

## **APPENDIX K**

### **Additional Subsurface Investigation and Water Well Evaluation**



# AEI Consultants

## Environmental & Engineering Services

February 20, 2018

### ADDITIONAL SUBSURFACE INVESTIGATION & WATER WELL EVALUATION

**Property Identification:**

Cypress Point  
Carlos Street and Sierra Street  
Moss Beach, San Mateo County, California 94038

AEI Project No. 350428

**Prepared for:**

Mr. Andrew Bielak  
MidPen Housing Corporation  
303 Vintage Park Drive, Suite 250  
Foster City, California 94404

**Prepared by:**

AEI Consultants  
3880 S. Bascom Avenue, Suite 109  
San Jose, California 95124  
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Appendix C	Statistical Analysis
Appendix D	Conceptual Site Drawings



February 20, 2018

Mr. Andrew Bielak  
MidPen Housing Corporation  
303 Vintage Park Drive, Suite 250  
Foster City, California 94404

**Re: Additional Subsurface Investigation & Water Well Evaluation  
Project Number 350428  
Cypress Point  
Carlos Street and Sierra Street  
Moss Beach, San Mateo County, California 94038**

Dear Mr. Bielak:

This report presents the results of the Additional Subsurface Investigation conducted by AEI Consultants (AEI) for the Cypress Point development project, located to the north of the intersection of Carlos Street and Sierra Street in Moss Beach, San Mateo County, California (the "Site"). This report has been prepared based on the conclusions and recommendations presented in AEI's *Limited Phase II Subsurface Investigation Report* dated February 15, 2016, as well as in accordance with AEI's proposal dated May 11, 2017 (AEI Proposal No. 52158).

During AEI's *Limited Phase II Subsurface Investigation*, thirty-four (34) exploratory borings (B-1 through B-34) were advanced at the Site. Soil samples obtained at the borings were analyzed for the presence of total petroleum hydrocarbons as gasoline (TPH-g), as diesel (TPH-d), and as motor oil (TPH-mo), as well as for polychlorinated biphenyls (PCBs), metals, total hexafurans, and other dioxins/furans (at few boring locations). Analytical results for soils showed concentrations of lead exceeding applicable San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for any land use/any depth (for construction workers) and residential land use at the 0.0-foot depth at two (2) boring locations (B-7 and B-21). The horizontal extent of lead-impacted soils around these two (2) locations was undefined. The vertical extent of lead-impacted soils at these locations had been delineated based on lead concentrations not exceeding applicable RWQCB ESLs. The locations of the exploratory borings are shown on Figure 1.

An existing water supply well (upper well) also had been identified at the Site during the *Limited Phase II Subsurface Investigation*. The surface completion for this well was found to consist of a rusted, welded steel plate covering the top of the well casing that is encased within a rectangular-shaped, concrete pad. At the time of the Limited Phase II Subsurface Investigation, it was unknown if the well had been properly abandoned in accordance with San Mateo County Environmental Health (SMCEH) regulations.

The purpose of this investigation was to assess the horizontal extent of lead-impacted soils around Borings B-7 and B-21 that were found to exceed applicable RWQCB ESLs. The scope of work included a limited drilling/confirmation sampling program and further inspection and evaluation of the existing water supply well for future abandonment purposes. Information regarding the methodology and results of the investigation is provided in the following sections of this report.

### **1.0 HEALTH AND SAFETY PLAN**

The Site-specific health and safety plan for this project was updated, reviewed by onsite personnel, and kept onsite for the duration of the fieldwork

### **2.0 PERMITTING AND UNDERGROUND SERVICES ALERT NOTIFICATION**

No drilling permit was required from SMCEH for this investigation.

Prior to conducting the drilling program, the planned boring locations were staked and marked with white paint. Upon marking the boring locations, Underground Services Alert (USA) North was contacted, who, in turn, notified subscribing utility companies for their underground utility locations to be marked along property boundaries and around planned boring locations.

February 20, 2018

### **3.0 FIELD ACTIVITIES**

#### **3.1 Exploratory Borings**

The drilling program for this investigation was conducted on September 22, 2017. Six (6) exploratory borings (CS-1 through CS-6) were advanced to the 2.0-foot depth using a hand-auger. Borings CS-1 through CS-3 were positioned around existing Boring B-7. Borings CS-4 through CS-6 were positioned around existing Boring B-21. Upon completion of drilling, the borings were backfilled with soil cuttings generated during the drilling program. The locations of these borings are shown on Figure 2.

The borings were continuously sampled throughout their entire depths for the purposes of lithologic logging and selection of soil samples for laboratory analyses. Soil samples were obtained using a hand-driven, slide hammer that contained a core barrel lined with a 2-inch diameter by 6-inch long stainless-steel tube for each sample drive. Soil samples were obtained at the 0.0- and 1.5-foot depths at each boring. Upon retrieval from each sample depth interval, each liner was removed and prepared for laboratory analyses, as well as visually inspected for lithologic logging purposes. Recovered soil samples were examined for soil classification and described on detailed boring logs in general conformance with the Unified Soil Classification System (USCS). The boring logs are presented in Appendix A.

Soil samples selected for laboratory analyses were sealed, labeled, and entered onto chain of custody documentation for transportation to a California state-certified laboratory for analyses. Upon collection, the ends of the sample tubes were covered with Teflon tape and capped. The samples were labeled with the project name, project number, boring number, sample depth, and sampling date/time of sampling. After labeling, the samples were placed into a chilled ice chest containing crushed ice for transport to the analytical laboratory.



### **3.2 Existing Water Well Evaluation**

On October 2, 2017, the existing water well (upper well) was inspected by Wilkinson Well and Pump of Half Moon Bay, California. During their inspection, it was found that the top of the well was covered with tree branches and debris and the well cover had been removed. The driller attempted to obtain a depth-to-water measurement in the well, but could not do so because of blockage present at the 13.3-foot depth. The vertical extent of the blockage below this depth could not be assessed. The driller observed a section of broken or cracked well casing at the 5-foot depth. The driller also noted that the well was constructed with steel casing and contained an inner liner consisting of polyvinyl chloride (PVC) casing. The diameter of the PVC casing was approximately 5 inches. The depths of the outer steel casing and inner PVC casing could not be determined. The total depth of the well also could not be determined.

### **4.0 LABORATORY ANALYSES**

Soil samples obtained during the drilling program were submitted to McCampbell Analytical, Inc. of Pittsburg, California for laboratory analyses. Samples from the 0.0-foot depth were analyzed for the presence of lead using United States Environmental Protection Agency (USEPA) Method 6010. Additional samples from the 1.5-foot depth also were submitted to the analytical laboratory, and placed on hold. The samples were analyzed over a standard turnaround time (TAT). Chain-of-custody documentation and the certified analytical report are provided in Appendix B.

### **5.0 FINDINGS**

#### **5.1 Subsurface Conditions**

The results from the drilling program show that the Site is underlain by residual soils primarily consisting of clayey and silty sands. These soils were similar to those soils encountered during AEI's previous investigation. No groundwater was encountered during drilling activities. No visual or olfactory evidence (i.e., soil discoloration, odor) of impacted soils was observed in any of the recovered soil cores during drilling operations.

