- 02 Site Plan Map
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- 04 Training Records
- 05 NOA Intrusive Work Completion Reports (if applicable)
- 06 Annual Inspection Checklist and Field Notes
- 07 Photo Log: Include photographs depicting site conditions