Addendum No.: 6 **Date Of Addendum: 09/21/2017**

CT DAS ● Construction Services ● Process Management and Procurement Unit

NEW KAISER ANNEX AND KAISER HALL RENOVATION
CENTRAL CONNECTICUT STATE UNIVERSITY
NEW BRITIAN, CT
BI – RC – 393

Original Bid Due Date / Time:	09/27/2017	1:00 PM
Previous Addendums:	Addendum #5 dated September 20, 2017, Addendum #4 dated September 1, 2017, Addendum #3 dated August 30, 2017, Addendum #2 dated August 17, 2017, Addendum #1 dated August 10, 2017	

TO: **Prospective Bid Proposers:**

This Addendum forms part of the "Contract Documents" and modifies or clarifies the original "Contract Documents" for this Project dated 04/17/2017. Prospective Bid Proposers **shall** acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form.

Failure to acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form shall subject Bid Proposers to disqualification.

The following clarifications are applicable to drawings and specifications for the project referenced above.

Item 01:

Question:
It appears that Appendices A through F (spec 00 31 19.26 Existing Conditions Survey) were not included in the revised specifications when addendum 4 was published. Can you please re-issue these?

Answer: Please find the Available Information attached to this addendum.

Item 02:

Question:
Spec 051200 Para 1.8B: The specifications for "Structural Steel Framing" calls for the Fabricator to be AISC Certified. Many of the local steel fabricators are not AISC Certified. May the AISC Certification be waived as long as the steel fabricator adheres to AISC standards?

Answer: AISC Certification is required for this project.

Item 03:

Question:
Detail 17/A8-41 -please confirm this shelving is intended at Closet 2-L5.3 only. If intended at other locations, please provide.

Answer: Confirmed.

Item 04:

Question:
Spec 064020 - we do not find any cabinet elevations that show locks. Please confirm door and drawer locks are not intended.

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Answer: Project does not contain door and drawer locks. Disregard Specification section 064020 paragraph 2.3H, and Paragraph 2.3I.

Item 05:

Question:
Drawing A0-13A indicates a change in roof structure elevation at column line D & H Detail 9/S409 confirms this 4" difference. We do not find information on the roof plan if the 4" difference is to be a step in the roof or if the roof insulation has to be built up 4" additional at the areas of the lower metal deck (generally from column lines 1 to 3 at both A to D and H to L). Please clarify the intent of how the structural step is to be addressed in roof.

Answer: At transitions in deck type, Roofing assemblies are to be stepped to maintain minimum R-Value. Steps in Roofing are to transition with sloped insulation to maintain positive drainage.

Item 06:

Question:
Drawing A0-02 Material Keynote 0753M calls for 72 mil white EPDM. Spec 075300 Para 2.IA calls for 90 mil white EPDM. Please clarify thickness.

Answer: White EPDM is to be 90 mil. Change description of Keynote 0753M, change the word “72 mil” to “90 mil”.

Item 07:

Question:
Drawing A0-02 Material Keynote 0753R calls for min R30 insulation. Drawing A0-05 Assembles ERA1, ERA2 & ERA3 all call for R34 min insulation. Please clarify min R-value.

Answer: The minimum roofing assembly R-value is to be, R34. In the description of Keynote 0753R, change the word “R30” to R34”

Item 08:

Question:
Drawing A0-05 Assembles ERA 1, ERA2 & ERA3 all call for R34 min insulation. Please confirm the 6" base layer is intended at the tapered insulation areas also, meaning the tapered insulation R value is NOT included in the assembly min R value.

Answer: Tapered insulation is not to be included when calculating the minimum R-Value for for ERA system.

Item 09:

Question:
Spec 072700, 1.5A.1 states that the owner to engage the testing agency for the mock-up. However in paragraph 3. 7 A states we are to engage the testing agency for the complete exterior wall install. Can the Owner's testing agency include this work too and to be all paid for by the owner?

Answer:
As stated in Specification section 072700 3.7 A, the contractor shall engage a qualified testing agency to perform tests and inspections and prepare test reports.

Item 10:

Question:
Drawing A1-04A Keynote legend 0753W states walk pads to be 39" wide. This is noted at a large rectangular area that measures approx. 12'x 150' shown with diagonal hatching. The 39" wide walk paths to, and around, the rooftop equipment are shown with the same diagonal hatching. Please clarify if all the diagonal hatching, including the large rectangular area that measures approx. 12'x 150', is intended to be walk pads.

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Answer: Walking pads are required within the boundary of the diagonal hatch annotated as 0753W on A1-04A, Provide a minimum walking pad width of 39".

Item 11:

Question:
Drawing A5-4 Door Elevations FG, FGFG, NN: Please provide sizes and glass types for these.

Answer: Coordinate Glazing dimensions with the door schedule on A5-41 and the products specified within Specification Section 084110. Refer to Drawing Sheets A5-01,A5-02, and A5-03 for glazing types.

Item 12:

Question:
Spec 081113, 1.2A.4 mentions factory finishing yet paragraph 2.8A state's prime finish. Since factory finishing is extremely expensive and many manufacturers will not do, we highly recommend factory prime coat finishing.(field touch-up this is always an issue too). Please confirm if doors can be field painted.

Answer: Delete Specification Section 081113 Paragraph 1.2A.4.

Item 13:

Question:
Spec 081113, 2.7C.1 mentions factory installed glazing. This is not normally done at hollow metal doors. AIso 088000, 1.2A. I .a specifies it here. Please confirm field glazing is acceptable.

Answer: Factory installed glazing units where indicated in the drawings.

Item 14:

Question:
Drawing A4-21: Many of the "Attachment details" do not appear correct. The only attachment appears to be the 0727T Transition strip that is attached to the "filler". I assume this is strictly for air & water protection and does not represent attachment. Filler piece will not support attachment. Can you provide details that show proper attachment methods desired for this installation?

Answer: As per Specification Section 084110 and 084410, design of attachment is a delegated design.

Item 15:

Question:
Details 8 & 9/S401 note min. 16 gage CFMF studs to create the outriggers. Details 12-15/A4-12 note min. 14 gage CFMF studs to create the outriggers.

A. Please clarify min gage.
B. Note 1 says that the final design of CFMF delegated design engineer. Please clarity of the Engineer of Record is requiring a min gage and then have the CFMF designed by the CFMF delegated design engineer beyond the min, or is the min gage to be by the CFMF delegated design engineer.

Answer: As per details 8&9/S4-01, minimum gage at CFMF outriggers is to be 16 gage.

Item 16:

Question:
Drawing A0-01 Elevation A: Proximity sign shows it 4" away from door edge - comes 34" wide by 10" high.

Answer: In Specification Section 084110 paragraph 2.1.A.3 Provide tall door bottom, minimum 12 inches. Floor Proximity Exit Sign to be custom size 6 inches tall by 24 inches wide. Mounting height to be 6 inches above finish floor.

Item 17:

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Question:
Drawing A7-0l Detail 4 does not show a diaper changing station in the Men's and Women's Rooms. Do you require them per 102800, 2.4B?

Answer: Diaper changing station are not required except where indicated on 4/07-01.

Item 18:

Question:
Spec 116620 does not include storage carts for the VB or tennis. Please confirm these are not are intended. If they are intended, please provide spec and intended count.

Answer: Storage Carts for Volleyball and Tennis are not required for this project.

Item 19:

Question:
Drawing A0-20 Spec 116620 calls out three different types of wall and column padding (I 166P1, l 166P2 & 1166P3). We only find 1166P on the floor plans and elevations. Please confirm ALL the wall and column padding is ONE color on both floors. If not, please provide limits of the intended multiple colors.

Answer: It is the design Intent for all wall and column padding to be of a uniform color.

Item 20:

Question:
Spec 116620 Para 2. 7 is calling for a recessed wall channel to support the dual ballet barre brackets using wing nuts, implying height adjustability. Detail 12/A841 shows the bracket surface mounted over GWB with in wall wood blocking, resulting in fixed heights.

A. Please clarify the intended installation method.
B. If the intended method is a recessed wall channel, please provide a product spec for this. The specified suppliers are not aware of a recessed channel product.

Answer: As per Specification Section 116620 Paragraph 2.7 the design intent is for the product's mounting channel to be recessed to allow the outside face of channel to be 3/16 inch proud of outside face of mirror.

Item 21:

Question:
The drawings are not in agreement about the Owner doing plumbing, HVAC and electrical demo. Please confirm the Owner is doing this entire demo, including the plumbing, HvAC and electrical demo and the associated utility connections.

A. Drawing Dl-01 states the Owner will demo the bubble and it's implied the plumbing, HVAC and electrical demo is included in the Owners scope.
B. Drawing MEPD-01 refers to plumbing, HVAC and electrical demo, implied to be by the GC and not the Owner.
C. Drawing MEPD-02 Electrical Note 1 refers electrical demo, implied to be by the GC and not the Owner.
D. Drawing E301 call for electrical demo of the 400A service back to the 1 OE fuse, implied to be by the GC and not the Owner.

Answer:

A. Refer to Item# 30 of Addendum 4 dated September 07, 2017.
B. Refer to Answer "A"
C. Refer to Answer "A"
D. Owner scope includes Demolition of 400 Amp service panel, and conductors back to utility transformer. GC Bid to include removal of secondary conduit, transformer and primary work shown on drawing E-301.

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Item 22:

Question:
Please provide the location of the Existing AIR SWITCH NS-8A. We need to know the location to get the length for the new cables.

Answer: NS-8A is the existing box adjacent to the south side of the transformer to be removed, refer to drawing Sheet C1-00. For new transformer refer to Drawing Sheet C4-00.

Item 23:

Question:
Drawing TC600 - Please provide cabling spec/requirements for the various tele/data/coax devices.

Answer: Refer to specification Section 271500 – Communications Horizontal Cabling.

Item 24:

Question:
Drawing E301 - Please confirm that the demo and new work for the primary (high voltage) is included in this bid and will NOT be performed by the Power company. This includes demo, conduits, cabling, transformers and connections to the existing power.

Answer: Confirmed, this scope is included in the GC Bid and to be performed by the Electrical Contractor.

Item 25:

Question:
We were provided Spec 281300 for exterior access control. TS drawings show access control for exterior and interior doors. Please clarify who is responsible for interior access control cabling and devices. If this project is to include interior access control, please provide a spec.

Answer: Refer to the attached specification Section 281301 - Interior Access Control Persona

All questions must be in writing (not phone or e-mail) and must be forwarded to the consulting Architect/Engineer (Sasaki Associates, Inc., Fax Number: 617-924-2748) with copies sent to the DAS Project Manager (Peter Simmons, P.E, Fax Number: 959-200-4786) and Construction Manager (The Downes Construction Company, Fax Number: 860-225-3617)

End of Addendum 6

Mellanee Walton

Mellanee Walton, Associate Fiscal Administrative Officer
State of Connecticut
Department of Administrative Services
Construction Services
Office of Legal Affairs, Policy & Procurement

APPENDIX A

Appendix A – Geodesign Inc.
Geotechnical Engineering and Preliminary Environmental Characterization Report
CCSU Kaiser Hall Addition
DAS Project No. BI-RC-393
New Britain, Connecticut
Dated March 17,2016 (rev. 3-25-16)
123 pages

March 17, 2016 (rev. 3-25-16); File No. 0185-49.00

Richard Colavecchio, AIA
Sr. Associate
Sasaki Associates
64 Pleasant Street
Watertown, MA 02472

Via email rcolavecchio@sasaki.com

Re: Geotechnical Engineering and
Preliminary Environmental Characterization Report
CCSU Kaiser Hall Addition
DAS Project No. BI-RC-393
New Britain, Connecticut

Dear Rick:

Geo**Design**, Inc. (Geo**Design**) is pleased to submit our geotechnical engineering and preliminary environmental characterization report for the referenced above project. The project will consist of a new approximately 70,000 square foot recreation center at the Central Connecticut State University (CCSU) campus at Ella Grasso Blvd and Kaiser Drive in New Britain, Connecticut. Refer to Figure 1 (in Appendix 1) for the site location.

PURPOSE AND SCOPE

Geo**Design** completed a subsurface exploration program, a geotechnical engineering evaluation, and preliminary environmental characterization in the area of the proposed building. Our services included characterizing the subsurface conditions within the footprint of the proposed building and related site work, performing geotechnical engineering analyses, and providing geotechnical design and construction recommendations for the project.

Our services were provided in accordance with our April 14, 2015 (revised 5-7-15) proposal and based in part on the March 19, 2015 Request for Geotechnical Engineering Services prepared by BVH Integrated Services for the project.

Our recommendations are based in part on guidance from the 2003 International Building Code (IBC), 2005 Connecticut Supplement, and 2009 and 2013 Connecticut Amendment. Design recommendations are based on Allowable Stress Design Methods.

Elevations (El.) stated in this report are in feet and based on the 2014 Topographic Survey for which was provided to us on January 7, 2016 in electronic format (titled “updated Campus Survey-2014.dwg” by Sasaki).

BACKGROUND

Site Description

The site is bounded Kaiser Drive to the east, and by Ella Grasso Blvd. to the north. Refer to Figures 1 and 2 (in Appendix 1) for the site location and site plan. In general, site topography is essentially flat except at the westerly edge where site grades drop off to a paved road and in the northeast corner where grades rise along with the rising Kaiser Drive. Existing site grades in the area of the proposed building addition range from about El. 151 to 152. To the north of the building the area currently occupied by outdoor tennis courts ranges from about El. 140 to 151.5, and there is a small low-lying area to the northwest of the tennis courts that is as low as about El. 146.3. At the bottom of the stair case which connects the drive to the southwest corner of the existing building, site grades are locally as low as about El. 140.

An air supported structure and six tennis courts presently occupy the site. Related concrete sidewalks surround the existing building. To the south is the existing Kaiser Hall building, and an at-grade connector links Kaiser Hall to the air-supported building. The approximate locations of these existing features are shown on Figure 2.

Proposed Construction

The existing air-supported building and related mechanical equipment will be demolished and a new building with associated site work (site walls, sidewalks, etc.) will be constructed in its place. The proposed building will be two stories, with a small (1,800 s.f.) mechanical room basement, and a third floor penthouse mechanical room of about (5,600 s.f.). It will consist of slab-on-grade structure.

The approximate current proposed footprint of the new building is shown on Figure 2. The building is anticipated to be supported on normal shallow foundations with a slab-on-grade at approximate El. 152, except the basement portion which will be about ten to fourteen feet lower. Aside from excavation needed for the partial basement, and needed to construct the new connector to match existing Kaiser Hall basement levels, little of no grade change will be required in the building area.

PRE-EXISITING TEST BORINGS

Due to the restricted drill rig access to the south of the existing air supported building (in the connector area), we researched available subsurface data at the CCSU facilities archives, and obtained pertinent portions of the as built drawings for the 1963 Kaiser Hall Addition, and the 1989 air-supported structure. These drawings are included in Appendix 3. The first and second sheets show the logs of four test borings (Nos. 13, 14, 15 and 16), and the third sheet shows their plan locations. We have also shown the location of these four borings on our Exploration Locations Plan (Figure 1, Appendix 1).

NEW TEST BORINGS

A Geo**Design** representative observed and logged ten test borings (B-1 through B-8; B-11 and B-12) in the proposed building area. Three other borings (B-9, B-10 and B-10A) were drilled to the north of the proposed building in areas slated for possible storm water infiltration features. These thirteen borings were drilled by General Borings on February 2, 3 and 4, 2016. The boring locations are depicted on Figure 2 (in Appendix 1). Borings were located in the field by taping/pacing from existing site features. The approximate ground surface elevation at each boring location was estimated from the referenced Topographic Survey. The locations of the borings and their elevations should be considered approximate. Boring logs prepared by Geo**Design** are included in Appendix 2.

Borings were drilled to explore subsurface conditions in the area of the proposed building and surrounding areas. Hollow-stem-auger drilling methods were used to advance the borings to depths of approximately 12 to 32 feet below current site grades, corresponding to approximate El. 139.5 to 119.

Representative samples were obtained by split barrel sampling procedures in general accordance with ASTM Specification D-1586. The split-barrel sampling procedure utilizes a standard 2-inch O.D. split-barrel sampler that is driven into the bottom of the boring with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampler the middle 12-inches of a normal 24-inch penetration is recorded as the Standard Penetration Resistance Value (N). The blows (i.e. the "N" values) are indicated on the boring logs at their depth of occurrence and provide an indication of the relative consistency of the material.

Groundwater levels were measured using a weighted tape in the open drill holes or inferred from wet soil samples. In addition, one small diameter PVC observation well was installed in Boring B-9.

SUBSURFACE CONDITIONS

Geology

Published surficial and bedrock geological data (1:1250,000 scale, *Surficial Materials Map of Connecticut, Janet Radway Stone, 1992* and *Bedrock Geological Map of Connecticut, John Rodgers, 1985)* was consulted. The surficial materials at the site are mapped as Sand and gravel overlying sand, or Sand overlying fines. The "Sand and gravel" is described as overlying sand. The "Sand overlying fines is described a sand of variable thickness overlying thinly bedded fines of variable thickness. The underlying bedrock is classified as either reddish-brown silty shale (East Berlin formation) or dark-gray, orange to brown-weathering basalt (Hampden Basalt formation).

General Subsurface Profile

The generalized subsurface profile, as inferred from the subsurface explorations, consists of Topsoil or Fill, overlying Silty Fine Sand or Silty Gravelly Sand, over occasional very loose to loose Sandy Silt, and over a localized thin layer of very stiff Clayey Silt (B-5). None of the borings reached the Bedrock. Inside the air-supported structure, a six-inch thick layer of Asphalt is present just below the ¼-inch thick rubberized surfacing.

The following is a more detailed description of the major subsurface materials encountered based on our observations of the test borings.

Fill

Fill was encountered in most of the borings and was generally located about 1 to 4 feet below the ground surface. At Borings B-1 and B-8 (southwest corner of the air-supported building), the fill (or possible fill) extended to depths of about 7.5 to 8 feet. This stratum typically consisted of loose to medium dense, brown, fine to coarse sand with varying amounts of gravel and silt. Trace amounts of asphalt, organic fibers, and wood were also present in the Fill.

The thickness, character, and consistency of the Fill will vary between exploration locations. Fill is also known to be present as basement wall backfill to a depth of about 15 feet against the north wall of Kaiser Hall (this is shown on the as-built included in Appendix 3).