#### **5.2 Analytical Results**

Soil analytical results, along with the analytical results from the previous investigation, are presented on Table 1. As previously mentioned, chain-of-custody documentation and the certified analytical report are provided in Appendix B.

Lead was detected in each of the soil samples analyzed from the 0.0-foot depth in Borings CS-1 through CS-6. Detected concentrations of lead ranged between 13 and 290 milligrams per kilogram (mg/kg). Of these concentrations, lead was found to exceed its applicable RWQCB ESLs for residential land use and any land use/any depth (for construction workers) at only one (1) location, Boring CS-3 (at a concentration of 290 mg/kg), which lies slightly north of Boring B-7.

As discussed with MidPen Housing Corporation, the Site will be redeveloped for residential land use. During redevelopment, the entire Site will be graded and the potential exposure to lead-impacted soils will be removed. The elevated concentrations of lead within the area(s) around Boring CS-3, as well as around Boring B-21, will be graded during future redevelopment. The



areas around Borings CS-1 and B-21 will be covered by community building and residential structure, respectively, as shown on the Conceptual Site Drawings presented in Appendix D.

Because of the anomalous, elevated concentration of lead detected in the surface soil sample at Boring CS-3, along with the non-detect and detected concentrations of lead in other samples analyzed during this investigation and the previous investigation, a statistical analysis for the lead concentrations in surface soils was performed consistent with the lead evaluation procedure identified under Section H of the California Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk (HERO) Note Number 4, DTSC-modified Screening Levels (DTSC-SLs), dated June 9, 2011. This statistical analysis was performed on a total of forty-four (44) soil samples that were generally obtained from the 0.0 and 1.5-foot depths (with the exception of a few samples obtained at depths as deep as 7 feet bgs), which exhibited both non-detectable and detectable concentrations of lead. The analysis was run using the USEPA's ProUCL Version 5.1 software to establish a representative Site-wide background concentration for lead and to evaluate potential human health risk.

The results of the statistical analysis show that the calculated 95% Adjusted Gamma Upper Confidence Level (UCL) for lead in surface soils at the Site is 42.04 mg/kg. This concentration is below applicable RWQCB ESLs for both residential use and any land use/any depth for construction workers. The RWQCB ESL for lead under a residential land use scenario is more conservative than the United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for lead in resident soil. Furthermore, the RWQCB ESL is the same as the DTSC-recommended screening level for residential soil, as presented in Table 1 of DTSC's Hero Note No. 3. California Human Health Screening Level (CHHSL) for lead under a residential land use scenario. The USEPA RSL and CHHSL for lead under residential scenarios also were referenced in DTSC Hero Note No. 4. The results of the statistical analysis are presented in Appendix C. As previously mentioned above, the locations of Borings B-7 and B-21, where the elevated concentrations of lead were detected relative to the Conceptual Site Drawings are shown in Appendix D.

## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

AEI completed an additional subsurface investigation and water well evaluation at the Site. The purpose of the investigation was to assess the extent of lead-impacted soils that were found to exceed applicable San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for any land use/any depth (for construction workers) and residential land use. The investigation also was conducted to evaluate the potential human health risk relative to the lead concentrations detected in soils across the Site. In addition, the existing water well was inspected for future abandonment purposes. The well was found not to be properly abandoned in accordance with SMCEH regulations.

Six (6) shallow exploratory borings were advanced during this investigation. The borings were positioned around two (2) locations (Borings B-7 and B-21) where lead concentrations had been found to exceed applicable RWQCB ESLs during the previous investigation. Samples obtained from the 0.0-foot depth were analyzed for the presence of lead. Analytical results showed concentrations of lead that were below applicable RWQCB ESLs except for one (1) of the six (6) locations, where an anomalous, elevated concentration of lead was detected. Because of this outlier, a statistical analysis was performed to establish a representative Site-wide background concentration for lead,



as well as to evaluate its potential human health risk in shallow soils. The results of the statistical analysis show that the calculated 95% Adjusted Gamma UCL for lead in shallow soils is 42.04 mg/kg.

Because the statistical analytical results show that the calculated UCL for lead is below its applicable RWQCB ESLs for both residential and construction worker scenarios, it is concluded that the lead concentrations in shallow soils across the Site do not pose a significant potential human health risk relative to the planned development. Furthermore, massive grading will occur at the Site during redevelopment activities. Because of the planned grading, areas of localized elevated lead concentrations around Borings B-7 and B-21 will be mixed and further homogenized, further reducing the potential human health risks associated with shallow soils.

While no known environmental conditions have been identified, as a precautionary measure, it is recommended that a Site Management Plan (SMP) be developed to provide a framework for appropriately addressing potential environmental conditions, such as underground storage tanks (USTs) or other subsurface structures, that may be encountered during future development activities. The SMP will provide information regarding Site-specific conditions and previous investigation results, a summary of known and potential environmental conditions and contaminants of potential concern, provisions for a Site-specific health and safety plan (HASP), as well as odor, storm water, and noise control plans for worker protection, guidelines for sampling and managing impacted or potential-impacted soils that may be encountered (contingency plan), notification(s) to appropriate regulatory agency(ies), and documentation of environmental conditions encountered during Site development.

On the basis of the information, presented herein, no further investigation or remedial action is warranted at this time. It is recommended that the existing water supply well be properly destroyed in accordance with SMCEH regulations.

## **7.0 REFERENCES**

AEI Consultants, 2015, *Limited Phase II Subsurface Investigation, Carlos Street at Sierra Street, Moss Beach, San Mateo County, California 94038*, report prepared for MidPen Housing Corporation dated February 15, 2016.

California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO), 2018, *HERO Human Health Risk Assessment (HHRA) Note Number 3: DTSC-modified Screening Levels (DTSC-SLs)*, dated January 2018.

California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO), 2011, *HERO Human Health Risk Assessment (HHRA) Note Number 3: Screening Level Human Health Risk Assessments*, dated June 9, 2011.

California Regional Water Quality Control Board, San Francisco Bay Region, 2013, *User's Guide: Derivation and Application of Environmental Screening Levels and Detailed Lookup Tables*, Interim Final 2013.

United States Environmental Protection Agency, 2016, *ProUCL: Statistical Support Software for Site Investigation and Evaluation*.





*Cypress Point  
Carlos Street and Sierra Street  
Moss Beach, San Mateo County, California 94038*

## 8.0 REPORT LIMITATIONS AND RELIANCE

This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the requested information, subject to scope of work for which AEI was retained and limitations inherent in this type of work, but it cannot be assumed that they are representative of areas not sampled. This report should not be regarded as a guarantee that no further contamination beyond that which could have been detected within the scope of this investigation is present beneath the subject property. Undocumented, unauthorized releases of hazardous material, the remains of which are not readily identifiable by visual inspection and are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation.

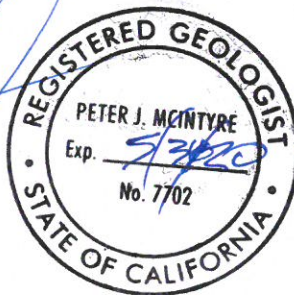
Any conclusions and/or recommendations are based on these analyses and observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document. These services were performed in accordance with generally accepted practices, in the environmental engineering and construction field, which existed at the time and location of the work. No other warranty, either expressed or implied, has been made.

This investigation was prepared for the sole use and benefit of MidPen Housing Corporation. All reports, both verbal and written, whether in draft or final, are for the benefit of Seagate Properties, Inc. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns. Reliance is provided in accordance with AEI's Proposal and Standard Terms & Conditions executed by MidPen Housing Corporation. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

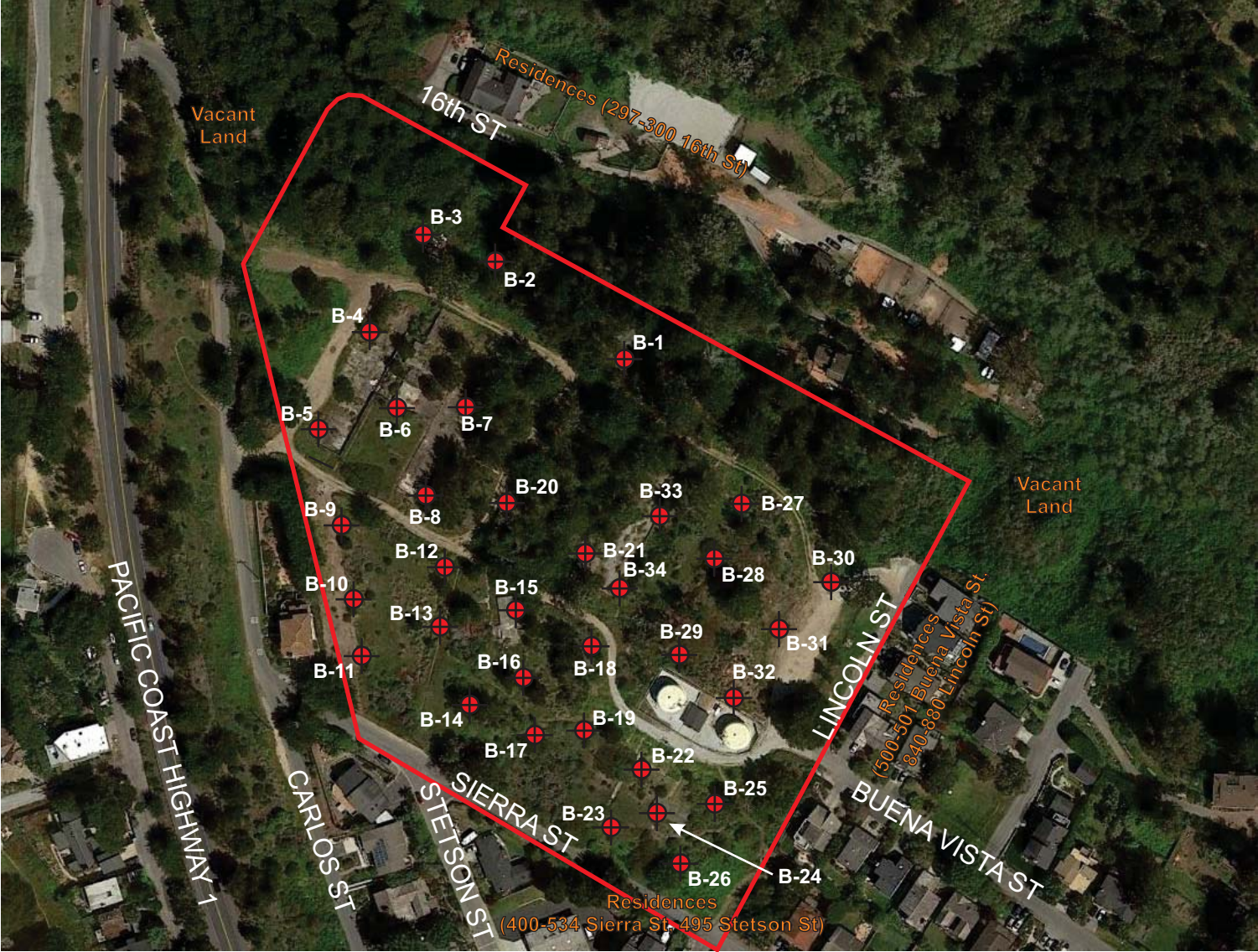
If you have any questions or comments regarding this report, please do not hesitate to contact me at (925) 746-6000.

Sincerely,

  
Peter McIntyre, P.G. (7702)  
Executive Vice President  
**AEI Consultants**  
2500 Camino Diablo  
Walnut Creek, California 94597