Silty Fine Sand, Sandy Silt

Silty Fine Sand or Sandy Silt strata were encountered below the Topsoil or Fill in all the borings and generally consisted of a loose to medium dense mixture of red-brown, fine sand with little to some (15 to 35%) amounts of silt. In some samples the silt predominates and the sand content ranges for about 20 to 30%.

Gravelly Sand

Gravelly Sand was encountered below the Silty Fine Sand in Borings B-2, and B-9, both located at the easterly edge of the site. This stratum generally consisted of medium dense, red-brown, fine to medium sand with trace to little (10 to 20%) amounts of silt.

Silt with Clay, and Silt

Thin layers of Silt with Clay or Silt, were encountered in the deepest borings (B-5 and B-10) at depths of about 15 to 17 feet, below the bottom of the Silty Fine Sand. This stratum varies from non-plastic to slightly cohesive and is either loose of relatively stiff.

Groundwater

Where encountered, groundwater was observed at depths of approximately 15 to 17 feet below the ground surface in the test borings which corresponds to approximate Elevations 135 to 138. In many cases the groundwater appeared to be locally "perched" above siltier soils, rather than a true phreatic surface. The well in B-9 indicted no groundwater to the well depth (17 feet deep).

Groundwater levels will vary depending on factors such as temperature, season, precipitation, construction activity, and other conditions, which may be different from those at the time of these measurements.

SOIL TESTING RESULTS

Geo**Design** and its laboratory testing subcontractor (GeoTesting Express) performed eight laboratory gradation tests on representative samples obtained in the borings using ASTM D422. Gradation test results are included in Appendix 4.

These tests confirmed that shallow site soils are granular soils. Tests indicated a Silt content of about 10 to 36% in the Fill; of about 10 to 15% in the upper Silty Sand; and of up to 70 to 77% in the deeper Silt (depth of about 17 feet).

These results generally confirm the visual sample description made in the field during drilling and sampling of this material.

PRELIMINARY ENVIRONMENTAL CHARACTERIZATION

Refer to Appendix 5 for the result of our design phase preliminary soil pre-characterization. In light of the soil analytical results provided and discussed in Appendix 5, it is our opinion that additional testing for PAHs and total and SPLP lead be performed to further characterize shallow site soils, particularly in the area of Boring B-10 which is in the general area that is slated for the infiltration areas.

INFILTRATION TESTING

Refer to Appendix 6 for the result of our soil infiltration investigation.

IMPLICATIONS OF SUBSURFACE EXPLORATIONS

The existing Fill and Topsoil are not suitable for support of normal shallow foundations. It appears the Fill was placed in an uncontrolled fashion and contains constituents that may result

in unacceptable post construction foundation settlements. These materials must be over-excavated and replaced with Structural Fill below foundations.
The slab can either be over-excavated and replaced with Structural Fill or “floated” above the Fill after the Fill has been improved (with partial over-excavation and surface compaction). Floating the slab would leave some buried material in place that may result in post construction slab settlements. This option may require periodic slab resurfacing and repair. Given that there will be significant savings to the project; the owner should consider this alternative to removing all the Fill below the slab.

In the southwest corner of the building and in the connector area, existing Fill extended below normal footing depth (42 inches) and will require excavation to depths of about 8 to 15 feet. In other portions of the building very little over-excavation is anticipated.

GEOTECHNICAL RECOMMENDATIONS

Foundations

Foundation Type and Bearing Strata

We recommend supporting the proposed building on normal shallow spread footings. The footings should bear on undisturbed natural soils or on Structural Fill (hereinafter specified as Compacted Granular Fill, CGF) over these materials.

Topsoil and existing Fill, foundations, and slabs are not considered suitable bearing materials, and must be excavated from the footing areas during site preparation. When CGF is used beneath the footings (e.g. in fill or over-excavated areas), we recommend that it be placed one foot beyond the edge of the footings and at a 1H:1V (horizontal to vertical) slope away and down from the footings.

Based on the proposed first floor elevation (approximate El. 152) and code specified minimum frost protection depth (42 inches), the perimeter wall footings are expected to be close to the level of natural soils with need for little over-excavation. However, some over-excavation and replacement with CGF should be anticipated particularly in the area of Borings B-1 and B-8 and in the connector area, where the natural soils are anticipated at about 5 and 10 to 11 feet below bottom of footing elevations, respectively. Actual bottom of Fill elevations will vary across the site and must be verified during construction excavation.

Footing Levels and Sizes

Exterior footings should be constructed at a minimum depth of 42-inches below proposed site grades. Interior footings, in heated areas, should be constructed at a minimum depth of 24-inches below proposed top of basement slab level.

The minimum isolated footing size should be 2.5 feet by 2.5 feet, and the minimum wall footing width should be 1.5 feet.

Allowable Bearing Pressure and Estimated Settlement

We recommend the following maximum allowable design bearing pressures for footings bearing on the recommended bearing strata:

Footing Type and Size	Maximum allowable design bearing pressure tons per square foot (TSF)
Continuous Footing (30-inch min. width)	2.0
Isolated Column Footing (smaller than 5-ft. by 5ft.)	2.5
Isolated Column Footing (larger than 5-ft. by 5ft.)	3.0

These allowable pressures may be increased by 1/3 for seismic or wind loading when using allowable stress design.

Based on the recommended bearing pressure and anticipated loads, we anticipate that footings will undergo less than one inch of total settlement and less than a half inch of differential settlement. Settlements will occur as the loads are applied and are expected to be complete at the end of construction.

Drainage

We recommend the use of footing drains due to the elevated fines content of some of the site soils. The footing drains should be installed along the exterior walls both for the basement and the frost walls. The footing drains should consist of 4-inch diameter perforated PVC pipe, surrounded by 6-inches of Crushed Stone, wrapped in non-woven filter fabric. Cleanouts should be installed in the direction of flow at the beginning of piping runs and consist of 45 degree elbows (90 degree elbows should not be allowed). The drains should be gravity drained to daylight or to the site drainage system.

Slab

Subgrade

We recommend placing the concrete floor slab over a minimum ten-inch thick base course layer of compacted Sand and Gravel or six-inch layer of compacted Crushed Stone placed on the surface of carefully prepared natural soils, previously improved existing Fill (defined herein), or on GCF over these materials

The design subgrade modulus for the recommended subgrade and base course is 250 pounds per cubic inch.

Drainage and Damp-Proofing

Groundwater is estimated to be at least 10 feet below the proposed top of the slab level for most of the building. We therefore do not recommend using of sub-slab drains. However, damp-proofing of the slab is recommended. In proposed basement areas, sub-slab drains may be required depending on the depth of the basement's lowest level. Slab damp-proofing must be installed between the slab and base course, and consist of not less than 6-mil polyethylene with joints lapped at least 6-inches. Other approved methods or materials may be considered.

Earth Retaining Structures

Backfill and Drainage

We recommend backfilling earth retaining structures (e.g. site retaining walls) with compacted Sand and Gravel and installing footing drains. The drains should consist of 4-inch diameter perforated PVC pipe, surrounded by 6-inches of Crushed Stone, wrapped in non-woven filter fabric. Drain inverts shall be set flush with or up to 6-inches above bottom of footing level. The drains shall be gravity drained to daylight or to the site drainage system.

Weep holes may be installed in place of footing drains where they can discharge to non-paved areas (e.g., grassed areas). In paved areas such as sidewalks, weep holes should be avoided to reduce the potential for ice formation in pedestrian access ways. Where weep holes are appropriate we recommend installing Crushed Stone (minimum diameter of 12 inches), wrapped in non-woven filter fabric at each weep hole location, to prevent movement of wall backfill materials into the weep holes.

Lateral Earth Pressures

Cantilevered walls that are free to rotate at the top and are not braced shall be designed to resist an equivalent active static horizontal fluid earth pressure equal to 37 pcf (based on $\phi' = 32°$, $c = 0$, $K_a = 0.31$, and $\gamma = 120$ pcf).

Rigid basement walls (that are not free to rotate at the top and are brace) should be designed to resist an equivalent at rest static horizontal fluid earth pressure equal to 57 pcf (based on $\phi' = 32°$, $c = 0$, $K_0 = 0.47$, and $\gamma = 120$ pcf).

These earth pressures assume no unbalanced hydrostatic pressures, seismic forces, or surcharges from traffic loads. We recommend using a traffic surcharge load of 250 psf.

We do not recommend the reliance on passive earth pressures against the base of walls as there will not be enough wall movement to mobilize these pressures.

Based on an assumed Seismic Design Category "C", no seismic design forces need be applied to retaining walls.

Coefficient of Friction

We recommend a maximum coefficient of friction of 0.5 between foundations and the recommending bearing strata.

Seismic Design

Based on the controlling boring data, the average Standard Penetration Test "N" value over a 100-foot depth below the building is 15. Thus, the site class for the proposed structure is "D" (Stiff Soil Profile) per the IBC.

We compute S_S for the site as 0.242g, S_1 as 0.064g, S_{MS} as 0.387g, S_{M1} as 0.153g, S_{DS} as 0.258g, S_{D1} as 0.102g, and the peak ground acceleration as 0.103g.

Based on the standard penetration test results, visual soil descriptions, and expected design peak ground acceleration (0.103g) at this locale, our analyses have determined that site soils are not prone to liquefaction.

MATERIALS AND COMPACTION REQUIREMENTS

On-Site Materials

The Topsoil and Organic Silt are not considered suitable for reuse except in non-structural and landscape areas, due to their organic content. Glacial Till and Existing Fill that do not contain deleterious constituents can be reused as General Site Fill. The elevated fines (i.e. soil particles passing the No. 200 sieve) content of these soils could make them difficult to place and compact. Success in re-using these materials will depend on their moisture content and prevailing weather conditions when they are excavated, placed, and compacted.

The Gravelly Sand and some of the non-organic Existing Fill can be reused as CGF. We do not recommend reusing the site soils for Sand and Gravel Backfill or processed aggregate base due to their high fines content.

Compacted Granular Fill

CGF should consist of hard, durable sand and gravel; free of ice, clay, shale, roots, sod, rubbish, and other organic matter; graded within the following limits:

Sieve Size	Percent finer by weight
2/3 loose lift thickness*	100%
No. 10	30 –100
No. 40	10 – 90
No. 200	0 – 12

*8-inches maximum

Crushed Stone can be used in place of CGF in areas below groundwater, or for expediency (as it is much easier to compact than CGF).

Sand and Gravel

Sand and Gravel for use as pavement subbase and retaining wall backfill shall consist of hard, durable sand and gravel; free of ice, clay, shale, roots, sod, rubbish, and other organic matter; graded within the following limits:

Sieve Size	Percent finer by weight
2-inches	100%
1/2-inch	50 - 85
No. 4	40 - 75
No. 40	10 - 35
No. 200	0 - 5

Crushed Stone

Crushed Stone for use around drains or below foundations and slabs shall consist of sound, tough, durable, rock that is graded within the following:

Sieve Size	Percent finer by weight
5/8-inches	100%
1/2-inch	85 - 100
3/8 inch	15 - 45
No. 4	0 - 15
No. 8	0 - 5

Processed Aggregate Base

Processed Aggregate Base for use as pavement base shall consist of inorganic soil free of clay, loam, ice and snow, tree stumps, roots, and other organic matter; graded within the following limits:

Sieve Size	Percent finer by weight
2 1/2-inches	100%
2-inch	95 - 100
3/4-inch	50 - 75
1/4-inch	25 - 45
No. 40	5 - 20
No. 100	2 - 12

Compaction Requirements

We recommend a minimum in-place dry density of 95-percent as per ASTM D1557 for material placed below foundations. We recommend a minimum in-place dry density of 92-percent as per ASTM D1557 for material placed below slabs, paved areas, and as backfill against foundations and retaining walls. Materials should be placed within 2% of their optimum moisture content and compacted in accordance with the following table:

Compaction Method	Maximum Stone Size*	Maximum Loose Lift Thickness		Minimum Number of Passes	
		Below Structures and Pavement	Less Critical Area	Below Structures and Pavement	Less Critical Area
Hand-operated vibratory plate or light roller in confined areas	4"	6"	8"	4	4
Hand-operated vibratory drum rollers weighing at least 1,000# in confined areas	6"	10"	12"	4	4
Light vibratory drum roller minimum dynamic force 3,000#/ft drum width	8"	12"	18"	4	4
Medium vibratory drum roller minimum dynamic force 5,000#/ft drum width	8"	18"	24"	6	6

* And no more than two-thirds (2/3) loose lift thickness.

CONSTRUCTION CONSIDERATIONS

Protection of Existing Buildings

Because foundations for the new connector will match the level of the bottom of the existing Kaiser Hall Footings, the need for underpinning is not anticipated.

Demolition of Existing Buildings

Foundations, slabs, utilities, and remnants of the existing building construction should be removed in their entirety from the building area and replaced with CGF below proposed foundation and slab areas.

Improvement of Existing Fill Below Slab and Pavement

As a minimum, we recommend improving the existing Fill by excavating 12-inches of material below bottom of slabs and pavement sections and compacting remaining Fill (if any) with a minimum of four passes with a vibratory drum roller having a minimum dynamic force of 6,500 lbs. per foot of drum width. Areas exhibiting instability shall receive additional compaction and/or be over-excavated and replaced with CGF. This improvement procedure assumes that the existing Fill is above the groundwater level and relatively dry and may have to be modified if the subgrade is too saturated. Fill improvement will require careful observation by an experienced geotechnical engineer. Alternately, all the existing Fill may be removed, as preferred by the owner, to reduce slab settlement risks.

Footing Preparation

The base of footing excavations should be free of water, ice, and frozen and loose soils prior to placing concrete. We recommend the use of smooth edged excavator buckets to make the final excavation to help protect the subgrade. Concrete should be placed as soon as possible after excavation so that disturbance of bearing materials does not occur. Should the materials at bearing level become disturbed, the affected materials should be removed prior to placing concrete. A four-inch-thick layer of crushed stone may be used to protect footing subgrades that are expected to be open for an extended period of time.

Temporary Excavations

The on-site soils are classified as OSHA Class “C” soil and can be cut at a maximum one vertical to one and half horizontal (1V:1.5H) slope for the shallow excavations (less than 10 feet) anticipated for the project. These maximum slope and excavation depth assume no surcharge load (i.e. stockpiles, construction equipment, etc.) at the top of the excavations or seepage (e.g. cuts below the groundwater).

If excavations cannot be sloped up in accordance with OSHA requirements, a temporary excavation support system will be required. The system should be chosen and installed by the contactor and designed by a Professional Engineer registered in the State of Connecticut.

Dewatering

We expect that temporary storm water control can be accomplished by means of and grading the excavation to low points supplemented as needed by shallow trenches and sumps.

CONSTRUCTION DOCUMENTS AND PLANS

Project plans should be provided to Geo**Design** to review for conformance with geotechnical recommendations. If changes are made to the location, slab-on-grade elevation, or type of structure; the recommendations in this report will need to be reviewed.

LIMITATIONS

This report is subject to the limitations included in Appendix 7.

Thank you for the opportunity to be of service. Please feel free to call if you have questions.

Sincerely,

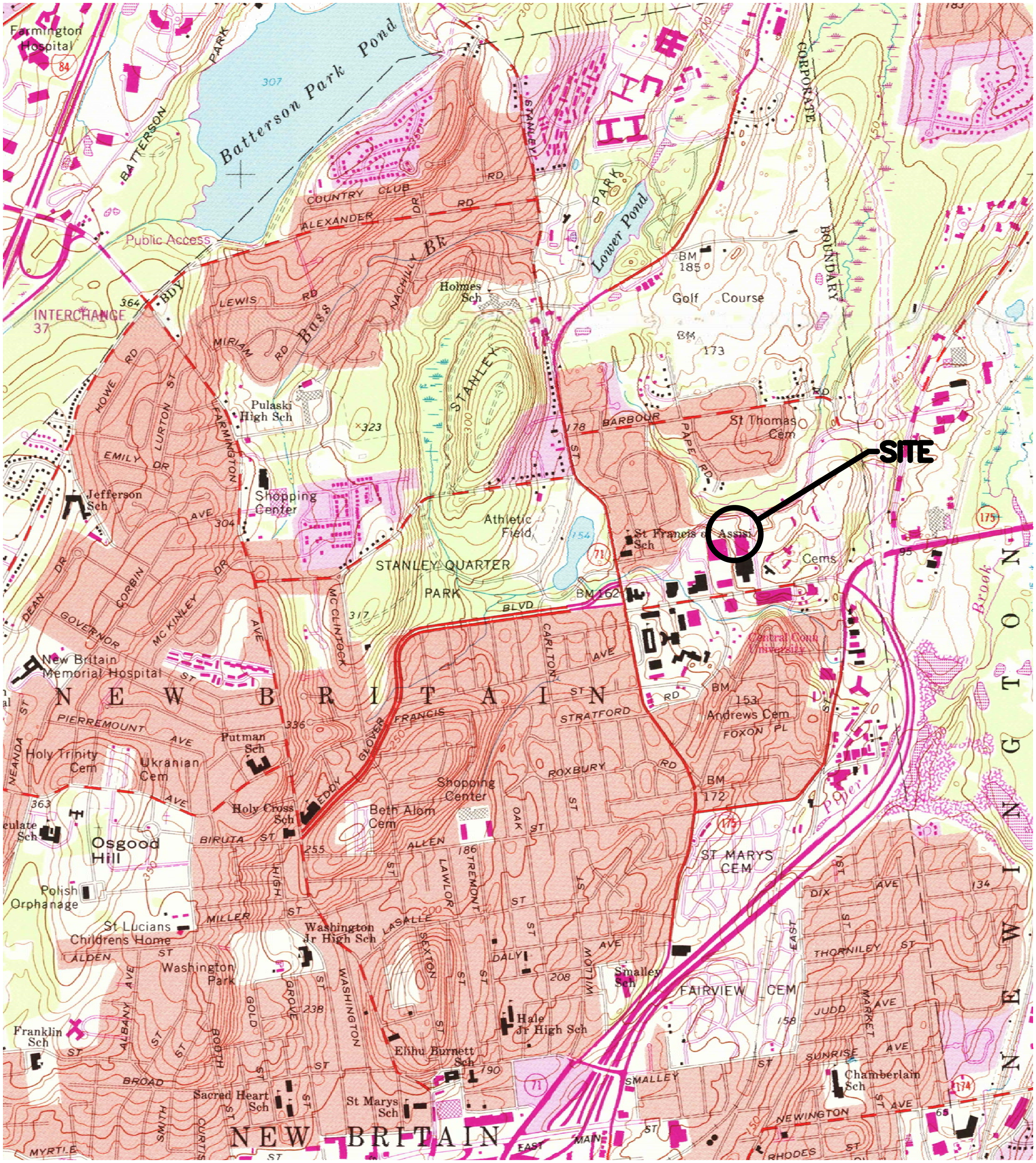
Ulrich LaFosse, P.E.
Senior Principal

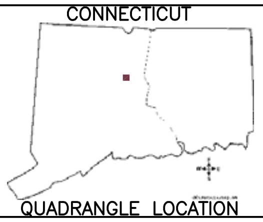
Daniel F. LaMesa, P.E.
Associate/Reviewer

Attachments:

Appendix 1 – Figures
Appendix 2 – Boring Logs (Drilled February 2016)
Appendix 3 – Pre-Existing Boring Logs and Location Plan (1963 Drawings)
Appendix 4 – Geotechnical Laboratory Test Data
Appendix 5 – Preliminary Soil Pre Characterization Report
Appendix 6 – Soil Infiltration Investigation
Appendix 7 – Limitations

Appendix 1 – Figures





GEODESIGN INCORPORATED

Geotechnical | Construction | Environmental
Engineers and Scientists
984 SOUTHFORD ROAD • MIDDLEBURY, CONNECTICUT 06762
TELEPHONE: 203.758.8836 • FACSIMILE: 203.758.8842

CCSU KAISER HALL
NEW BRITAIN, CONNECTICUT

REFERENCE:
U.S.G.S. 7.5 MINUTE QUADRANGLE: NEW BRITAIN, CONNECTICUT.
FIGURE WAS CREATED USING TOPO! 2003 SOFTWARE.

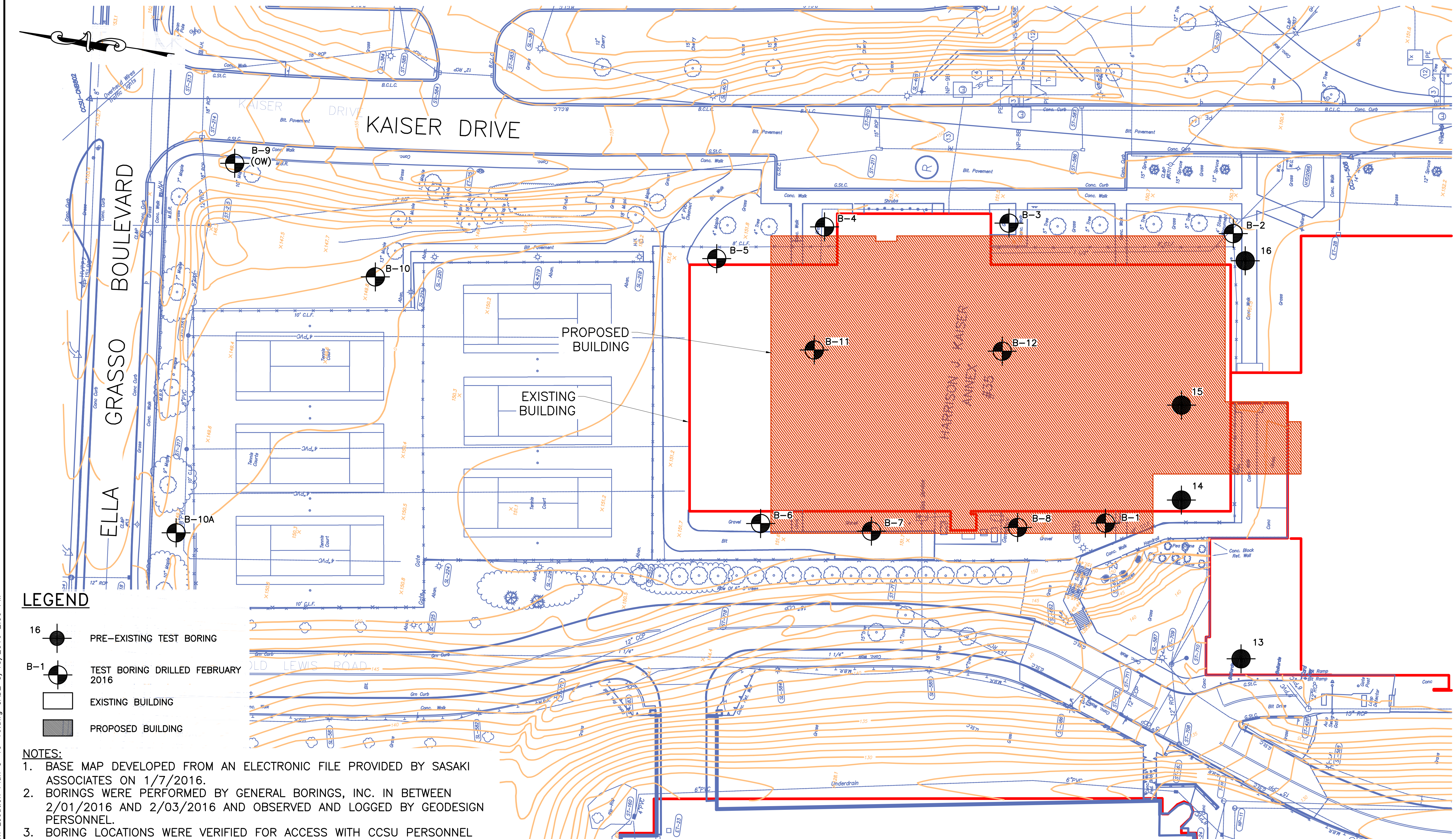
SCALE IN FEET

0 1000 2000 4000

PROJECT NO.	0185–049.00
DATE	3/15/2016
FIGURE NO.	1

DRAWN BY:	DBP	REVIEWED BY:	ULF

M:\CL\0185\49\CAD\Locus Plan.dwg CAD2 3/15/2016 1:58 PM ----



LEGEND

16 PRE-EXISTING TEST BORING

B-1 TEST BORING DRILLED FEBRUARY 2016

EXISTING BUILDING

PROPOSED BUILDING

NOTES:

1. BASE MAP DEVELOPED FROM AN ELECTRONIC FILE PROVIDED BY SASAKI ASSOCIATES ON 1/7/2016.
2. BORINGS WERE PERFORMED BY GENERAL BORINGS, INC. IN BETWEEN 2/01/2016 AND 2/03/2016 AND OBSERVED AND LOGGED BY GEODESIGN PERSONNEL.
3. BORING LOCATIONS WERE VERIFIED FOR ACCESS WITH CCSU PERSONNEL BASED ON LOCATIONS OF PREVIOUSLY MARKED ON-SITE UTILITIES AND OTHER CONSTRAINTS ON 1/15/2016

DESIGNED BY ULF					
DRAWN BY VAM					
CHECKED BY ULF	NO.	DATE	DRWN	CHKD	APPVD
APPROVED BY ULF	REVISIONS				

SCALE 1"= 50'

50 25 0' 50

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TELEPHONE: 203.758.8836 • FACSIMILE: 203.758.8842

PROJECT
CCSU KAISER HALL
NEW BRITAIN, CT

DWG. TITLE
EXPLORATION LOCATION PLAN

PROJECT NO. 0185-049.00

SCALE AS NOTED

DATE 02/04/2016

FIGURE NO. 2

M:\CL\0185\49\CAD\Exploration Location Plan 3-10-16.dwg CAD2 3/15/2016 2:00 PM ----

Appendix 2 – Boring Logs (Drilled February 2016)

BORING LOG

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Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-1
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.		
Foreman:	Tim Cassan		
GeoDesign Rep.:	Robert Marshall		
Date Started:	February 2, 2016	Date Finished:	February 2, 2016
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	151.8		
Station:		Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/2/16			None encountered

Sample Information

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description (Depth & Elevation (feet))	Sample Description
		1	SS	24	14	0	3	5	1	2		ND	Fill	Loose, red brown fine to coarse SAND, little (+) Silt, little fine to coarse Gravel, trace Root fibers
		2	SS	24	20	2	3	2	1	2		ND		Loose, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
5													4.0 Possible Fill 147.8	
		3	SS	24	24	5	1	2	2	4		ND		Loose, red brown fine to medium SAND, some Silt, trace fine Gravel
		4	SS	24	18	7	2	2	3	3		ND	8.0 Silty Gravelly Sands 143.8	Loose, red brown fine to medium SAND, some Silt, trace fine Gravel
10														
		5	SS	24	16	10	4	4	3	3		ND		Loose, brown to red brown fine to medium SAND, some Silt, trace fine to coarse Gravel
15														
		6	SS	24	19	15	5	5	5	6		ND		Medium dense, red brown fine SAND, some (-) Silt, trace fine to coarse Gravel
													17.0 Bottom of Exploration at 17.0 ft 134.8	
20														
25														
30														

Classification System: Modified Burmister

Remarks
1.) Boring relocated 12 feet north of layout due to access constraints.
2.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-1

BORING LOG

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Telephone: Fax:

Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-2
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company: General Borings Inc.
Foreman: Tim Cassan
GeoDesign Rep.: Robert Marshall
Date Started: February 3, 2016 Date Finished: February 3, 2016
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 150.7
Station: Offset: ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.

Rig Type: Bombardier with Diedrich D-50
Hammer Type: Automatic Hydraulic

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/3/16			Dry, none encountered

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)
		1	SS	24	22	0	5	5	5	4		ND
		2	SS	24	14	2	5	3	4	5		ND
5												
		3	SS	24	12	5	5	5	5	6		0.2
		4	SS	24	18	7	5	5	6	8		ND
10												
		5	SS	24	14	10	5	6	5	8		ND
15												
		6	SS	24	18	15	11	10	14	13		
20												
25												
30												

Strata Description (Depth & Elevation (feet)) / Sample Description (Classification System: Modified Burmister)

Depth (ft)	Strata	Elevation (ft)	Sample Description
0	Topsoil	150.4	Loose, red brown, Top 3": TOPSOIL; Bottom 19": fine to medium SAND, little Silt, trace fine Gravel
	Silty Fine Sand		Loose, red brown fine to coarse SAND, little Silt
4.5	Gravelly Sand	146.2	Medium dense, red/brown fine to coarse SAND, little (-) Silt, trace fine Gravel
			Medium dense, red brown fine to coarse SAND, trace (+) fine Gravel, trace Silt
			Medium dense, red brown fine to coarse SAND, little fine Gravel, little (-) Silt
			Medium dense, red brown fine to coarse SAND, some (-) fine to coarse Gravel, trace (+) Silt
17.0	Bottom of Exploration at 17.0 ft	133.7	

Remarks: 1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-2

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BORING LOG

Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-3
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company: General Borings Inc.
Foreman: Tim Cassan
GeoDesign Rep.: Robert Marshall
Date Started: February 3, 2016 Date Finished: February 3, 2016
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 151.5
Station: Offset: ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/3/16			Dry, none observed

Sample Information

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)
		1	SS	24	20	0	2	2	7	9		ND
		2	SS	24	18	2	7	25	12	10		ND
5												
		3	SS	24	16	5	6	7	7	7		ND
		4	SS	24	22	7	5	6	7	8		ND
10												
		5	SS	24	18	10	6	5	5	3		ND
15												
		6	SS	24	21	15	5	7	9	9		ND
20												
25												
30												

Strata Description (Depth & Elevation (feet)) / Sample Description (Classification System: Modified Burmister)

Depth (ft)	Strata	Elevation (ft)	Sample Description
	Topsoil	151.2	Loose, Top 3": brown TOPSOIL
	Fill		Bottom 17": red brown fine to medium SAND, some (-) Silt, little fine to coarse Gravel
2.5	Asphalt	149.0	Dense, red brown fine to coarse SAND, little Silt, little fine to coarse Gravel Mid 4": Black ASPHALT fragments
	Fill	148.7	
4.5	Silty Fine Sand	147.0	Medium dense, red brown fine SAND, little (-) Silt with one 3" layer mid sample red brown SILT, trace fine Sand
			Medium dense, red brown, Top 9": SILT, trace fine Sand, slight plasticity (wet, perched water)
11.0	Fine Sand	140.5	Medium dense, red brown fine SAND, trace Silt, dry
17.0	Bottom of Exploration at 17.0 ft	134.5	

Remarks: 1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-3

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BORING LOG

Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-4
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company: General Borings Inc.
Foreman: Tim Cassan
GeoDesign Rep.: Robert Marshall
Date Started: February 2, 2016 Date Finished: February 2, 2016
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 151.8
Station: Offset: ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

	Date	Depth (ft)	Elev. (ft)	Notes
▼	2/2/16	15.0	136.8	Wet sample
▼				
▼				
▼				

Sample Information

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)
		1	SS	24	15	0	5	4	4	3		ND
		2	SS	24	24	2	3	2	4	5		ND
5												
		3	SS	24	24	5	5	3	4	4		ND
		4	SS	24	17	7	4	5	5	5		ND
10												
		5	SS	24	18	10	3	5	6	8		ND
15												
		6	SS	24	20	15	2	4	4	5		ND
20												
25												
30												

Strata Description (Depth & Elevation(feet)):

- Topsoil 151.5
- Silty Fine Sand
- 17.0 Bottom of Exploration at 17.0 ft 134.8

Sample Description (Classification System: Modified Burmister)

- Loose,
  Top 3": brown TOPSOIL
  Bottom 12": red brown fine to medium SAND, some Silt, trace fine Gravel
- Loose, red brown,
  Top 12": fine to medium SAND, some (-) Silt, trace fine Gravel
  Bottom 12": fine SAND, little (-) Silt
- Loose, red brown stratified fine SAND, trace to some Silt
- Loose, red brown stratified fine SAND, trace to some Silt
- Medium dense, red brown stratified fine SAND, little to some Silt
- Loose, red brown SILT, trace fine Sand with one 3" layer fine Sand, trace Silt 16.5 to 16.8 feet

Remarks: 1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

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BORING LOG

Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-5
Page No.: 1 of 2
File No.: 0185-049.00
Checked By: ULF

Boring Company: General Borings Inc.
Foreman: Tim Cassan
GeoDesign Rep.: Robert Marshall
Date Started: February 1, 2016 Date Finished: February 1, 2016
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 151.6
Station: Offset: ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/1/16	15.0	136.6	Wet spoon

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description (Depth & Elevation (feet))	Sample Description (Classification System: Modified Burmister)
		1	SS	24	16	0	2	3	4	6		ND	Fill	Loose, red brown fine to medium SAND and SILT, trace fine to coarse Gravel, trace Roots
		2	SS	24	15	2	7	7	7	5		ND		Medium dense, red brown fine to medium SAND, little fine to coarse Gravel, little (-) Silt
5													4.0 / 147.6 Silty Fine Sand	
		3	SS	24	19	5	3	4	5	4		ND		Loose, red brown fine SAND, trace Silt
		4	SS	24	22	7	4	5	6	6		ND		Medium dense, red brown stratified fine SAND, little to trace Silt
10														
		5	SS	24	24	10	3	4	4	6		ND		Loose, red brown fine SAND, some Silt
													13.5 / 138.1 Silt with Clay and Silt Seams	
15														
		6	SS	24	24	15	1	2	2	1		ND		Very loose, red brown SILT, trace fine Sand with occasional CLAY and SILT to 1" thick, wet
													18.5 / 133.1 Silty Fine Sand to Sandy Silt	
20														
		7	SS	24	18	20	6	6	7	8		ND		Medium dense, red brown, Top 6": SILT, trace fine Sand; Bottom 12": fine SAND, trace Silt
25														
		8	SS	24	24	25	1	2	2	1		ND	26.0 / 125.6 Silt with Slay and Silt Seams	Very loose, red brown, Top 12": SILT, trace fine Sand; Bottom 12": SILT with occasional seams to 1" thick CLAY and SILT
													28.5 / 123.1	
30														

Remarks
1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.
2.) Hydraulic head maintained below 15 foot depth in effort to minimize potential for running sands

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-5

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BORING LOG

Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-5

File No.: 0185-049.00

Checked By: ULF

Boring Company:	General Borings Inc.
Foreman:	Tim Cassan
GeoDesign Rep.:	Robert Marshall
Date Started:	February 1, 2016
Date Finished:	February 1, 2016
N. Coordinate:	
E. Coordinate:	
Ground Surface Elevation (feet):	151.6
Station:	
Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/1/16	15.0	136.6	Wet spoon

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description Depth & Elevation(feet)	Symbol	Sample Description (Classification System: Modified Burmister)
		9	SS	24	24	30	8	13	12	11		ND			Very stiff, red brown Clayey SILT to 3" thick varved with red brown CLAY and SILT layers to 1/2" thick
													Bottom of Exploration at 32.0 ft		
35															
40															
45															
50															
55															
60															

Remarks

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

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CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-6
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.				
Foreman:	Tim Cassan				
GeoDesign Rep.:	Robert Marshall				
Date Started:	February 1, 2016	Date Finished:	February 1, 2016		
N. Coordinate:		E. Coordinate:			
Ground Surface Elevation (feet):	151.6				
Station:		Offset:	ft		

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

	Date	Depth (ft)	Elev. (ft)	Notes
▼	2/1/16	14.0	137.6	Wet sample
▼				
▼				
▼				

Sample Information

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description: Depth & Elevation(feet)	Sample Description (Classification System: Modified Burmister)
		1	SS	24	8	0	3	3	3	3		ND	Fill	Loose, red brown fine to coarse SAND, some Silt, little fine Gravel, trace Root Fibers
		2	SS	24	8	2	3	2	1	2		ND		Very loose, red brown fine to coarse SAND, some Silt, little fine to coarse Gravel, wet
5													4.0 — Silty Fine Sand 147.6	
		3	SS	24	16	5	3	3	4	6		ND		Loose, red brown stratified fine SAND with trace to little (+) Silt
		4	SS	24	18	7	5	5	7	5		ND		Medium dense, red brown stratified fine SAND with trace to little (+) Silt
10														
		5	SS	24	20	10	4	5	4	5		ND		Loose, red brown stratified fine SAND with trace to some Silt
													▼	
15														
		6	SS	24	8	15	4	3	2	2		ND		Loose, red brown SILT, some fine Sand
													17.0 — Bottom of Exploration at 17.0 ft 134.6	
20														
25														
30														

Remarks: 1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-6

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CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-7
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.		
Foreman:	Tim Cassan		
GeoDesign Rep.:	Robert Marshall		
Date Started:	February 2, 2016	Date Finished:	February 2, 2016
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	151.7		
Station:		Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/2/16			None Encountered

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description (Depth & Elevation (feet))	Sample Description (Classification System: Modified Burmister)
		1	SS	24	12	0.2	9	9	9	6		ND	Asphalt 151.5; Base Course 151.2; Silty Fine Sand	Medium dense, Top 3": gray fine to coarse GRAVEL, some fine to coarse Sand, trace Silt. Bottom 9": red brown fine to medium SAND, some (-) Silt, little fine to coarse Gravel
		2	SS	24	0	2.2	10	8	5	5		-		Medium dense, No Recovery
5		3	SS	24	2	5	8	4	2	2		ND		Loose, red brown fine SAND, little Silt
		4	SS	24	0	7	4	4	4	5		-		Loose, No Recovery
10		5	SS	24	20	10	2	2	4	5		ND		Loose, red brown fine SAND, little (-) Silt
15		6	SS	24	20	15	4	4	3	4		ND	17.0 Bottom of Exploration at 17.0 ft 134.7	Loose, red brown, Top 10": SILT, some fine Sand. Bottom 10": fine SAND, little Silt, wet
20														
25														
30														

Remarks: 1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-7

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CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-8
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company: General Borings Inc.
Foreman: Tim Cassan
GeoDesign Rep.: Robert Marshall
Date Started: February 2, 2016 Date Finished: February 2, 2016
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 151.7
Station: Offset: ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.