## FIGURES



LEGEND

- Approximate Property Boundary
- ⊕ Exploratory Boring



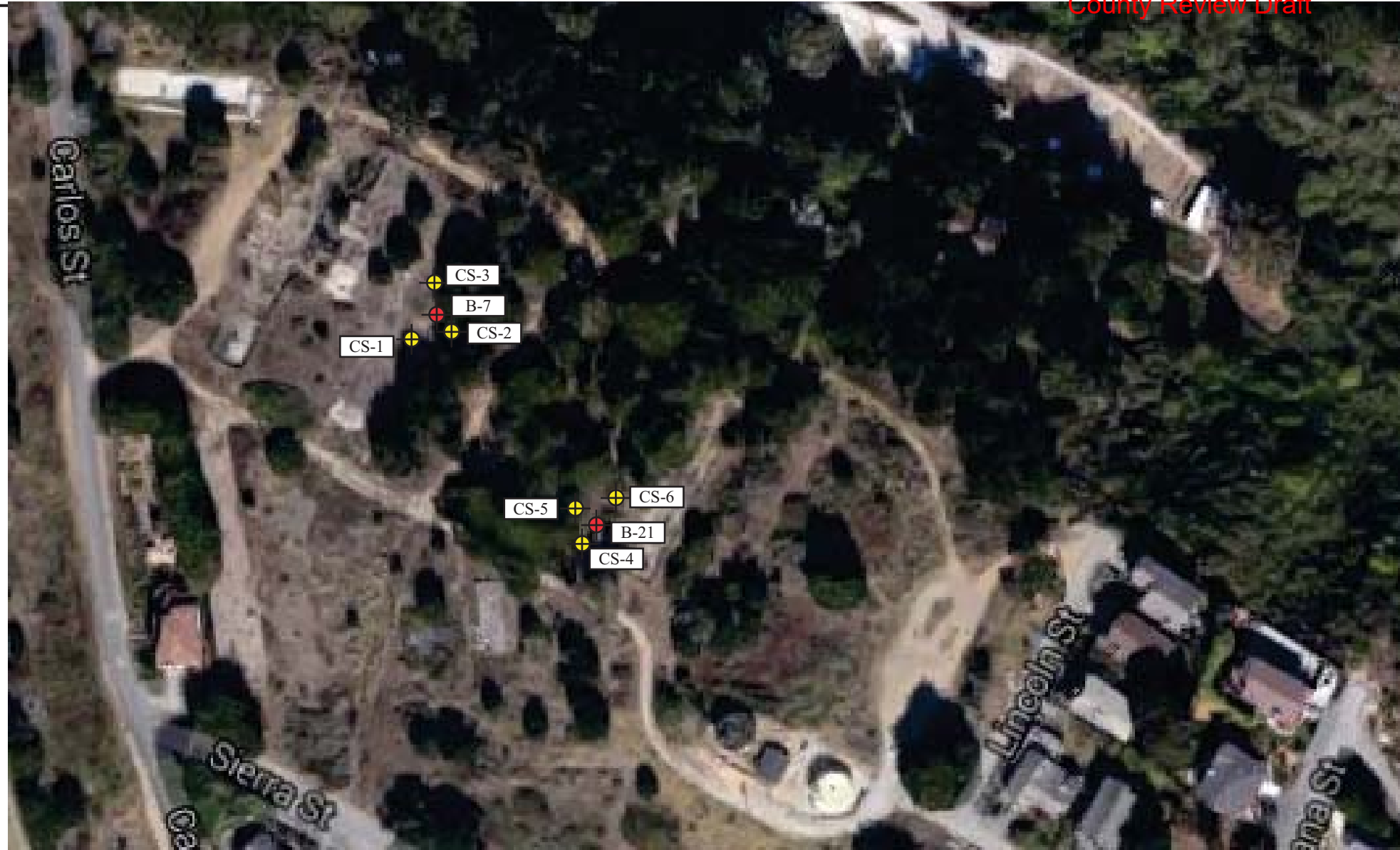
AEI CONSULTANTS

3880 S. BASCOM AVENUE, SAN JOSE, CALIFORNIA



SITE PLAN

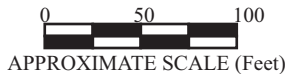
Carlos Street at Sierra Street  
Moss Beach, California

FIGURE 1  
Project No. 350428



**LEGEND**

-  Soil Boring (AEI, 2017)
-  Exploratory Boring (AEI, 2015)



**AEI CONSULTANTS**

3880 S. BASCOM AVENUE, SAN JOSE, CALIFORNIA

**CONFIRMATION BORING LOCATIONS**

Carlos Street at Sierra Street  
Moss Beach, California

**FIGURE 2**  
Project No. 350248

## TABLES

**TABLE 1: SOIL SAMPLE DATA SUMMARY**  
**Carlos Street at Sierra Street, Moss Beach, California 94038**

Location ID	Date	Depth (feet bgs)	Lead (mg/kg)
B-1-1.5	12/22/2015	1.5	4.5
B-3-2.0	12/23/2015	2	--
B-3-5.0	12/23/2015	5	--
B-4-0.0	12/23/2015	0	29
B-5-0.0	12/23/2015	0	54
B-6-0.0	12/23/2015	0	8.4
B-7-0.0	12/23/2015	0	<b>230</b>
B-7-1.5	12/23/2015	1.5	7
CS-1	9/22/2017	0	36
CS-2	9/22/2017	0	13
CS-3	9/22/2017	0	<b>290</b>
B-8-0.0	12/23/2015	0	23
B-9-0.0	12/22/2015	0	6.5
B-10-0.0	12/22/2015	0	45
B-11-0.0	12/22/2015	0	6.2
B-12-5.0	12/23/2015	5	--
B-13-6.0	12/23/2015	6	--
B-14-2.0	12/23/2015	2	--
B-15-0.0	12/22/2015	0	25
B-15-7.0	12/23/2015	7	--
B-16-0.0	12/22/2015	0	15
B-17-4.0	12/22/2015	4	--
B-18-0.0	12/22/2015	0	12
B-19-0.0	12/22/2015	0	7.9
B-20-0.0	12/22/2015	0	41
B-20-1.5	12/22/2015	1.5	8.1
B-21-0.0	12/22/2015	0	<b>88</b>
B-21-1.5	12/22/2015	1.5	8.8
CS-4	9/22/2017	0	30
CS-5	9/22/2017	0	38
CS-6	9/22/2017	0	53
B-22-0.0	12/22/2015	0	19
B-23-0.0	12/22/2015	0	15
B-24-0.0	12/22/2015	0	16
B-25-0.0	12/22/2015	0	8.9
B-26-0.0	12/22/2015	0	7.4
B-27-0.0	12/22/2015	0	6.3
B-28-0.0	12/22/2015	0	9.7
B-29-0.0	12/22/2015	0	8.7
B-30-0.0	12/22/2015	0	9.1
B-31-0.0	12/22/2015	0	7.8
B-32-0.0	12/22/2015	0	7.0
B-33-0.0	12/22/2015	0	39
B-34-0.0	12/22/2015	0	34
<b>Comparison Levels</b>			
RWQCB ESL residential			<b>80</b>
RWQCB ESL for any land use/any depth			<b>160</b>

**Notes:**

mg/kg	milligrams per kilogram
bgs	below ground surface
<b>Bold</b>	result exceeds applicable comparison value
--	not analyzed

**Comparison Levels:**

RWQCB ESL San Francisco Bay Regional Water Quality Control Board Environmental Screening Level assuming direct exposure human health risk levels for residential and any land use/any depth for construction worker (RWQCB, February 2016, Table S-1)

**APPENDIX A**  
**BORING LOGS**



AEI Consultants

Environmental & Engineering Services

**CLIENT** MidPen Housing Corp. **PROJECT NAME** Cypress Point

**PROJECT NUMBER** 350428 **PROJECT LOCATION** Carlos Street at Sierra Street, Moss Beach, California

**DATE STARTED** 9/22/17 **COMPLETED** 9/22/17 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 2.25 inches

**DRILLING CONTRACTOR** \_\_\_\_\_ **GROUND WATER LEVELS:**

**DRILLING METHOD** Hand Auger **AT TIME OF DRILLING** ---

**LOGGED BY** WBH **CHECKED BY** TGB **AT END OF DRILLING** ---

**NOTES** \_\_\_\_\_ **AFTER DRILLING** --- No groundwater encountered

AEI BORING - GINT STD US LAB.GDT - 11/13/17 14:55 - P:\COMPANYWIDE PROJECTS\350000 SERIES\350428 MOSS BEACH, CA\ASI & WATER WELL EVALUASI REPORT\APPENDICES\ASI SEPT 2017 BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0						
	CS-1-0.5				CLAYEY SAND (SC), brown, loose, dry, fine to medium sand	
	CS-1-1.5					
				2.0		

Bottom of borehole at 2.0 feet.





AEI Consultants

Environmental & Engineering Services

**CLIENT** MidPen Housing Corp.  
**PROJECT NUMBER** 350428  
**DATE STARTED** 9/22/17 **COMPLETED** 9/22/17  
**DRILLING CONTRACTOR** \_\_\_\_\_  
**DRILLING METHOD** Hand Auger  
**LOGGED BY** WBH **CHECKED BY** TGB  
**NOTES** \_\_\_\_\_

**PROJECT NAME** Cypress Point  
**PROJECT LOCATION** Carlos Street at Sierra Street, Moss Beach, California  
**GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 2.25 inches  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** ---  
**AFTER DRILLING** --- No groundwater encountered

AEI BORING - GINT STD US LAB.GDT - 11/13/17 14:55 - P:\COMPANYWIDE PROJECTS\350000 SERIES\350428 MOSS BEACH, CA\ASI & WATER WELL EVALUASI REPORT\APPENDICES\ASI SEPT 2017 BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0						
	CS-2-0.5				CLAYEY SAND (SC), brown, loose, moist, fine to medium grained sand	
	CS-2-1.5					
				2.0		

Bottom of borehole at 2.0 feet.