Rig Type: Bombardier with Diedrich D-50
Hammer Type: Automatic Hydraulic

Groundwater Observations

	Date	Depth (ft)	Elev. (ft)	Notes
▼	2/2/16	16.8	134.9	Wet sample
▼				
▼				
▼				

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description (Depth & Elevation(feet))	Sample Description (Classification System: Modified Burmister)
		1	SS	24	8	0	3	8	8	6		ND	Fill	Medium dense, red brown fine to medium SAND, some Silt, little fine Gravel, trace Root Fibers
		2	SS	24	7	2	5	5	14	25		ND		Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
5													4.0 Possible Fill 147.7	
		3	SS	24	22	5	10	8	7	5		ND		Medium dense, red brown fine to medium SAND, little (+) Silt, little fine to coarse Gravel
		4	SS	24	20	7	5	3	2	3		ND	7.5 Silty Sand 144.2	Loose, red brown fine SAND, little Silt
10														
		5	SS	24	12	10	3	4	5	7		ND	11.0 Sandy Silt 140.7	Loose, red brown, Top 6": fine SAND, little Silt Bottom 6": SILT, trace fine Sand
15														
		6	SS	24	20	15	4	6	6	8		ND	17.0 ▼ Bottom of Exploration at 17.0 ft 134.7	Top 4" and Bottom 7": Medium dense, red brown SILT, trace fine Sand Mid 4": medium dense, red brown fine SAND, trace Silt
20														
25														
30														

Remarks: 1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-8

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CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-9 (OW)
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.
Foreman:	Tim Cassan
GeoDesign Rep.:	Robert Marshall
Date Started:	February 1, 2016
Date Finished:	February 1, 2016
N. Coordinate:	
E. Coordinate:	
Ground Surface Elevation (feet):	153
Station:	
Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/1/16			None encountered
2/2/16			Dry well after 24 hours
2/3/16			Dry well after 48 hours

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description: Depth & Elevation(feet)	Sample Description (Classification System: Modified Burmister)
		1	SS	24	14	0	1	2	2	6		ND	Fill/ Reworked	Medium dense, red brown fine SAND, some (-) Silt, trace Root fibers
		2	SS	24	14	2	6	5	5	4		ND	2.0 Silty Fine Sand 151.0	Loose, red brown fine SAND, some (-) Silt, trace fine Gravel
5		3	SS	24	12	5	5	6	6	8		ND		Medium dense, red brown, Top 3": SILT, trace fine Gravel
		4	SS	24	16	7	8	6	5	6		ND	7.0 Silty Gravelly Sand 146.0	Medium dense, red brown fine to medium SAND, trace fine to coarse Gravel, trace Silt
10		5	SS	24	12	10	3	3	3	3		ND		Loose, red brown fine to medium SAND, trace (+) fine to coarse Gravel, trace Silt
15		6	SS	24	16	15	6	10	10	9		ND	13.5 Sandy Silt 139.5	Medium dense, red brown SILT, trace fine Sand
20													17.0 Bottom of Exploration at 17.0 ft 136.0	
25														
30														

Well Log

Remarks:
1.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.
2.) Two inch ID PVC monitoring well installed upon completion of boring with tip of 5 foot screen set at 15 feet, filter sand to 9 feet, bentonite seal to 8 feet, auger cuttings to surface with flush mount curb box and concrete collar installed.

Notes:
1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-9 (OW)

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CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-10
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.
Foreman:	Tim Cassan
GeoDesign Rep.:	Robert Marshall
Date Started:	February 1, 2016
Date Finished:	February 1, 2016
N. Coordinate:	
E. Coordinate:	
Ground Surface Elevation (feet):	149.2
Station:	
Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/1/16			None encountered

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description (Depth & Elevation(feet))	Sample Description (Classification System: Modified Burmister)
		1	SS	24	12	0	3	3	3	3		1.6	Fill	Loose, red brown fine to medium SAND, some (-) Silt, trace fine to coarse Gravel
		2	SS	24	8	2	1	4	7	8		9.8		Medium dense, red brown fine to medium SAND, little (+) Silt, trace fine Gravel, trace black Organics (Fill)
5		3	SS	24	10	5	2	1	2	4		ND		Very loose, red brown fine SAND, some Silt, trace (-) Organics
		4	SS	24	20	7	5	5	5	7		ND	6.5 / 142.7 Silty Sand/ Sandy Silt	Medium dense, red brown fine SAND and SILT Bottom 2": red brown fine SAND, trace Silt
10		5	SS	24	18	10	5	7	7	6		ND		Medium dense, red brown, Top 9": fine SAND and SILT Bottom 9": fine SAND, trace Silt
15		6	SS	24	20	15	3	4	4	5		ND	16.0 / 133.2 Varved Silt and Clay 17.0 / 132.2 Bottom of Exploration at 17.0 ft	Loose, red brown Top 10": SILT, little fine Sand Bottom 10": stiff red brown SILT layers to 1" thick, varved with red brown CLAY and SILT layers to 1" thick, moist
20														
25														
30														

Remarks
1.) Falling head permeability tests performed in separate 6" diameter bore holes at 2 to 4' and 4 to 6'.
2.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.
3.) Polyethelyne shards in auger cuttings of fill material.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

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Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-10A
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company: General Borings Inc.
Foreman: Tim Cassan
GeoDesign Rep.: Robert Marshall
Date Started: February 2, 2016 Date Finished: February 2, 2016
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 150
Station: Offset: ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/2/16			Dry, none observed

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)	Strata Description (Depth & Elevation (feet))	Sample Description (Classification System: Modified Burmister)
		1	SS	24	20	0	1	2	2	6		ND	Reworked	Loose, red brown fine SAND, some (-) Silt, trace Root fibers
													2.0	
		2	SS	24	18	2	5	6	7	9		ND	Silty Sand to Sandy Silt 148.0	Medium dense, red brown fine SAND, little (+) Silt
5														
		3	SS	24	24	5	3	3	4	6				Loose, red brown stratified fine SAND, trace to some Silt
		4	SS	24	16	7	5	6	6	8				Medium dense, red brown fine SAND, little Silt
10														
		5	SS	24	14	10	4	4	4	7				Loose, red brown fine SAND, little Silt with layers to 2" thick red brown Silt, trace fine Sand
15														
		6	SS	24	12	15	4	2	5	7				Loose, red brown SILT, trace fine Sand, with layers to 3" thick fine Sand, little Silt
													17.0	
													Bottom of Exploration at 17.0 ft 133.0	
20														
25														
30														

Remarks:
1.) Falling head permeability tests performed in separate 6" diameter bore holes at 2 to 4' and 4 to 6 foot depths.
2.) Soil samples field screened with a Mini Rae PID calibrated to isobutylene standard where ND indicates no detection.

Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-10A

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Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-11
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.
Foreman:	Tim Cassan/John Wyand
GeoDesign Rep.:	Robert Marshall
Date Started:	February 3, 2016
Date Finished:	February 3, 2016
N. Coordinate:	
E. Coordinate:	
Ground Surface Elevation (feet):	151.5
Station:	
Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

	Date	Depth (ft)	Elev. (ft)	Notes
▼	2/3/16			Dry, none encountered
▼				
▼				
▼				

Sample Information

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)
		1	SS	24	6	0	28	50/3"				ND
		2	SS	24	12	2	32	44	37	30		ND
5												
		3	SS	24	12	5	11	12	10	9		ND
		4	SS	24	12	7	8	10	11	11		ND
10												
		5	SS	24	16	10	10	12	14	18		ND
15												
20												
25												
30												

Strata Description (Depth & Elevation (feet))

Depth	Strata	Elevation
	Asphalt	151.2
	Base Course	151.0
	Fill/Reworked	
4.0	Silty Fine Sand to Sandy Silt	147.5
12.0	Bottom of Exploration at 12.0 ft	139.5

Sample Description

Classification System: Modified Burmister

Red brown fine to medium SAND, some fine to coarse Gravel, little Silt

Red brown,
Top 6": fine to medium SAND, some Silt, trace fine Gravel
Bottom 6": fine SAND, little Silt, dry

Red brown stratified fine SAND, trace to

Red brown,
Top 6": fine SAND, little Silt
Bottom 6": SILT, little fine Sand

Red brown stratified fine SAND, trace Silt layers to 2" thick with Silt, trace fine Sand layers to 3" thick

Remarks: Soil samples field screened with Mini Rae PID calibrated to an isobutylene standard where ND indicates no detection.

Notes:
1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

GEODESIGN INCORPORATED
Geotechnical | Construction | Environmental
Engineers and Scientists
-
Telephone: Fax:

BORING LOG

Project Name

CCSU Kaiser Hall
DAS Project No. BI-RC-393

Boring No.: B-12
Page No.: 1 of 1
File No.: 0185-049.00
Checked By: ULF

Boring Company:	General Borings Inc.		
Foreman:	Tim Cassan/John Wyand		
GeoDesign Rep.:	Robert Marshall		
Date Started:	February 3, 2016	Date Finished:	February 3, 2016
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	151.5		
Station:		Offset:	ft

	Casing:	Sampler:
Type:	H.S.A.	SS
I.D.:	3.25 in.	1.38 in.
Hammer Wt.:	N/A	140 lbs
Hammer Fall:	N/A	30 in.
Rig Type:	Bombardier with Diedrich D-50	
Hammer Type:	Automatic Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
2/3/16			Dry, none encountered

Sample Information

Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows 0 - 6	Blows 6 - 12	Blows 12 - 18	Blows 18 - 24	Coring Time (min./ft)	PID Reading (ppm)
		1	SS	9	6	0.5	32	60/3"				ND
		2	SS	24	16	2.5	49	60	81	81		ND
5												
		3	SS	24	12	5	10	9	11	12		ND
		4	SS	24	13	7	11	11	10	13		ND
10												
		5	SS	24	12	10	14	16	13	19		ND
15												
		6	SS	24	13	15	6	10	16	13		ND
20												
25												
30												

Strata Description (Depth & Elevation (feet))

Depth		Elevation
	Asphalt	151.2
	Base Course	151.0
	Fill	
4.5	Sandy Silt to Silty Fine Sand	147.0
17.0	Bottom of Exploration at 17.0 ft	134.5

Sample Description

Classification System: Modified Burmister

	Description
1	Top 3": gray fine to coarse SAND, some fine to coarse Gravel, trace Silt Bottom 3": red brown fine to coarse SAND, little fine Gravel, trace Silt
2	Red brown fine to medium SAND, little (+) Silt, trace fine Gravel
3	Red brown fine to medium SAND, trace Silt
4	Red brown fine SAND, little Silt Bottom 3": red brown SILT, little fine Sand
5	Red brown, Top 3": SILT, trace fine Sand Bottom 9": fine Sand, trace (+) Silt
6	Red brown, Top 9": SILT, trace fine Sand, wet Bottom 4": fine SAND, little Silt, (dry)

Remarks

1.) Soil samples field screened with Mini Rae PID calibrated to an isobutylene standard where ND indicates no detection.

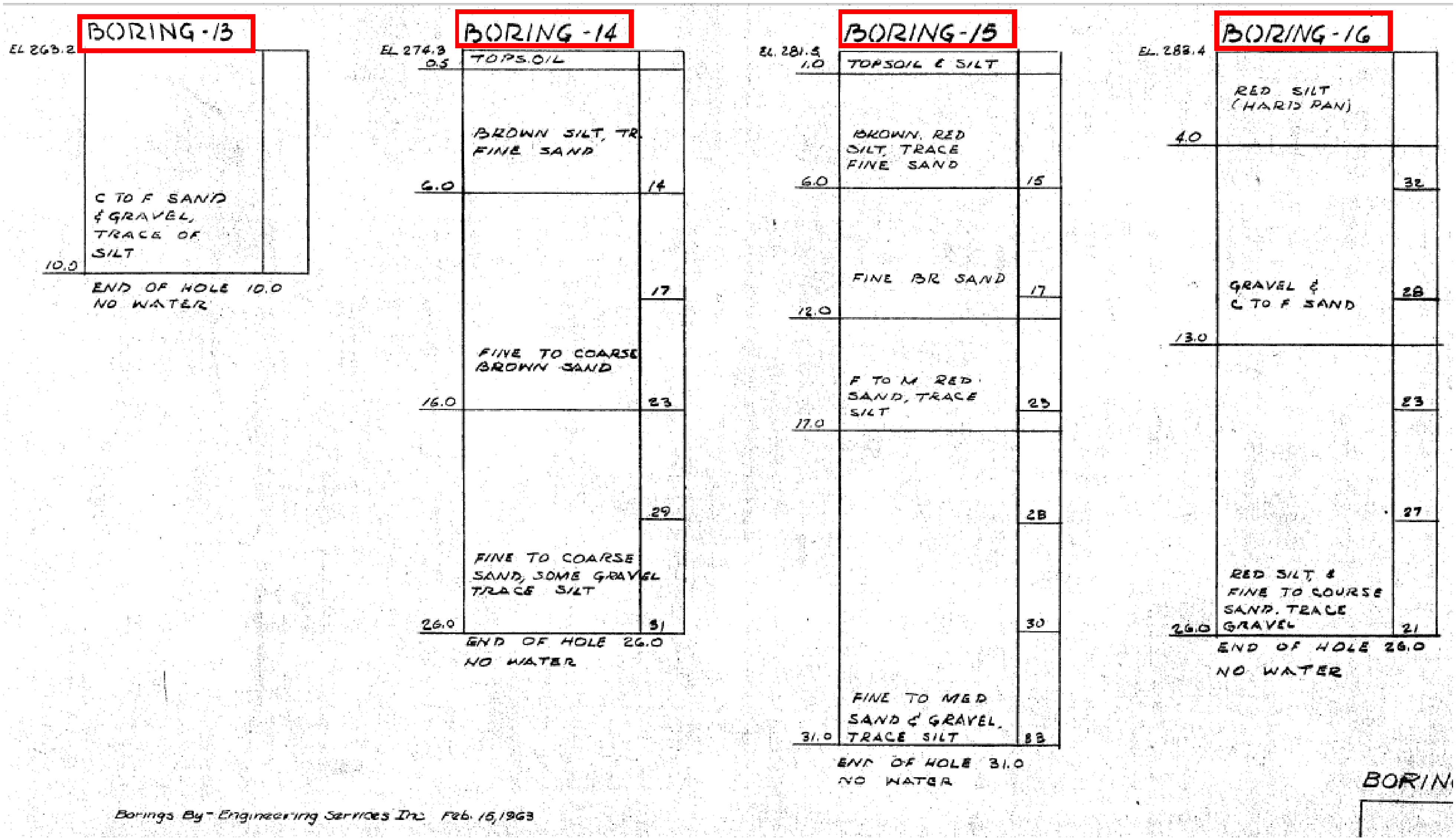
Notes: 1) Soil Samples screened in the field using a calibrated Photoionization Detector (unless otherwise noted in Remarks). The meter was calibrated relative to a benzene in air standard. ND = None Detected; NR = Not Recorded; NA = Not Applicable; OR = Out of Range
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors over time. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