AEI Consultants

Environmental & Engineering Services

**CLIENT** MidPen Housing Corp.  
**PROJECT NUMBER** 350428  
**DATE STARTED** 9/22/17 **COMPLETED** 9/22/17  
**DRILLING CONTRACTOR** \_\_\_\_\_  
**DRILLING METHOD** Hand Auger  
**LOGGED BY** WBH **CHECKED BY** TGB  
**NOTES** \_\_\_\_\_

**PROJECT NAME** Cypress Point  
**PROJECT LOCATION** Carlos Street at Sierra Street, Moss Beach, California  
**GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 2.25 inches  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** ---  
**AFTER DRILLING** --- No groundwater encountered

AEI BORING - GINT STD US LAB.GDT - 11/13/17 14:55 - P:\COMPANYWIDE PROJECTS\350000 SERIES\350428 MOSS BEACH, CA\ASI & WATER WELL EVALUASI REPORT\APPENDICES\ASI SEPT 2017 BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0						
	CS-3-0.5				CLAYEY SAND (SC), brown, loose, moist, fine to medium grained sand, glass fragments	
	CS-3-1.5					
				2.0		

Bottom of borehole at 2.0 feet.



AEI Consultants

Environmental & Engineering Services

**CLIENT** MidPen Housing Corp.  
**PROJECT NUMBER** 350428  
**DATE STARTED** 9/22/17      **COMPLETED** 9/22/17  
**DRILLING CONTRACTOR** \_\_\_\_\_  
**DRILLING METHOD** Hand Auger  
**LOGGED BY** WBH      **CHECKED BY** TGB  
**NOTES** \_\_\_\_\_

**PROJECT NAME** Cypress Point  
**PROJECT LOCATION** Carlos Street at Sierra Street, Moss Beach, California  
**GROUND ELEVATION** \_\_\_\_\_      **HOLE SIZE** 2.25 inches  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** ---  
**AFTER DRILLING** --- No groundwater encountered

AEI BORING - GINT STD US LAB.GDT - 11/13/17 14:55 - P:\COMPANYWIDE PROJECTS\350000 SERIES\350428 MOSS BEACH, CA\ASI & WATER WELL EVALUASI REPORT\APPENDICES\ASI SEPT 2017 BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0						
	CS-4-0.5				SILTY SAND (SM), dark brown, loose, moist, fine to medium grained sand	
	CS-4-1.5			2.0		

Bottom of borehole at 2.0 feet.



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Environmental & Engineering Services

**CLIENT** MidPen Housing Corp.  
**PROJECT NUMBER** 350428  
**DATE STARTED** 9/22/17 **COMPLETED** 9/22/17  
**DRILLING CONTRACTOR** \_\_\_\_\_  
**DRILLING METHOD** Hand Auger  
**LOGGED BY** WBH **CHECKED BY** TGB  
**NOTES** \_\_\_\_\_

**PROJECT NAME** Cypress Point  
**PROJECT LOCATION** Carlos Street at Sierra Street, Moss Beach, California  
**GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 2.25 inches  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** ---  
**AFTER DRILLING** --- No groundwater encountered

AEI BORING - GINT STD US LAB.GDT - 11/13/17 14:55 - P:\COMPANYWIDE PROJECTS\350000 SERIES\350428 MOSS BEACH, CA\ASI & WATER WELL EVALUASI REPORT\APPENDICES\ASI SEPT 2017 BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0						
	CS-5-0.5			0.5	SILTY SAND (SM), dark brown, moist, fine to medium grained, loose	
	CS-5-1.5			2.0	SILTY SAND (SM), yellowish brown, moist, loose, fine to medium grained with cobbles	
Bottom of borehole at 2.0 feet.						



AEI Consultants

Environmental & Engineering Services

**CLIENT** MidPen Housing Corp. **PROJECT NAME** Cypress Point

**PROJECT NUMBER** 350428 **PROJECT LOCATION** Carlos Street at Sierra Street, Moss Beach, California

**DATE STARTED** 9/22/17 **COMPLETED** 9/22/17 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 2.25 inches

**DRILLING CONTRACTOR** \_\_\_\_\_ **GROUND WATER LEVELS:**

**DRILLING METHOD** Hand Auger **AT TIME OF DRILLING** ---

**LOGGED BY** WBH **CHECKED BY** TGB **AT END OF DRILLING** ---

**NOTES** \_\_\_\_\_ **AFTER DRILLING** --- No groundwater encountered

AEI BORING - GINT STD US LAB.GDT - 11/13/17 14:55 - P:\COMPANYWIDE PROJECTS\350000 SERIES\350428 MOSS BEACH, CA\ASI & WATER WELL EVALUASI REPORT\APPENDICES\ASI SEPT 2017 BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0						
	<input checked="" type="checkbox"/> CS-6-0.5				SILTY SAND (SM), dark brown, loose, moist, fine to medium grained sand	
	<input checked="" type="checkbox"/> CS-6-1.5			2.0		

Bottom of borehole at 2.0 feet.

**APPENDIX B**

**CHAIN-OF-CUSTODY AND CERTIFIED ANALYTICAL REPORT**



# McC Campbell Analytical, Inc.

"When Quality Counts"

## Analytical Report

**WorkOrder:** 1709A05

**Report Created for:** AEI Consultants

2500 Camino Diablo, Ste.#200  
Walnut Creek, CA 94597

**Project Contact:** William Hicks

**Project P.O.:** 142989

**Project Name:** 350428

**Project Received:** 09/22/2017

Analytical Report reviewed & approved for release on 09/28/2017 by:

Angela Rydelius,  
Laboratory Manager

*The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.*





## Glossary of Terms & Qualifier Definitions

**Client:** AEI Consultants  
**Project:** 350428  
**WorkOrder:** 1709A05

### Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

### Quality Control Qualifiers

F13 Indigenous sample results too high for a representative matrix spike analysis.





## Analytical Report

**Client:** AEI Consultants  
**Date Received:** 9/22/17 17:30  
**Date Prepared:** 9/25/17  
**Project:** 350428

**WorkOrder:** 1709A05  
**Extraction Method:** SW3050B  
**Analytical Method:** SW6020  
**Unit:** mg/Kg

### Lead

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
CS-1-5	1709A05-001A	Soil	09/22/2017 08:34	ICP-MS2 008SMPL.D	146035

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	<b>36</b>	0.50	1	09/26/2017 22:30
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Terbium	110	70-130		09/26/2017 22:30
<u>Analyst(s):</u> ND				

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
CS-2-5	1709A05-003A	Soil	09/22/2017 09:06	ICP-MS2 009SMPL.D	146035

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	<b>13</b>	0.50	1	09/26/2017 22:36
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Terbium	100	70-130		09/26/2017 22:36
<u>Analyst(s):</u> ND				

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
CS-3-5	1709A05-005A	Soil	09/22/2017 09:56	ICP-MS2 010SMPL.D	146035

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	<b>290</b>	0.50	1	09/26/2017 22:42
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Terbium	103	70-130		09/26/2017 22:42
<u>Analyst(s):</u> ND				

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
CS-4-5	1709A05-007A	Soil	09/22/2017 10:54	ICP-MS2 011SMPL.D	146035

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	<b>30</b>	0.50	1	09/26/2017 22:48
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Terbium	100	70-130		09/26/2017 22:48
<u>Analyst(s):</u> ND				

(Cont.)



## Analytical Report

**Client:** AEI Consultants  
**Date Received:** 9/22/17 17:30  
**Date Prepared:** 9/25/17  
**Project:** 350428

**WorkOrder:** 1709A05  
**Extraction Method:** SW3050B  
**Analytical Method:** SW6020  
**Unit:** mg/Kg

### Lead

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
CS-5-5	1709A05-009A	Soil	09/22/2017 11:14	ICP-MS2 012SMPL.D	146035

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	<b>38</b>	0.50	1	09/26/2017 22:54

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
Terbium	104	70-130	09/26/2017 22:54

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
CS-6-5	1709A05-011A	Soil	09/22/2017 11:47	ICP-MS2 013SMPL.D	146035

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	<b>53</b>	0.50	1	09/26/2017 23:00

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
Terbium	101	70-130	09/26/2017 23:00

Analyst(s): ND



## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 9/25/17  
**Date Analyzed:** 9/26/17  
**Instrument:** ICP-MS3  
**Matrix:** Soil  
**Project:** 350428

**WorkOrder:** 1709A05  
**BatchID:** 146035  
**Extraction Method:** SW3050B  
**Analytical Method:** SW6020  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-146035  
 1709A04-031AMS/MSD

### QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Lead	ND	45.6	0.50	50	-	91	75-125
<b>Surrogate Recovery</b>							
Terbium	473.2	469		500	95	94	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Lead	294	453	50	401.3	0,F13	103	75-125	NA	20
<b>Surrogate Recovery</b>									
Terbium	487	458	500		97	92	70-130	6.05	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Lead	387	401.3	3.56	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

WaterTrax     WriteOn     EDF

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 1709A05

ClientCode: AEL

Excel     EQuIS     Email     HardCopy     ThirdParty     J-flag  
 Detection Summary     Dry-Weight

**Report to:**

William Hicks  
AEI Consultants  
2500 Camino Diablo, Ste.#200  
Walnut Creek, CA 94597  
(925) 283-6000    FAX: (925) 944-2895

Email: whix@aeiconsultants.com  
cc/3rd Party: tbodkin@aeiconsultants.com;  
PO: 142989  
ProjectNo: 350428

**Bill to:**

Accounts Payable  
AEI Consultants  
2500 Camino Diablo, Ste. #200  
Walnut Creek, CA 94597  
AccountsPayable@AEIConsultants.com

**Requested TAT: 5 days;**

**Date Received: 09/22/2017**

**Date Logged: 09/25/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1709A05-001	CS-1-5	Soil	9/22/2017 08:34	<input type="checkbox"/>	A												
1709A05-003	CS-2-5	Soil	9/22/2017 09:06	<input type="checkbox"/>	A												
1709A05-005	CS-3-5	Soil	9/22/2017 09:56	<input type="checkbox"/>	A												
1709A05-007	CS-4-5	Soil	9/22/2017 10:54	<input type="checkbox"/>	A												
1709A05-009	CS-5-5	Soil	9/22/2017 11:14	<input type="checkbox"/>	A												
1709A05-011	CS-6-5	Soil	9/22/2017 11:47	<input type="checkbox"/>	A												

**Test Legend:**

1	PBMS_TTLC_S	2		3		4	
5		6		7		8	
9		10		11		12	

**Prepared by: Jena Alfaro**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: AEI CONSULTANTS
Client Contact: William Hicks
Contact's Email: whix@aeiconsultants.com

Project: 350428

Comments:

Work Order: 1709A05
QC Level: LEVEL 2
Date Logged: 9/25/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Table with 12 columns: Lab ID, Client ID, Matrix, Test Name, Containers /Composites, Bottle & Preservative, De-chlorinated, Collection Date & Time, TAT, Sediment Content, Hold, SubOut. Contains 12 rows of sample data.

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

**McCAMPBELL ANALYTICAL, INC.**  
 1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701  
 Telephone: (877) 252-9262 / Fax: (925) 252-9269  
[www.mccampbell.com](http://www.mccampbell.com) [main@mccampbell.com](mailto:main@mccampbell.com)

CHAIN OF CUSTODY RECORD									
Turn Around Time: 1 Day Rush	2 Day Rush	3 Day Rush	STD	●	Quote #				
J-Flag / MDL	ESL	Cleanup Approved	Bottle Order #						
Delivery Format: GeoTracker EDF	PDF	●	EDD	Write On (DW)	EQuS				

Report To: AEI Consultants Bill To: AEI Consultants  
 Company: AEI Consultants  
 Email: whix@aeiconsultants.com  
 Alt Email: tbodkin@aeiconsultants.com Tele: 925-746-6050  
 Project Name/#: 350428  
 Project Location: Moss Beach PO #142989  
 Sampler Signature: *[Signature]*

**Analysis Requested**

SAMPLE ID Location / Field Point	Sampling		#Containers	Matrix	Preservative	Analysis Requested														
	Date	Time				1	2	3	4	5	6	7	8	9	10					
CS-1-S	9/22	0834	1	Soil	ICE	X														
CS-1-1.5		0855					X													
CS-2-S		0906				X														
CS-2-1.5		0943					X													
CS-3-S		0956				X														
CS-3-1.5		1021					X													
CS-4-S		1054				X														
CS-4-1.5		1106					X													
CS-5-S		1114				X														
CS-5-1.5		1139					X													

Lead by 6070 Hold

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.						Comments / Instructions
Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.						
Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time	
<i>[Signature]</i>	9/22	1730	<i>[Signature]</i>	9/22	1730	

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other  
 Preservative Code: 1=4°C 2=HCl 3=H<sub>2</sub>SO<sub>4</sub> 4=HNO<sub>3</sub> 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 6.0 °C Initials \_\_\_\_\_





### Sample Receipt Checklist

Client Name: <b>AEI Consultants</b>	Date and Time Received: <b>9/22/2017 17:30</b>
Project Name: <b>350428</b>	Date Logged: <b>9/25/2017</b>
WorkOrder No: <b>1709A05</b> Matrix: <u>Soil</u>	Received by: <b>Kena Ponce</b>
Carrier: <u>Client Drop-In</u>	Logged by: <b>Jena Alfaro</b>

**Chain of Custody (COC) Information**

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

**Sample Receipt Information**

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

**Sample Preservation and Hold Time (HT) Information**

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample/Temp Blank temperature	Temp: 6°C		NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
(Ice Type: WET ICE )			

**UCMR Samples:**

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments:



**APPENDIX C**  
**STATISTICAL ANALYSIS**

**TABLE 1: SOIL SAMPLE DATA SUMMARY 95% UCL CALCULATION****Carlos Street at Sierra Street, Moss Beach, California 94038****November 2-2017**