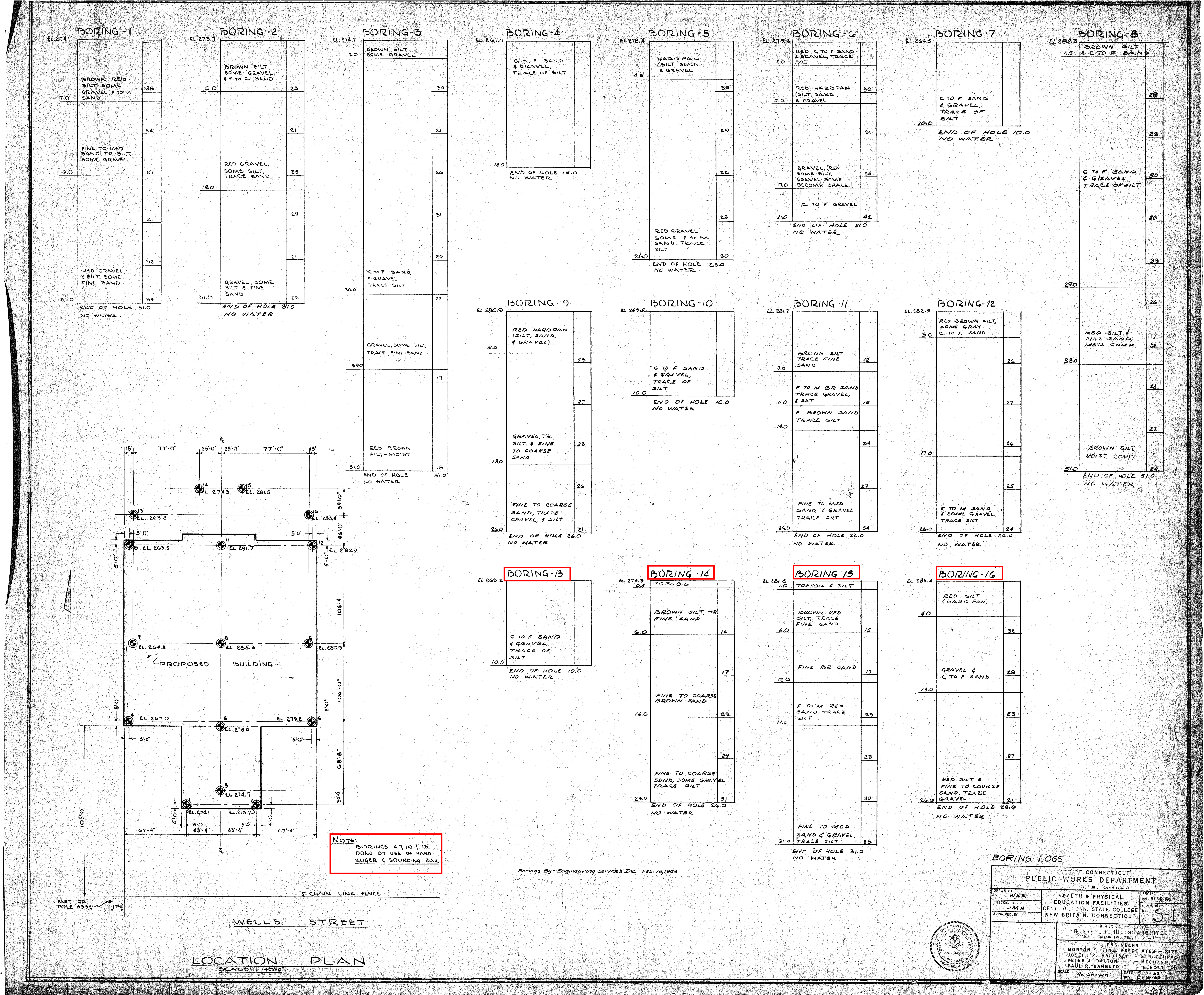
Appendix 3 – Pre-Existing Boring Logs and Location Plan (1963 Drawings)

Pre-Existing Boring Data

(Taken from As-Builts of 1963 Kaiser Hall Addition)

Detail taken for portion of Drawing S-1 (next Sheet)

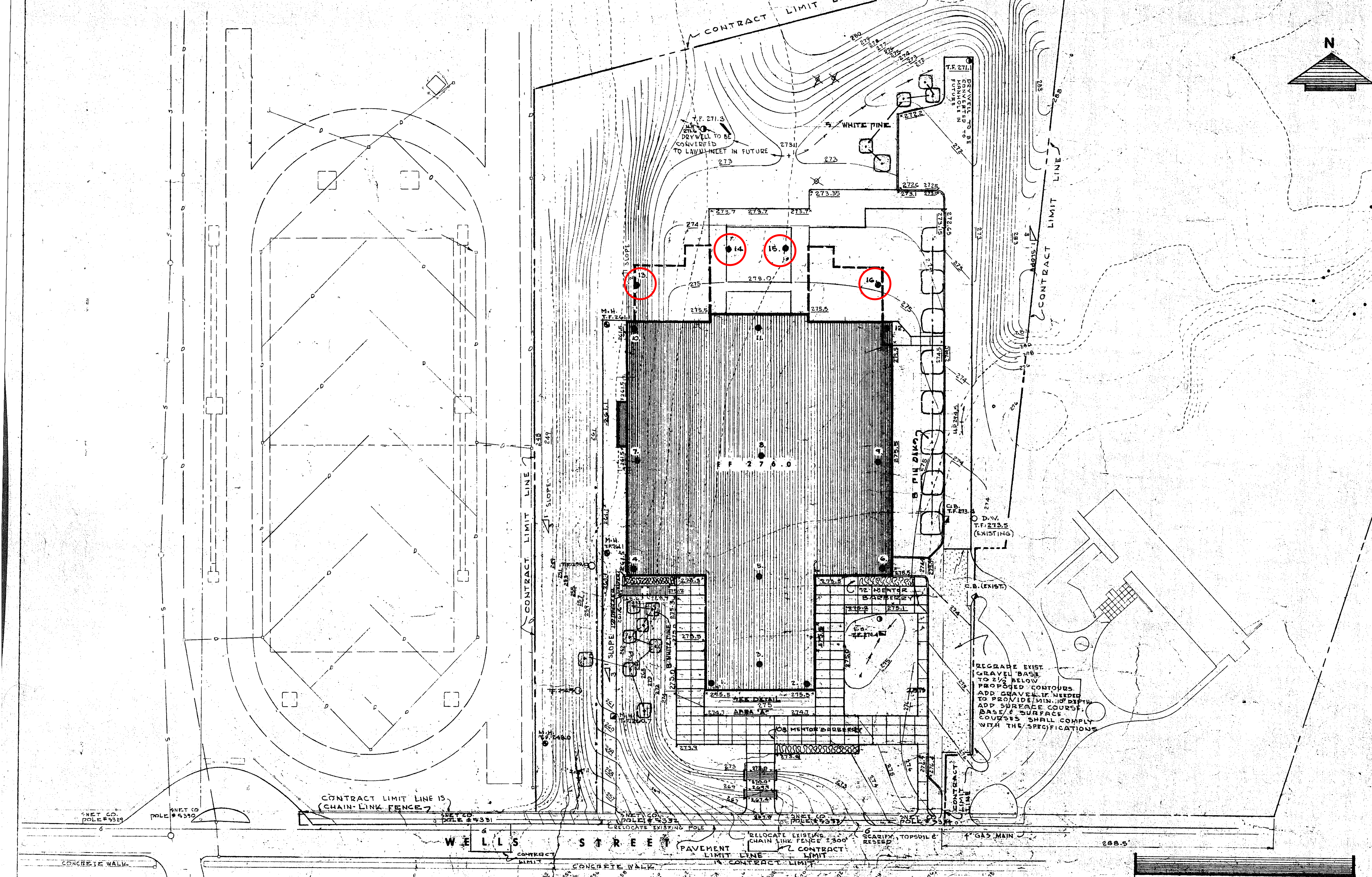




BORING - 1
EL. 274.1
BROWN RED SILT, SOME GRAVEL, F TO M SAND
7.0
FINE TO MED SAND, TR. SILT, SOME GRAVEL
16.0
RED GRAVEL, & SILT, SOME FINE SAND
31.0
28 24 27 21 32 39
END OF HOLE 31.0
NO WATER
BORING - 2
EL. 273.7
BROWN SILT SOME GRAVEL & F. TO C SAND
6.0
RED GRAVEL, SOME SILT, TRACE SAND
18.0
GRAVEL, SOME SILT & FINE SAND
31.0
23 21 25 29 21 23
END OF HOLE 31.0
NO WATER
BORING - 3
EL. 274.7
BROWN SILT SOME GRAVEL
2.0
C TO F SAND, & GRAVEL TRACE SILT
30.0
GRAVEL, SOME SILT, TRACE FINE SAND
39.0
RED BROWN SILT - MOIST
51.0
30 21 26 31 29 22 17 18
END OF HOLE
NO WATER
51.0
BORING - 4
EL. 267.0
C TO F SAND & GRAVEL, TRACE OF SILT
15.0
END OF HOLE 15.0
NO WATER
BORING - 5
EL. 278.4
HARD PAN (SILT, SAND & GRAVEL
4.5
RED GRAVEL SOME F TO M SAND, TRACE SILT
26.0
35 29 22 28 30
END OF HOLE 26.0
NO WATER
BORING - 6
EL. 279.2
RED C TO F SAND & GRAVEL, TRACE SILT
2.0
RED HARD PAN (SILT, SAND, & GRAVEL
7.0
GRAVEL, (RED) SOME SILT, GRAVEL, SOME DECOMP. SHALE
17.0
C. TO F GRAVEL
21.0
30 31 25 42
END OF HOLE 21.0
NO WATER
BORING - 7
EL. 264.5
C TO F SAND & GRAVEL, TRACE OF SILT
10.0
END OF HOLE 10.0
NO WATER
BORING - 8
EL. 282.3
BROWN SILT & C TO F SAND
1.5
C TO F SAND & GRAVEL TRACE OF SILT
29.0
RED SILT & FINE SAND, MED. COMP.
38.0
BROWN SILT MOIST COMP.
51.0
28 22 30 26 33 26 31 22 22 24
END OF HOLE 51.0
NO WATER
BORING - 9
EL. 280.9
RED HARDPAN (SILT, SAND, & GRAVEL)
5.0
GRAVEL, TR. SILT, & FINE TO COARSE SAND
18.0
FINE TO COARSE SAND, TRACE GRAVEL, & SILT
26.0
43 27 23 26 21
END OF HOLE 26.0
NO WATER
BORING - 10
EL. 265.5
C TO F SAND & GRAVEL, TRACE OF SILT
10.0
END OF HOLE 10.0
NO WATER
BORING - 11
EL. 281.7
BROWN SILT TRACE FINE SAND
7.0
F TO M BR SAND TRACE GRAVEL, & SILT
11.0
F. BROWN SAND TRACE SILT
14.0
FINE TO MED SAND, & GRAVEL TRACE SILT
26.0
12 15 24 29 34
END OF HOLE 26.0
NO WATER
BORING - 12
EL. 282.9
RED BROWN SILT, SOME GRAY C. TO F. SAND
3.0
17.0
F TO M SAND, & SOME GRAVEL, TRACE SILT
26.0
26 27 26 25 24
END OF HOLE 26.0
NO WATER
BORING - 13
EL. 263.2
C TO F SAND & GRAVEL, TRACE OF SILT
10.0
END OF HOLE 10.0
NO WATER
BORING - 14
EL. 274.3
TOPSOIL
0.5
BROWN SILT, TR. FINE SAND
6.0
FINE TO COARSE BROWN SAND
16.0
FINE TO COARSE SAND, SOME GRAVEL TRACE SILT
26.0
14 17 23 29 31
END OF HOLE 26.0
NO WATER
BORING - 15
EL. 281.5
TOPSOIL & SILT
1.0
BROWN, RED SILT, TRACE FINE SAND
6.0
FINE BR SAND
12.0
F TO M RED SAND, TRACE SILT
17.0
FINE TO MED SAND & GRAVEL, TRACE SILT
31.0
15 17 23 28 30 33
END OF HOLE 31.0
NO WATER
BORING - 16
EL. 288.4
RED SILT (HARD PAN)
4.0
GRAVEL & C TO F SAND
13.0
RED SILT, & FINE TO COURSE SAND, TRACE GRAVEL
26.0
32 28 23 27 21
END OF HOLE 26.0
NO WATER
PROPOSED BUILDING
WELLS STREET
CHAIN LINK FENCE
SNET CO. POLE 5332
LOCATION PLAN
SCALE: 1" = 40'-0"
NOTE:
BORINGS 4, 7, 10 & 13 DONE BY USE OF HAND AUGER & SOUNDING BAR
Borings By - Engineering Services Inc. Feb. 15, 1963
BORING LOGS
STATE OF CONNECTICUT
PUBLIC WORKS DEPARTMENT
HEALTH & PHYSICAL EDUCATION FACILITIES
CENTRAL CONN. STATE COLLEGE
NEW BRITAIN, CONNECTICUT
RUSSELL F. HILLS, ARCHITECT
ENGINEERS
MORTON S. FINE, ASSOCIATES - SITE
JOSEPH P. HALLISEY - STRUCTURAL
PETER J. DALTON - MECHANICAL
PAUL R. BARBUTO - ELECTRICAL
SCALE As Shown
S-1

PLANT LIST

QUAN.	LATIN NAME	COMMON NAME	SIZE	REMARKS
8	Quercus palustris	Pin Oak	3"-3½" cal.	B&B
13	Pinus strobus	White Pine	10'-12' Ht.	B&B
12	Juniperus chinensis pfitz.	Pfitzer Juniper	3'-3½' spd.	B&B
48	Taxus brevifolia	Dwarf Jap. Yew	2½'-3' spd.	B&B
180	Berberis mentorensis	Mentor Barberry	18"-24" Ht.	B&B

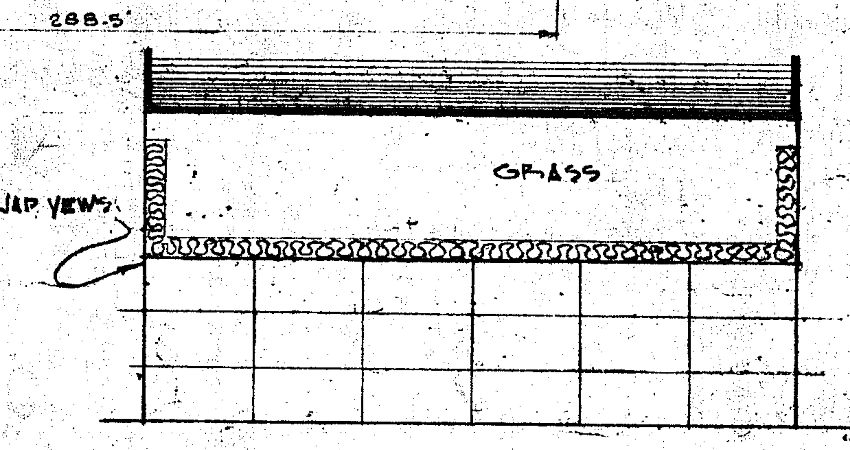


LEGEND

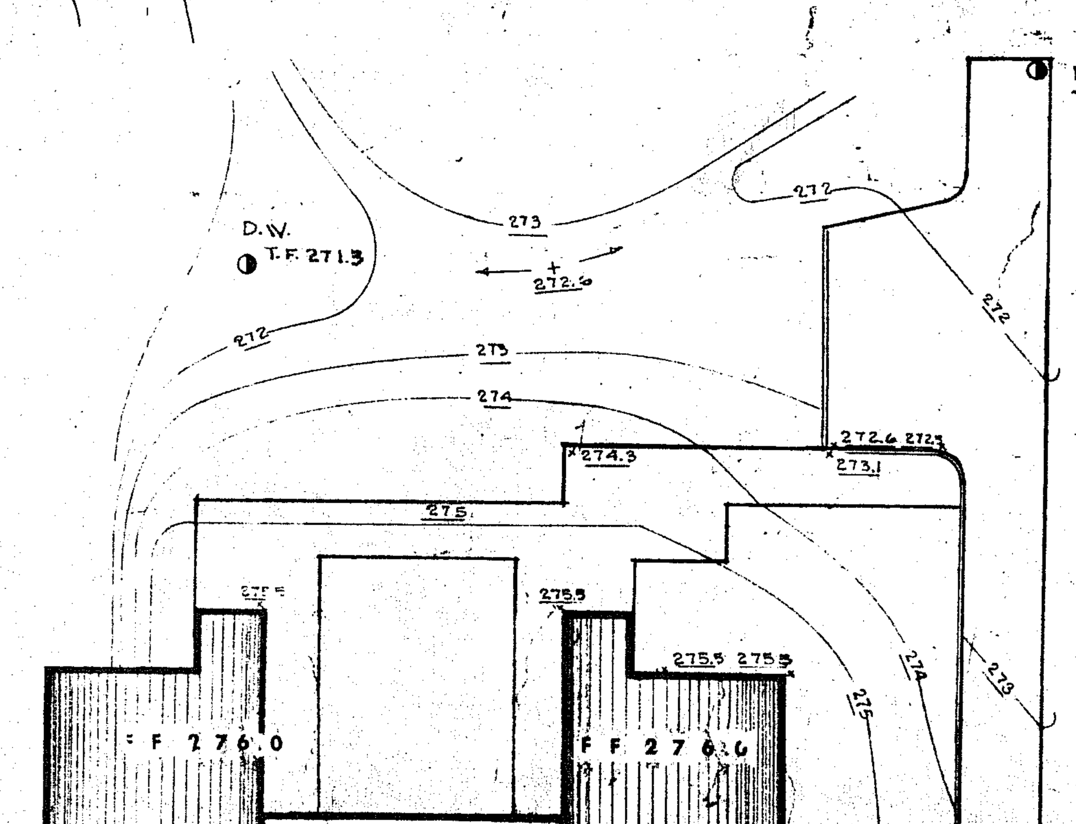
- EXISTING CONTOUR
- PROPOSED CONTOUR
- M.H. MANHOLE (SANITARY)
- D.W. DRYWELL
- C.B. CATCH BASIN
- M.H. MANHOLE (STORM)
- EXISTING TREE (TO BE REMOVED)
- 10 ● APPROXIMATE BORING LOCATION (FOR EXACT LOCATIONS & BORING LOGS SEE STRUCTURAL DRAWINGS)

BENCH MARK

STANDARD CITY OF NEW BRITAIN BRONZE PLUG AT #241 WELLS STREET ELEVATION 274.56



AREA "A" DETAIL
SCALE 1" = 20'



SUPPLEMENT NO. 1 - GRADING

NOTES

- THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS BEFORE PROCEEDING WITH WORK WITHIN WELLS ST. R.O.W. AND SHALL CARRY OUT AND COMPLETE THIS WORK TO THE SATISFACTION OF THE CITY ENGINEER OF NEW BRITIAN CONN.
- TOPOGRAPHIC AND BOUNDARY INFORMATION OBTAINED FROM MAPS PREPARED BY MORTON S. FINE ASSOCIATES, CIVIL ENGINEERS, AND DATED OCT. 13 1961 & OCT. 28 1961.
- THE CONTRACTOR SHALL VERIFY ALL LINES & GRADES BEFORE BEGINING WORK
- ALL AREAS DISTURBED DURING CONSTRUCTION & THOSE AREAS, WITHIN THE CONTRACT LIMIT LINES, NOT COVERED BY BUILDING OR PAVING SHALL BE TOPSOILED & SEEDED UNLESS OTHERWISE INDICATED

PLANTING REV. AUG. 28 1963

SITE GRADING & PLANTING PLAN

STATE OF CONNECTICUT
PUBLIC WORKS DEPARTMENT

DRAWN P.B.
CHECKED S.J.C.
APPROVED

SI-1

STATE OF CONNECTICUT MORTON S. FINE No. 2931 REGISTERED PROFESSIONAL ENGINEER

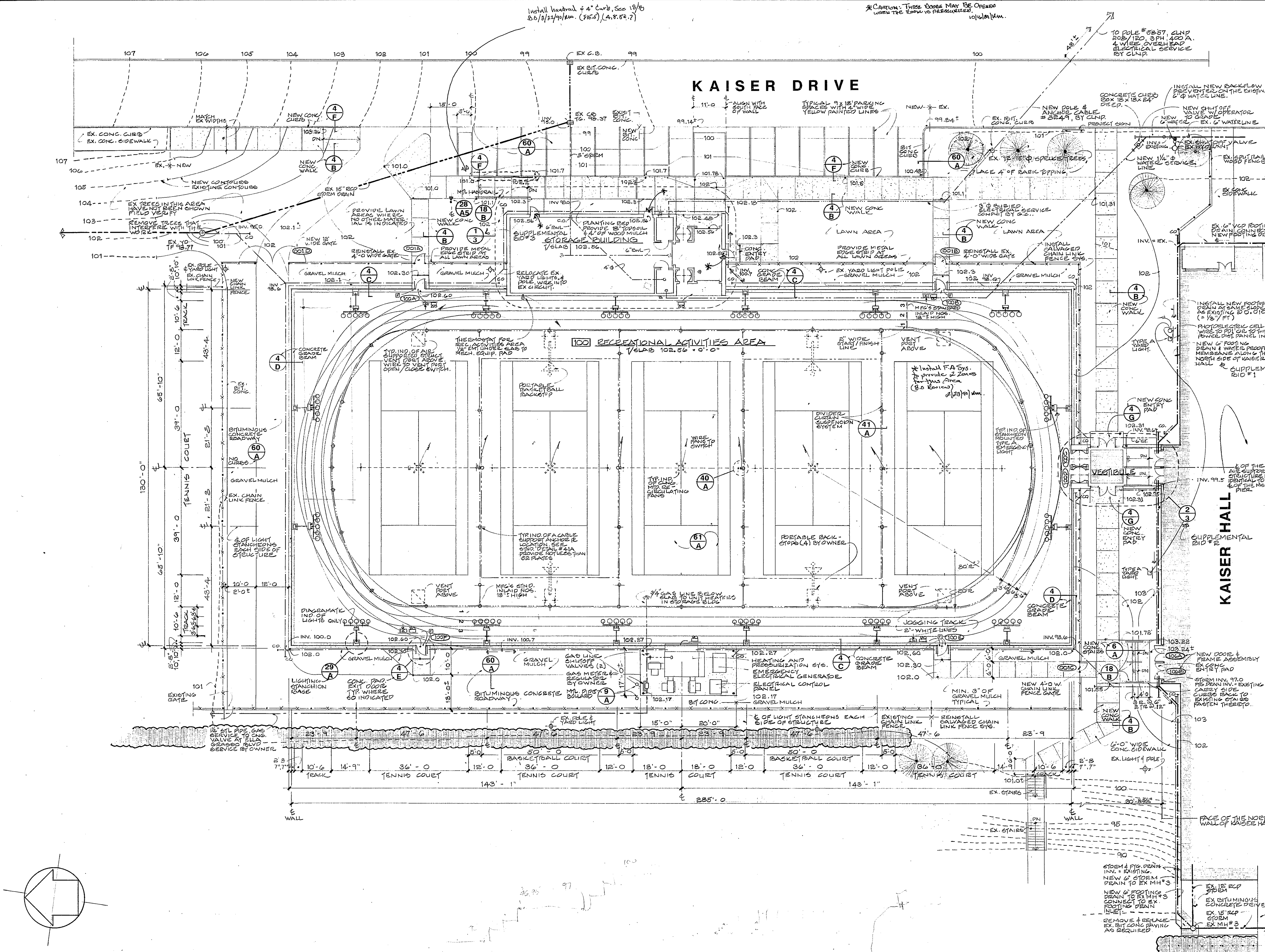
MORTON S. FINE
JOSEPH
PETER J. DALTON
PAUL R. BARR

SCALE 1" = 40'-0"

MAY 7, 1963
AUG 16, 1963

Selected As-Built Data in Connector Area

(Taken from As-Builts of 1963 Kaiser Hall Addition)



R/A AIR SUPPORTED STRUCTURE

Floor and Site Plans, Dwg. No. 2

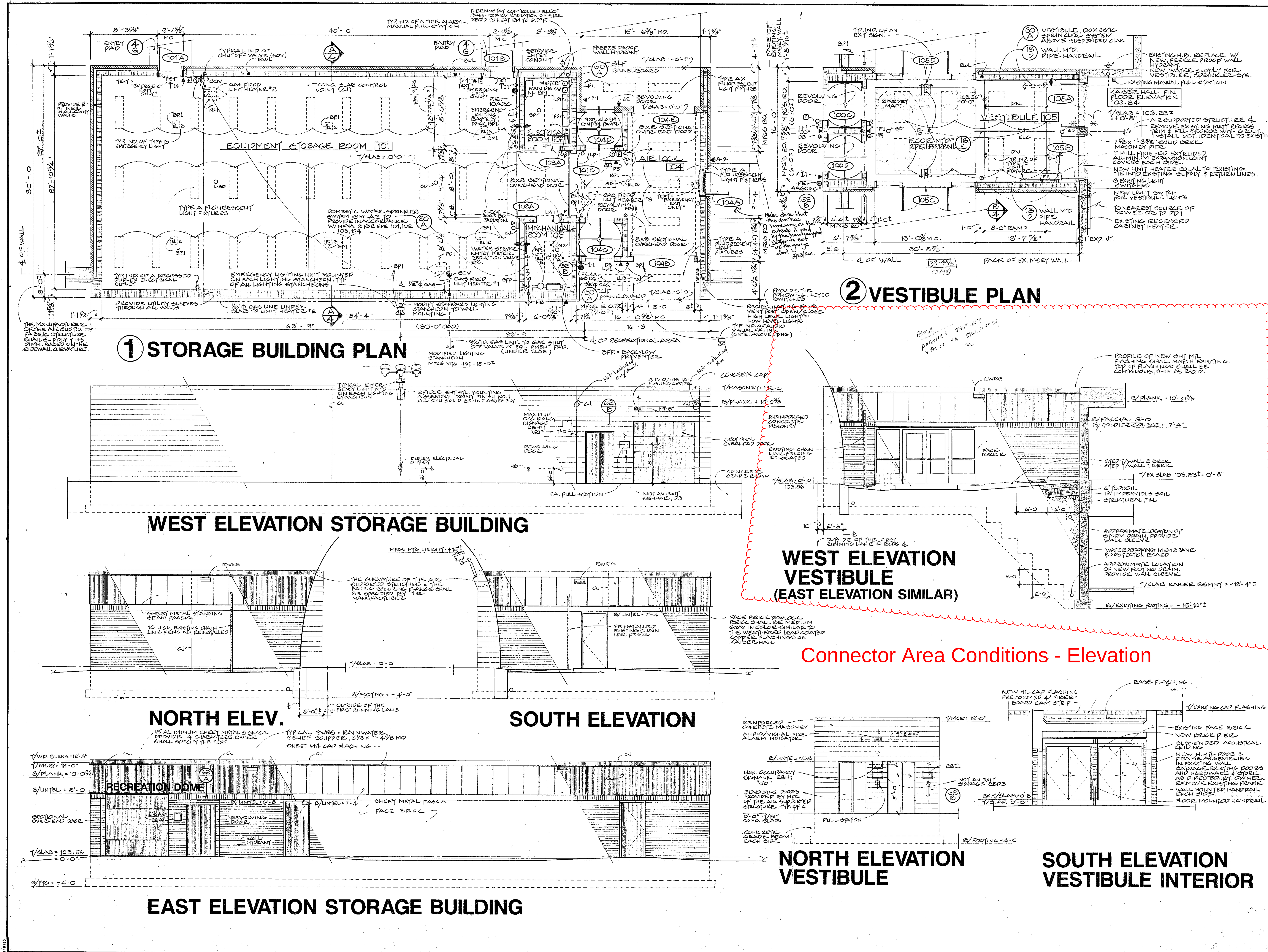
Scale: 1/16" = 1'-0" April 28, 1989

CENTRAL CONNECTICUT STATE UNIVERSITY

Office of the University Architect, 1615 Stanley St., East Hall, Rm.#103, New Britain, Ct. 06050

3

JOSEPH MERRITT & CO.



Plan Details and Elevations, Dwg. No. 3
Scale: 3/16" = 1'-0" April 28, 1989

R/A AIR SUPPORTED STRUCTURE

CENTRAL CONNECTICUT STATE UNIVERSITY

Office of the University Architect, 1615 Stanley St., East Hall, Rm.#103, New Britain, Ct. 06050

4

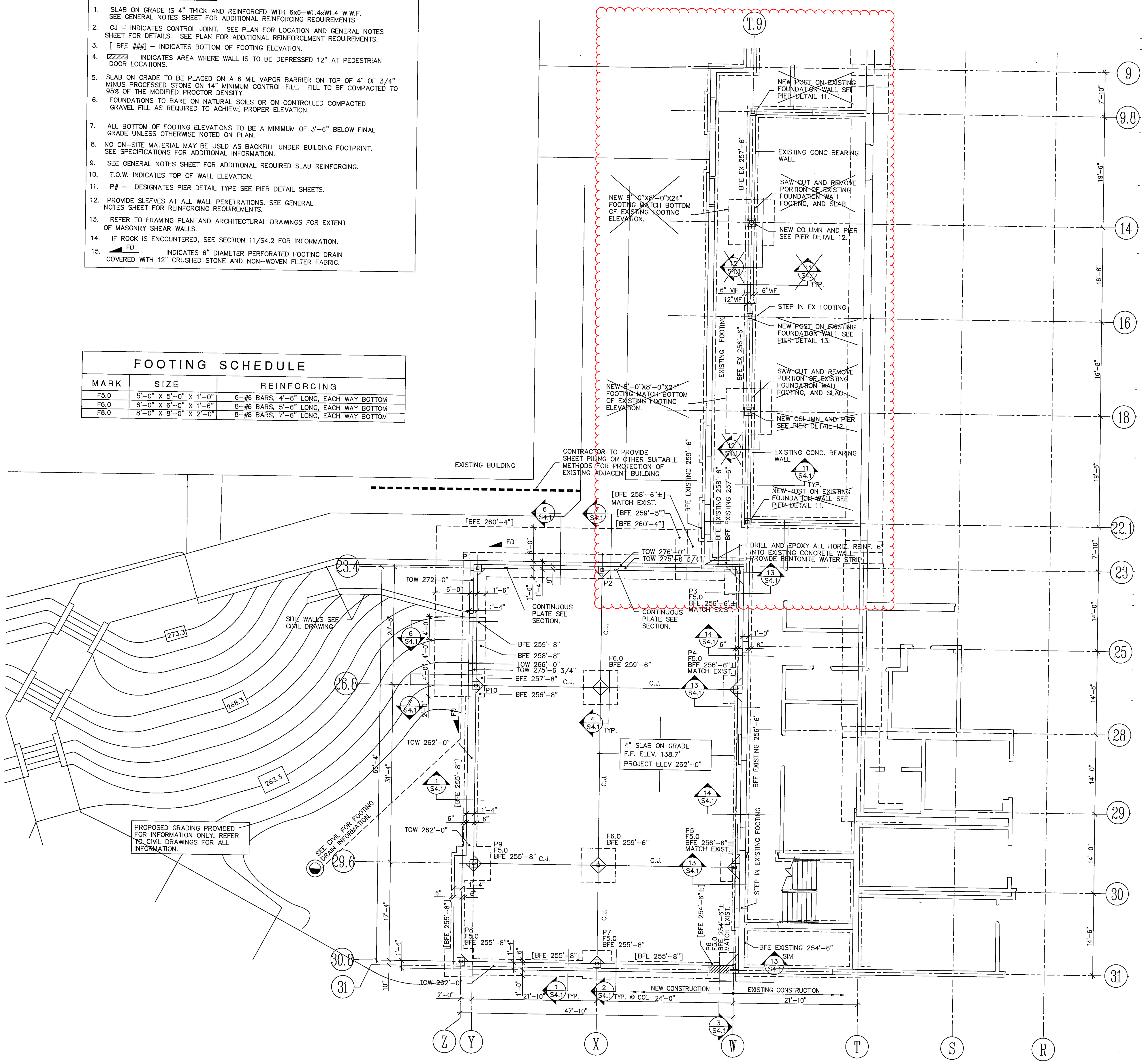
Connector Area Conditions - Plan

FOUNDATION NOTES:

1. SLAB ON GRADE IS 4" THICK AND REINFORCED WITH 6x6–W1.4xW1.4 W.W.F. SEE GENERAL NOTES SHEET FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. CJ – INDICATES CONTROL JOINT. SEE PLAN FOR LOCATION AND GENERAL NOTES SHEET FOR DETAILS. SEE PLAN FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.
3. [BFE ###] – INDICATES BOTTOM OF FOOTING ELEVATION.
4. INDICATES AREA WHERE WALL IS TO BE DEPRESSED 12" AT PEDESTRIAN DOOR LOCATIONS.
5. SLAB ON GRADE TO BE PLACED ON A 6 MIL VAPOR BARRIER ON TOP OF 4" OF 3/4" MINUS PROCESSED STONE ON 14" MINIMUM CONTROL FILL. FILL TO BE COMPACTED TO 95% OF THE MODIFIED PROCTOR DENSITY.
6. FOUNDATIONS TO BARE ON NATURAL SOILS OR ON CONTROLLED COMPACTED GRAVEL FILL AS REQUIRED TO ACHIEVE PROPER ELEVATION.
7. ALL BOTTOM OF FOOTING ELEVATIONS TO BE A MINIMUM OF 3'–6" BELOW FINAL GRADE UNLESS OTHERWISE NOTED ON PLAN.
8. NO ON–SITE MATERIAL MAY BE USED AS BACKFILL UNDER BUILDING FOOTPRINT. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
9. SEE GENERAL NOTES SHEET FOR ADDITIONAL REQUIRED SLAB REINFORCING.
10. T.O.W. INDICATES TOP OF WALL ELEVATION.
11. P# – DESIGNATES PIER DETAIL TYPE SEE PIER DETAIL SHEETS.
12. PROVIDE SLEEVES AT ALL WALL PENETRATIONS. SEE GENERAL NOTES SHEET FOR REINFORCING REQUIREMENTS.
13. REFER TO FRAMING PLAN AND ARCHITECTURAL DRAWINGS FOR EXTENT OF MASONRY SHEAR WALLS.
14. IF ROCK IS ENCOUNTERED, SEE SECTION 11/S4.2 FOR INFORMATION.
15. FD INDICATES 6" DIAMETER PERFORATED FOOTING DRAIN COVERED WITH 12" CRUSHED STONE AND NON–WOVEN FILTER FABRIC.

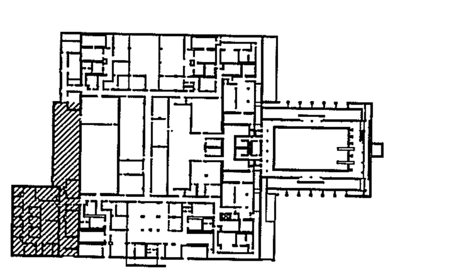
FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F5.0	5'–0" X 5'–0" X 1'–0"	6–#6 BARS, 4'–6" LONG, EACH WAY BOTTOM
F6.0	6'–0" X 6'–0" X 1'–6"	8–#6 BARS, 5'–6" LONG, EACH WAY BOTTOM
F8.0	8'–0" X 8'–0" X 2'–0"	8–#8 BARS, 7'–6" LONG, EACH WAY BOTTOM



FOUNDATION PLAN NORTH

NORTH



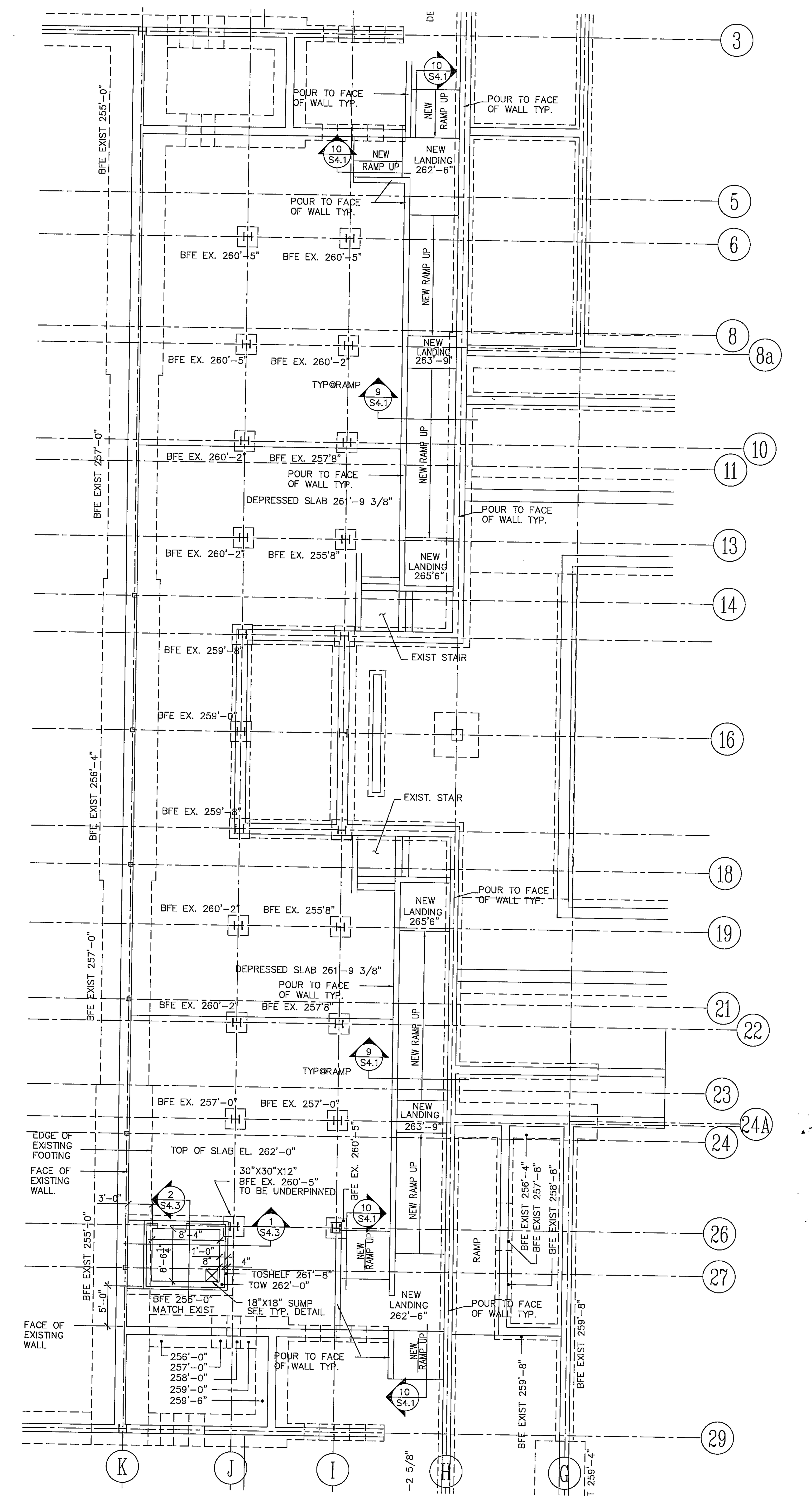
KEYPLAN

RECORD DOCUMENTS

THESE RECORD DOCUMENTS ARE A FINAL RECORD OF THE AS–BUILT CONDITIONS IN THE FIELD AS PREPARED BY THE GENERAL CONTRACTOR AND RECORDED BY THE DESIGN CONSULTANT.