<b>Location ID</b>	<b>Sample Date</b>	<b>Depth (feet bgs)</b>	<b>Lead (mg/kg)</b>
B-1-1.5	12/22/2015	1.5	4.5
B-3-2.0	12/23/2015	2	0.5
B-3-5.0	12/23/2015	5	0.5
B-4-0.0	12/23/2015	0	29
B-5-0.0	12/23/2015	0	<b>54</b>
B-6-0.0	12/23/2015	0	8.4
B-7-0.0	12/23/2015	0	<b>230</b>
B-7-1.5	12/23/2015	1.5	7
CS-1	9/22/2017	0	36
CS-2	9/22/2017	0	13
CS-3	9/22/2017	0	<b>290</b>
B-8-0.0	12/23/2015	0	23
B-9-0.0	12/22/2015	0	6.5
B-10-0.0	12/22/2015	0	45
B-11-0.0	12/22/2015	0	6.2
B-12-5.0	12/23/2015	5	0.5
B-13-6.0	12/23/2015	6	0.5
B-14-2.0	12/23/2015	2	0.5
B-15-0.0	12/22/2015	0	25
B-15-7.0	12/23/2015	7	0.5
B-16-0.0	12/22/2015	0	15
B-17-4.0	12/22/2015	4	0.5
B-18-0.0	12/22/2015	0	12
B-19-0.0	12/22/2015	0	7.9
B-20-0.0	12/22/2015	0	41
B-20-1.5	12/22/2015	1.5	8.1
B-21-0.0	12/22/2015	0	<b>88</b>
B-21-1.5	12/22/2015	1.5	8.8
CS-4	9/22/2017	0	30
CS-5	9/22/2017	0	38
CS-6	9/22/2017	0	<b>53</b>
B-22-0.0	12/22/2015	0	19
B-23-0.0	12/22/2015	0	15
B-24-0.0	12/22/2015	0	16
B-25-0.0	12/22/2015	0	8.9
B-26-0.0	12/22/2015	0	7.4

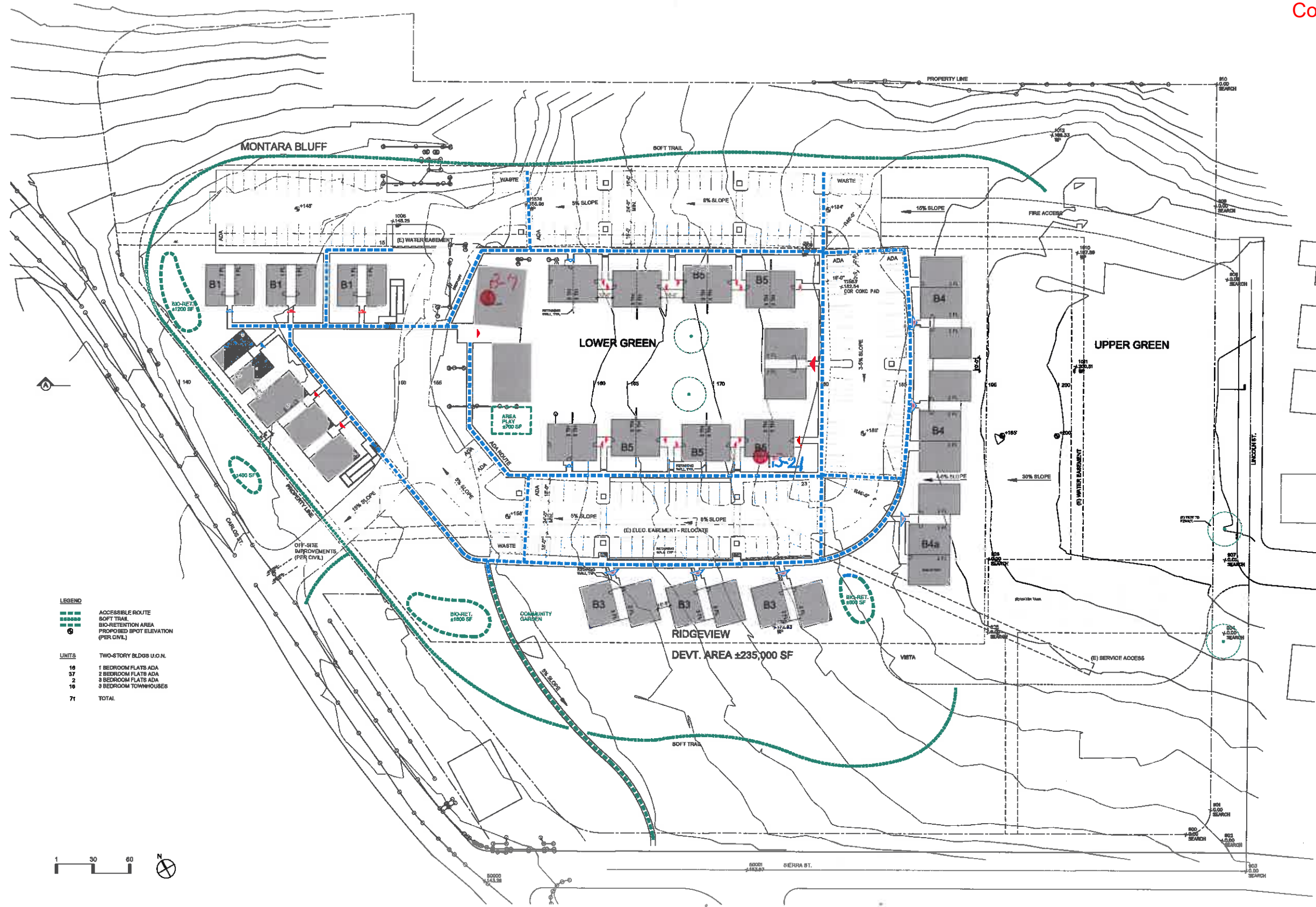
**TABLE 1: SOIL SAMPLE DATA SUMMARY 95% UCL CALCULATION**

<b>Carlos Street at Sierra Street, Moss Beach, California 94038</b>			
<b>November 2-2017</b>			
<b>Location ID</b>	<b>Sample Date</b>	<b>Depth (feet bgs)</b>	<b>Lead (mg/kg)</b>
B-27-0.0	12/22/2015	0	6.3
B-28-0.0	12/22/2015	0	9.7
B-29-0.0	12/22/2015	0	8.7
B-30-0.0	12/22/2015	0	9.1
B-31-0.0	12/22/2015	0	7.8
B-32-0.0	12/22/2015	0	7.0
B-33-0.0	12/22/2015	0	39
B-34-0.0	12/22/2015	0	34
<b>Comparison Levels</b>			
San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (RWQCB ESL) Residential Use			80
RWQCB ESL for any Land Use/any Depth			160
Total Threshold Limit Concentration (TTLC)			1,000
Soluble Threshold Limit Concentration (STLC)			5
<b>Statistical Analysis:</b>			
Lead Laboratory Reporting Limit (mg/kg) =			0.5
Total Number of Observations -			44
Sample Minimum =			0.5
Sample maximum =			290
Sample Mean =			28.88
Standard Deiation (SD) =			54.59
Coefficient of Variation (CV) =			1.89
EPA Pro UCL Version 5.1 Adjusted Gamma UCL (mg/kg) =			<b>42.04</b>