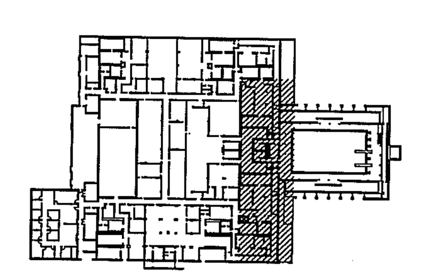
BE ADVISED THAT, PRIOR TO ANY CONTRACTOR, SUBCONTRACTOR OR SUPPLIER PERFORMING ANY WORK AT THIS FACILITY AFTER THE DATE OF THESE DOCUMENTS SHALL:

1. VERIFY ANY AND ALL FIELD CONDITIONS.
2. REPORT ANY DEVIATIONS IN WRITING TO THE ATTENTION OF THE STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS (DPW) REPRESENTATIVE/S AND THE CENTRAL CONNECTICUT STATE UNIVERSITY FACILITIES ADMINISTRATOR/S.
3. RECEIVE A WRITTEN RESPONSE FROM THE APPROPRIATE PARTY.



FOUNDATION PLAN SOUTH

NORTH



KEYPLAN

MACCHI ENGINEERS, L.L.C.
44 GILLETT STREET, HARTFORD, CT.
(860) 549–6190

drawing title: FOUNDATION PLAN

REVISIONS

mark	date	description

CAD no.

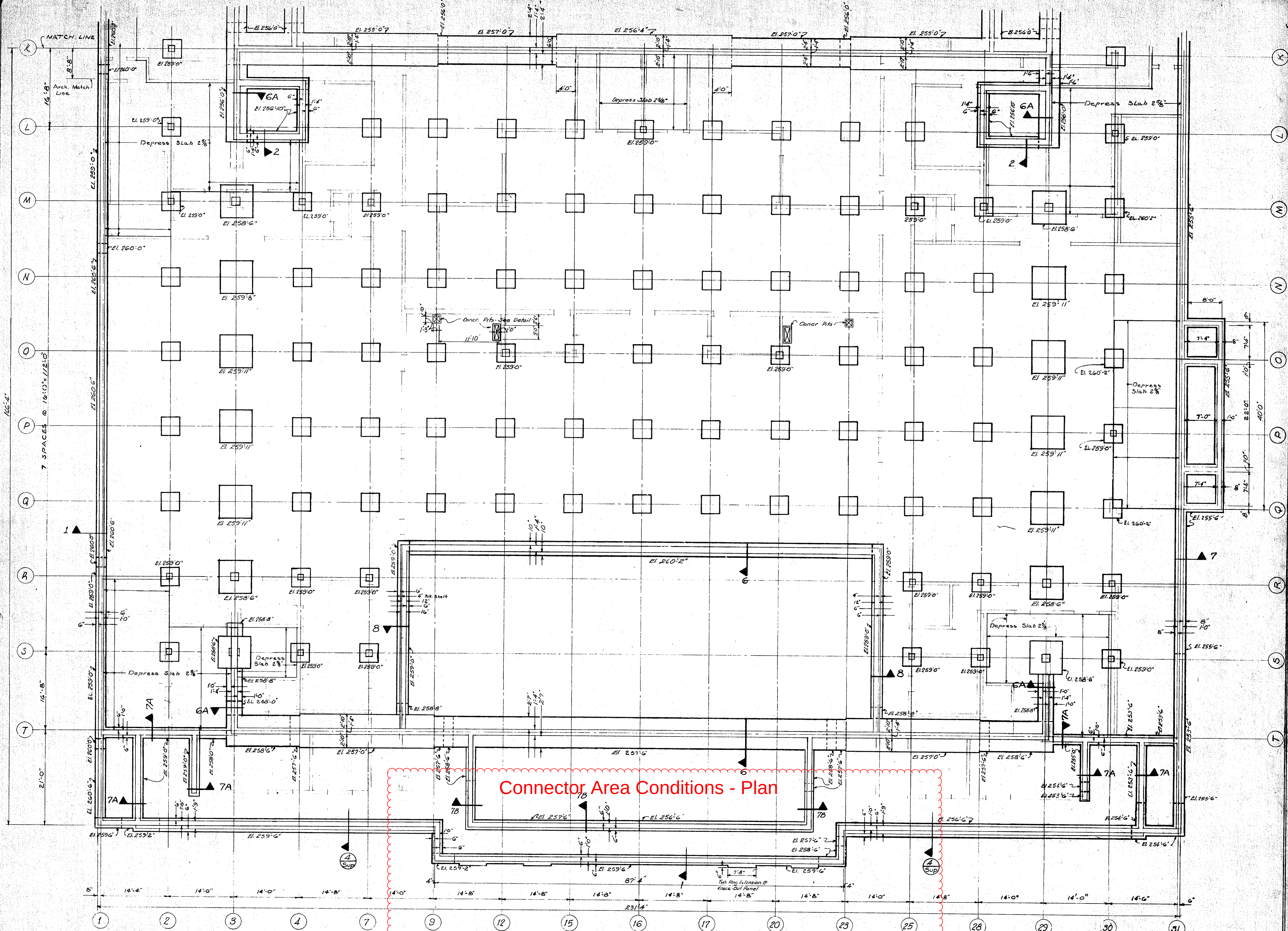
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC WORKS

DRAWING PREPARED BY
MOSER PILON NELSON ARCHITECTS
WETHERSFIELD CONNECTICUT

project: RENOVATIONS AND IMPROVEMENTS TO HARRISON KAISER HALL CENTRAL CONNECTICUT STATE UNIVERSITY

project no. BI–RC–283

date 5/01/01
scale 1/8"=1'–0"
drawn by CRH
approved by MRP
drawing no. S1.1



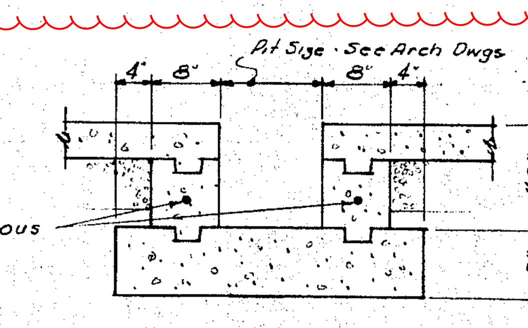
FOUNDATION PLAN AREA "2"

Scale 1/8" = 1'-0"

Notes:

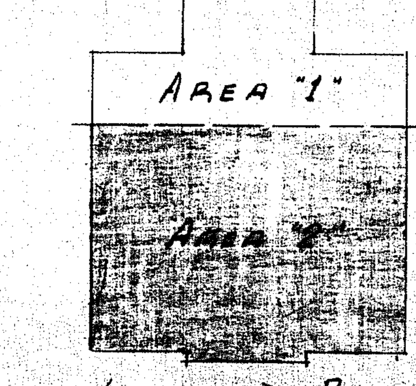
1. Basement Floor Slab 4" Concr. Slab Reinforced With 6×6 10/10 W.W.F. On Vapor Barrier On 12" Gravel Except As Otherwise Noted.
2. Top Of Basement Floor Slab @ Elevation 262'-0" Except As Noted Otherwise.
3. Bottom Of All Footings @ Elevation 260'-5" Except As Noted Otherwise.
4. See Wall Footing Schedule For Depth Of Wall Footings.

Sections 1 Through 8 On Dwg. S-14
Sections 9 Through 15 On Dwg. S-15
Sections 16 Through 18 On Dwg. S-4
Sections 19 Through 22 On Dwg. S-13
Section 7B On Dwg S-16



PIT DETAIL

Scale 3/4" = 1'-0"



LOCATION PLAN

FOUNDATION PLAN AREA 2

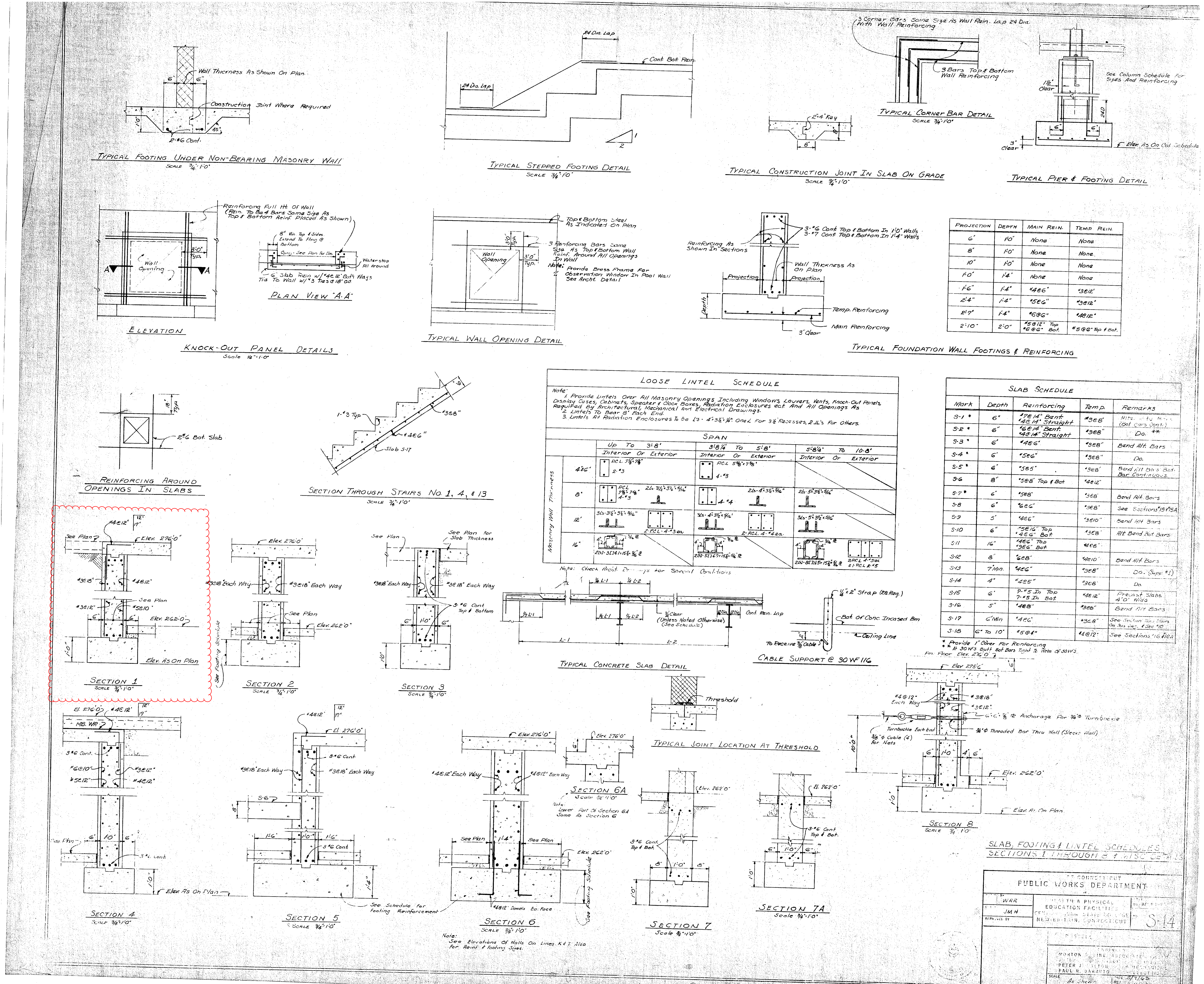
STATE OF CONNECTICUT
PUBLIC WORKS DEPARTMENT
Commissioner

DRAWN BY JMH	HEALTH & PHYSICAL EDUCATION FACILITIES CENTRAL CONN. STATE COLLEGE NEW BRITAIN, CONNECTICUT	PROJECT No. B/1-R-199
CHECKED BY WRB		DRAWING No. S-3
APPROVED BY		

PLANS PREPARED BY
RUSSELL F. HILLS, ARCHITECT
1155 NEW BRITAIN AVE., WEST HARTFORD, CONN.

ENGINEERS
MORTON S. FINE, ASSOCIATES – SITE
JOSEPH M. HALLISEY – STRUCTURAL
PETER J. DALTON – MECHANICAL
PAUL R. BARBUTO – ELECTRICAL

SCALE 1/8" = 1'-0" DATE 5-7-63 REV. 8-16-63



Projection	Depth	Main Rein.	Temp Rein.
6"	1'0"	None	None
8"	1'0"	None	None
10"	1'0"	None	None
1'0"	1'4"	None	None
1'6"	1'4"	#4@6"	#3@12"
2'4"	1'4"	#5@6"	#3@12"
2'7"	1'4"	#6@6"	#4@12"
2'10"	2'0"	#5@12" Top #6@6" Bot.	#5@6" Top & Bot.

Typical Foundation Wall Footings & Reinforcing

Loose Lintel Schedule

Note:
1. Provide Lintels Over All Masonry Openings Including Windows, Louvers, Vents, Knock-Out Panels, Display Cases, Cabinets, Speaker & Clock Boxes, Radiation Enclosures ect. And All Openings As Required By Architectural, Mechanical And Electrical Drawings.
2. Lintels To Bear 8" Each End.
3. Lintels At Radiation Enclosures To Be L's - 4"x3½"x¼". One L For 3½ Recesses, 2 JL's For Others.

Masonry Wall Thickness	Span: Up To 3'8" — Interior Or Exterior	Span: 3'8¼" To 5'8" — Interior Or Exterior	Span: 5'8¼" To 10'8" — Interior Or Exterior
4"&6"	P.C.L. 3⅝"x7⅝" 2-#3	P.C.L 5⅝"x7⅝" 4-#3	
8"	P.C.L 7⅝"x7⅝" 4-#3; 2Ls-3½"x3½"x5/16"	4-#4; 2Ls-4"x3½"x5/16"	2Ls-5"x3½"x5/16"
12"	3Ls-3½"x3½"x5/16"; 2-P.C.L-4-#3 ea.	3Ls-4"x3½"x5/16"; 2-P.C.L. 4-#4 ea.	3Ls-5"x3½"x5/16"
16"	2[s]-3[]4.1+15½"x5/16" ℞	2[s]-5[]6.7+15½"x5/16" ℞	2[s]-8[]11.5+15½"x5/16" ℞; 2 P.C.L 4-#5 ea & 1-P.C.L 2-#5

Note: Check Archt. Drawings For Special Conditions

Slab Schedule

Mark	Depth	Reinforcing	Temp.	Remarks
S-1 *	6"	#7@14" Bent #4@14" Straight	#3@8"	Alternate Bars (Bot Bars Cont.)
S-2 *	6"	#6@14" Bent #4@14" Straight	#3@8"	Do. **
S-3 *	6"	#4@6"	#3@8"	Bend Alt. Bars
S-4 *	6"	#5@6"	#3@8"	Do.
S-5 *	6"	#5@5"	#3@8"	Bend Alt Bars Bot. Bar Continuous.
S-6	8"	#5@8" Top & Bot	#4@12"	
S-7 *	6"	#5@8"	#3@8"	Bend Alt. Bars
S-8	6"	#6@6"	#3@8"	See Sections #15 & #15A
S-9	5"	#4@6"	#3@10"	Bend Alt Bars
S-10	6"	#5@16" Top #4@6" Bot	#3@8"	Alt. Bend Bot. Bars
S-11	16"	#4@6" Top #9@6" Bot	#4@6"	
S-12	8"	#6@8"	#4@10"	Bend Alt. Bars
S-13	7" Min.	#4@6"	#3@8"	Do. (Supp. #1)
S-14	4"	#4@5"	#3@8"	Do.
S-15	6"	7-#5 In Top 7-#5 In Bot.	#4@12"	Precast Slabs 4'0" Wide
S-16	5"	#4@8"	#3@8"	Bend Alt Bars
S-17	6" Min	#4@6"	#3@8"	See Section Thru Stairs On This Dwg. & Sec. #10
S-18	6" To 10"	#5@4"	#4@12"	See Sections #16 & #16A