	A	B	C	D	E	F	G	H	I	J	K	L				
1	<b>95% UCL Calculation for Lead in Soil</b> <span style="float: right; color: red;">County Review Draft</span>															
2	<b>Carlos Street at Sierra Street, Moss Beach, California 94038</b>															
3	<b>November 2, 2017</b>															
4	User Selected Options															
5	Date/Time of Computation		ProUCL 5.111/2/2017 9:20:27 AM													
6	From File		WorkSheet.xls													
7	Full Precision		OFF													
8	Confidence Coefficient		95%													
9	Number of Bootstrap Operations		2000													
10	<b>Lead Soil Results (mg/kg)</b>															
11	<b>General Statistics</b>															
12	Total Number of Observations				44				Number of Distinct Observations				36			
13									Number of Missing Observations				0			
14	Minimum				0.5				Mean				28.88			
15	Maximum				290				Median				9.4			
16	SD				54.59				Std. Error of Mean				8.229			
17	Coefficient of Variation				1.89				Skewness				3.872			
18																
19	<b>Normal GOF Test</b>															
20	Shapiro Wilk Test Statistic				0.493				<b>Shapiro Wilk GOF Test</b>							
21	5% Shapiro Wilk Critical Value				0.944				Data Not Normal at 5% Significance Level							
22	Lilliefors Test Statistic				0.302				<b>Lilliefors GOF Test</b>							
23	5% Lilliefors Critical Value				0.132				Data Not Normal at 5% Significance Level							
24	<b>Data Not Normal at 5% Significance Level</b>															
25																
26	<b>Assuming Normal Distribution</b>															
27	<b>95% Normal UCL</b>						<b>95% UCLs (Adjusted for Skewness)</b>									
28	95% Student's-t UCL				42.72				95% Adjusted-CLT UCL (Chen-1995)				47.55			
29									95% Modified-t UCL (Johnson-1978)				43.52			
30																
31	<b>Gamma GOF Test</b>															
32	A-D Test Statistic				1.39				<b>Anderson-Darling Gamma GOF Test</b>							
33	5% A-D Critical Value				0.804				Data Not Gamma Distributed at 5% Significance Level							
34	K-S Test Statistic				0.132				<b>Kolmogorov-Smirnov Gamma GOF Test</b>							
35	5% K-S Critical Value				0.14				Detected data appear Gamma Distributed at 5% Significance Level							
36	<b>Detected data follow Appr. Gamma Distribution at 5% Significance Level</b>															
37																
38	<b>Gamma Statistics</b>															
39	k hat (MLE)				0.595				k star (bias corrected MLE)				0.569			
40	Theta hat (MLE)				48.56				Theta star (bias corrected MLE)				50.73			
41	nu hat (MLE)				52.34				nu star (bias corrected)				50.1			
42	MLE Mean (bias corrected)				28.88				MLE Sd (bias corrected)				38.28			
43									Approximate Chi Square Value (0.05)				34.85			
44	Adjusted Level of Significance				0.0445				Adjusted Chi Square Value				34.42			
45																
46	<b>Assuming Gamma Distribution</b>															
47	95% Approximate Gamma UCL (use when n>=50)				41.52				95% Adjusted Gamma UCL (use when n<50)				42.04			
48																
49	<b>Lognormal GOF Test</b>															
50	Shapiro Wilk Test Statistic				0.9				<b>Shapiro Wilk Lognormal GOF Test</b>							
51	5% Shapiro Wilk Critical Value				0.944				Data Not Lognormal at 5% Significance Level							
52	Lilliefors Test Statistic				0.197				<b>Lilliefors Lognormal GOF Test</b>							
53	5% Lilliefors Critical Value				0.132				Data Not Lognormal at 5% Significance Level							
54	<b>Data Not Lognormal at 5% Significance Level</b>															
55																
56	<b>Lognormal Statistics</b>															
57	Minimum of Logged Data				-0.693				Mean of logged Data				2.323			
58	Maximum of Logged Data				5.67				SD of logged Data				1.615			
59																
60	<b>Assuming Lognormal Distribution</b>															
61	95% H-UCL				81.38				90% Chebyshev (MVUE) UCL				69.93			
62	95% Chebyshev (MVUE) UCL				85.62				97.5% Chebyshev (MVUE) UCL				107.4			
63	99% Chebyshev (MVUE) UCL				150.2											
64																

	A	B	C	D	E	F	G	H	I	J	K	L	
65	<b>Nonparametric Distribution Free UCL Statistics</b>											<b>County Review Draft</b>	
66	<b>Data appear to follow a Discernible Distribution at 5% Significance Level</b>												
67													
68	<b>Nonparametric Distribution Free UCLs</b>												
69	95% CLT UCL				42.42				95% Jackknife UCL				42.72
70	95% Standard Bootstrap UCL				42.1				95% Bootstrap-t UCL				68.07
71	95% Hall's Bootstrap UCL				109.1				95% Percentile Bootstrap UCL				43.77
72	95% BCA Bootstrap UCL				51.22								
73	90% Chebyshev(Mean, Sd) UCL				53.57				95% Chebyshev(Mean, Sd) UCL				64.75
74	97.5% Chebyshev(Mean, Sd) UCL				80.27				99% Chebyshev(Mean, Sd) UCL				110.8
75													
76	<b>Suggested UCL to Use</b>												
77	95% Adjusted Gamma UCL				42.04								
78													
79	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test												
80	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL												
81													
82	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
83	Recommendations are based upon data size, data distribution, and skewness.												
84	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
85	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.												

**APPENDIX D**  
**CONCEPTUAL SITE DRAWINGS**



**LEGEND**

- ACCESSIBLE ROUTE
- SOFT TRAIL
- BIO-RETENTION AREA
- PROPOSED SPOT ELEVATION (PER CIVIL)

**UNITS**

10	TWO-STORY BLDGS U.O.N.
37	1 BEDROOM FLATS ADA
2	3 BEDROOM FLATS ADA
16	3 BEDROOM TOWNHOUSES
71	TOTAL



**CYPRESS POINT AFFORDABLE HOUSING**  
Moss Beach CA

PRELIMINARY SITE PLAN



01

1011 TELEGRAPH AVE. SUITE 200  
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**KEY NOTES**

- ① CYPRESS POINT ENTRY DRIVE
- ② BROAD CANOPY ENTRY TREES
- ③ BIO-RETENTION AREA
- ④ PLAY STRUCTURE (AGES 2-5 YEARS)
- ⑦ SLOPING PATH THROUGH CENTRAL GREEN
- ⑧ SLOPING LAWN
- ⑨ PLANTING - TREES, SHRUBS, AND GRASSES
- ⑩ TRELIS, SEATING, AND BBQ AREA
- ⑪ WASTE ENCLOSURE (3 TOTAL)
- ⑫ OVERLOOK WITH SEATING
- ⑬ EXISTING GRAVEL ACCESS ROAD
- ⑭ EXISTING WATER TANKS
- ⑮ COMMUNITY GARDEN
- ⑯ PARKING LOT
- ⑰ ACCESSIBLE CROSSING
- ⑱ PLANTED SLOPE
- ⑲ TRAIL FOOT PATH AROUND PERIMETER OF SITE
- ⑳ PATH TO SIERRA STREET
- ㉑ EXISTING TREES
- ㉒ EMERGENCY VEHICLE ROUTE

0 15' 30' 60'  
Scale: 1" = 30' - 0"