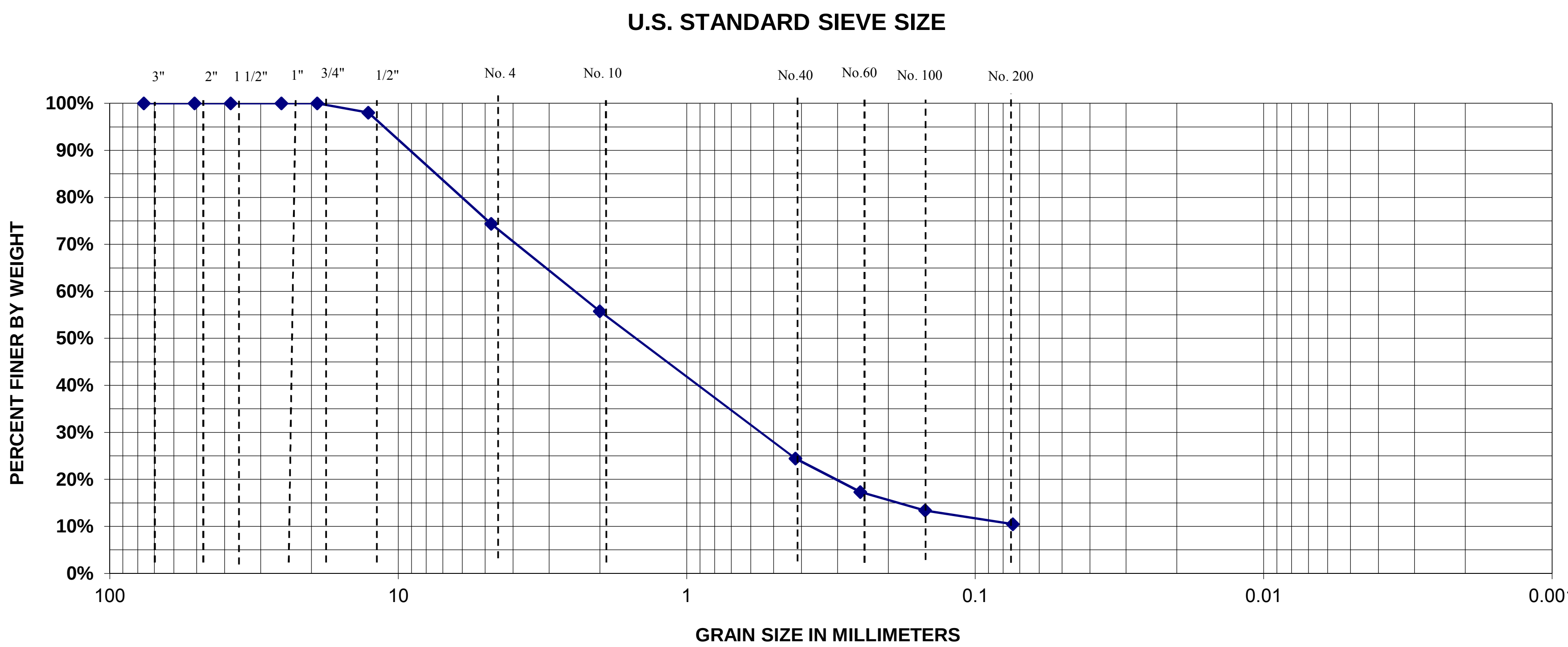
* Provide 1" Cover For Reinforcing
** At 30 WF's Butt Bot Bars Tight To Webs Of 30 WF's

SLAB, FOOTING & LINTEL SCHEDULES
SECTIONS 1 THROUGH 8 & MISC DETAILS

[illegible] CONNECTICUT PUBLIC WORKS DEPARTMENT		
BY WRR / JMH / APPROVED BY	HEALTH & PHYSICAL EDUCATION FACILITIES CENTRAL CONNECTICUT STATE COLLEGE NEW BRITAIN, CONNECTICUT	No. S-14

MORTON [illegible] ASSOCIATES
PETER J. [illegible]
PAUL R. BARBUTO
SCALE As Shown
DATE 5/7/63
REV. 5/16/63

Appendix 4 – Geotechnical Laboratory Test Data



COBBLES	GRAVEL		SAND			FINES (SILT AND CLAY)
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

CCSU Kaiser Hall

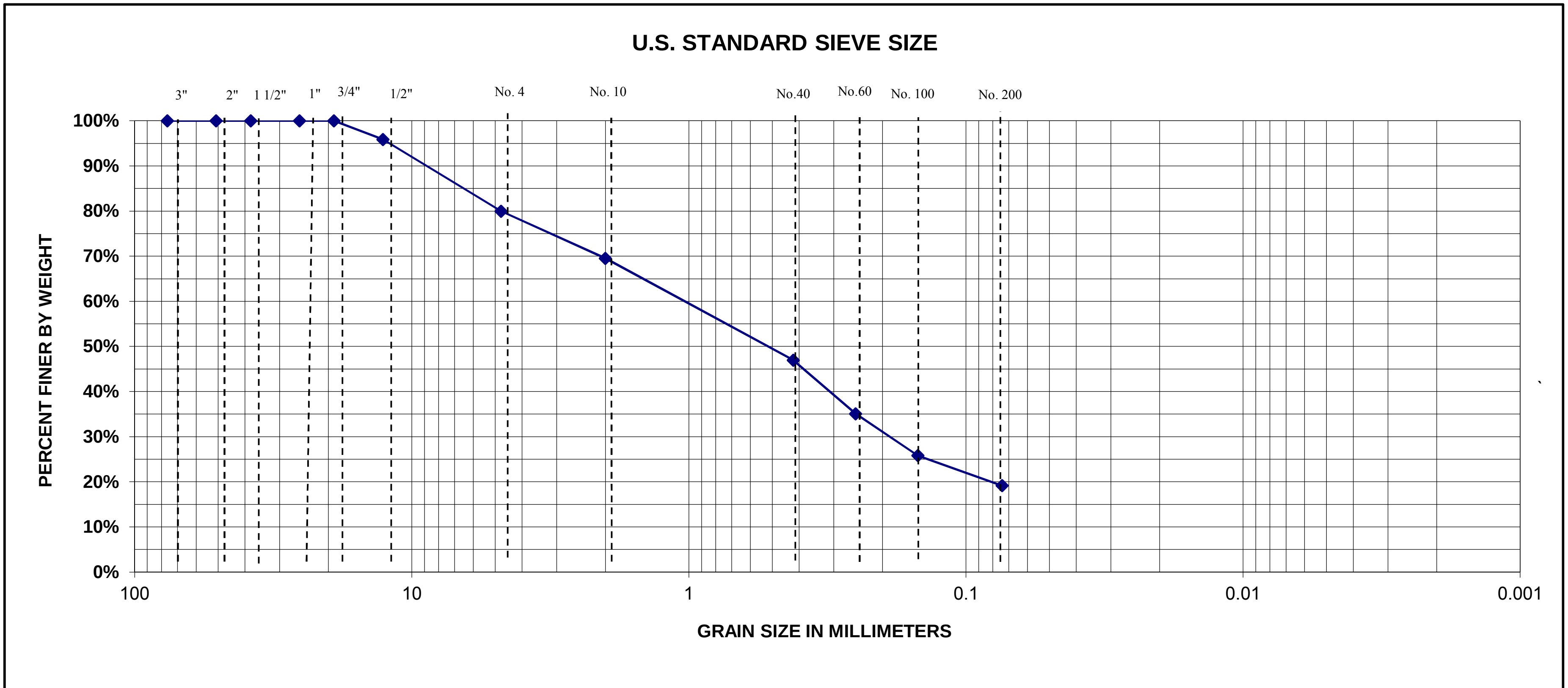
BORING NO.	B-3
SAMPLE NO.	S-2
DEPTH	2 to 4'
TECH.	CTL
REVIEWER	DFL
DATE	2/29/2016
FILE NO.	0185-049

BURMISTER SOIL CLASSIFICATION SYSTEM DESCRIPTION

Red brown fine to coarse SAND, some fine Gravel, little Silt

Geo**Design** Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			FINES (SILT AND CLAY)
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

CCSU Kaiser Hall

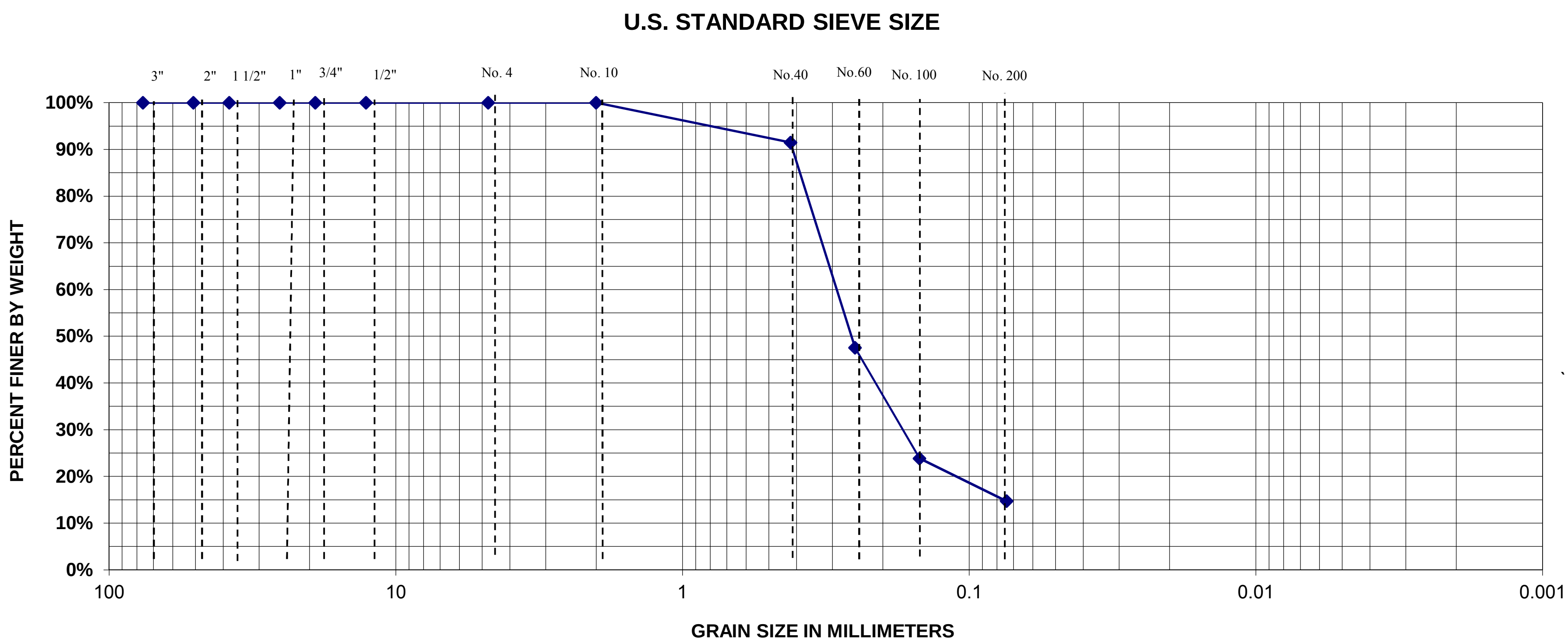
BORING NO.	B-6
SAMPLE NO.	S-2
DEPTH	2 to 4'
TECH.	CTL
REVIEWER	DFL
DATE	2/29/2016
FILE NO.	0185-049.5

BURMISTER SOIL CLASSIFICATION SYSTEM DESCRIPTION

Red brown fine to coarse SAND, little fine Gravel, little Silt

Geo**Design** Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			FINES (SILT AND CLAY)
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

CCSU Kaiser Hall

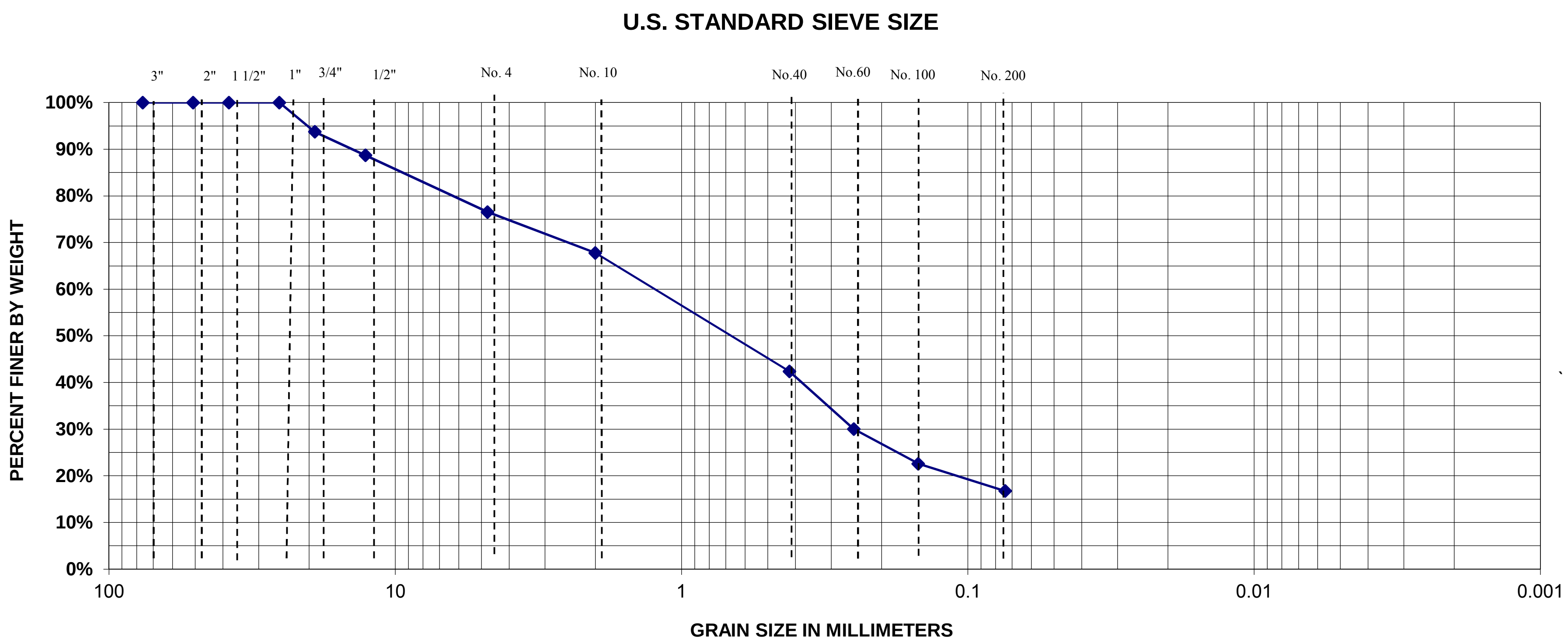
BORING NO.	B-8
SAMPLE NO.	S-6
DEPTH	15 to 17'
TECH.	CTL
REVIEWER	DFL
DATE	2/29/2016
FILE NO.	0185-049.5

BURMISTER SOIL CLASSIFICATION SYSTEM DESCRIPTION

Red brown fine SAND, little silt

Geo**Design** Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			FINES (SILT AND CLAY)
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

CCSU Kaiser Hall

BORING NO.	B-11
SAMPLE NO.	S-1
DEPTH	0 to 2'
TECH.	CTL
REVIEWER	DFL
DATE	2/29/2016
FILE NO.	0185-049.5

BURMISTER SOIL CLASSIFICATION SYSTEM DESCRIPTION

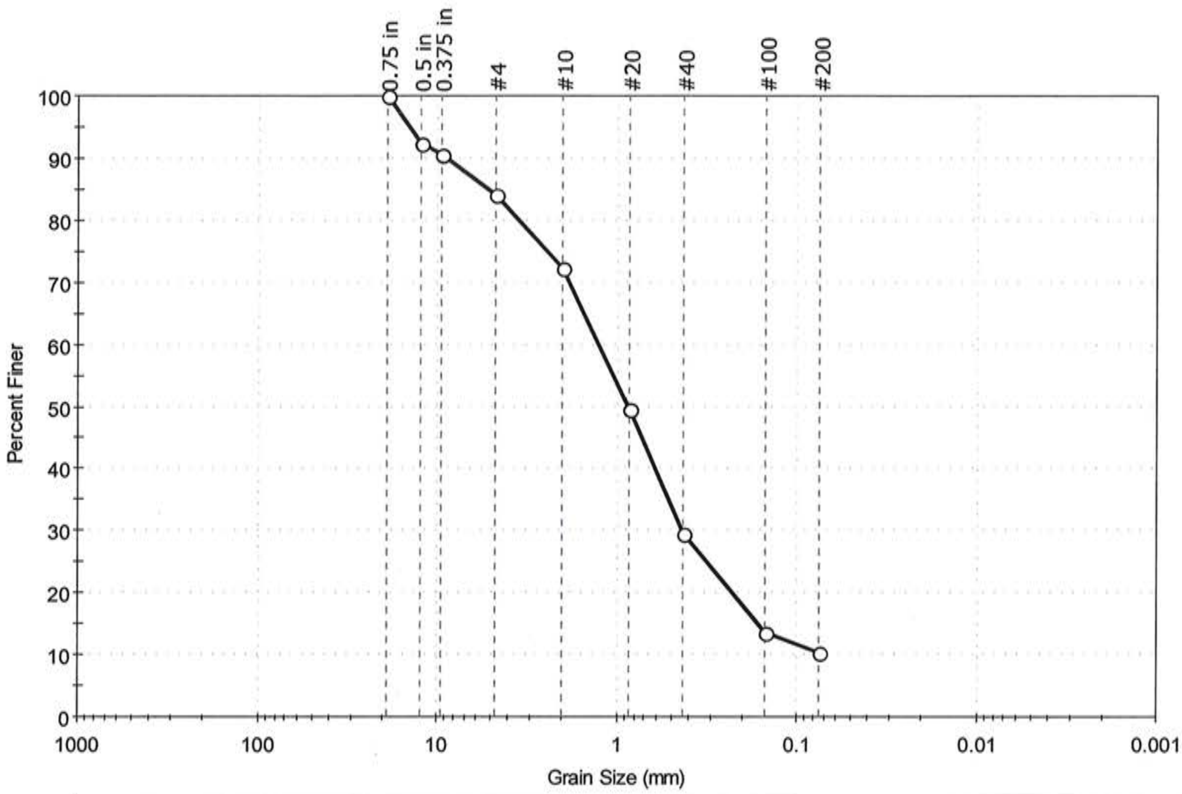
Red brown fine to medium SAND, some fine to coarse Gravel, little Silt

Geo**Design** Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net

Client:	GeoDesign, Inc.				
Project:	CCSU Kaiser Hall				
Location:	New Britian, CT			Project No:	GTX-304364
Boring ID:	B-2	Sample Type:	jar	Tested By:	GA
Sample ID:	S-1	Test Date:	02/16/16	Checked By:	jdt
Depth :	0-2 ft	Test Id:	364684		
Test Comment:	---				
Visual Description:	Moist, dark reddish brown sand with silt and gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	16.0	73.6	10.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	92		
0.375 in	9.50	91		
#4	4.75	84		
#10	2.00	72		
#20	0.85	50		
#20	0.85	50		
#40	0.42	29		
#100	0.15	14		
#200	0.075	10		

Coefficients

D_{85} = 5.2804 mm　　D_{30} = 0.4331 mm
D_{60} = 1.2623 mm　　D_{15} = 0.1646 mm
D_{50} = 0.8639 mm　　D_{10} = N/A
C_u = N/A　　C_c = N/A

Classification

ASTM　N/A

AASHTO　Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD

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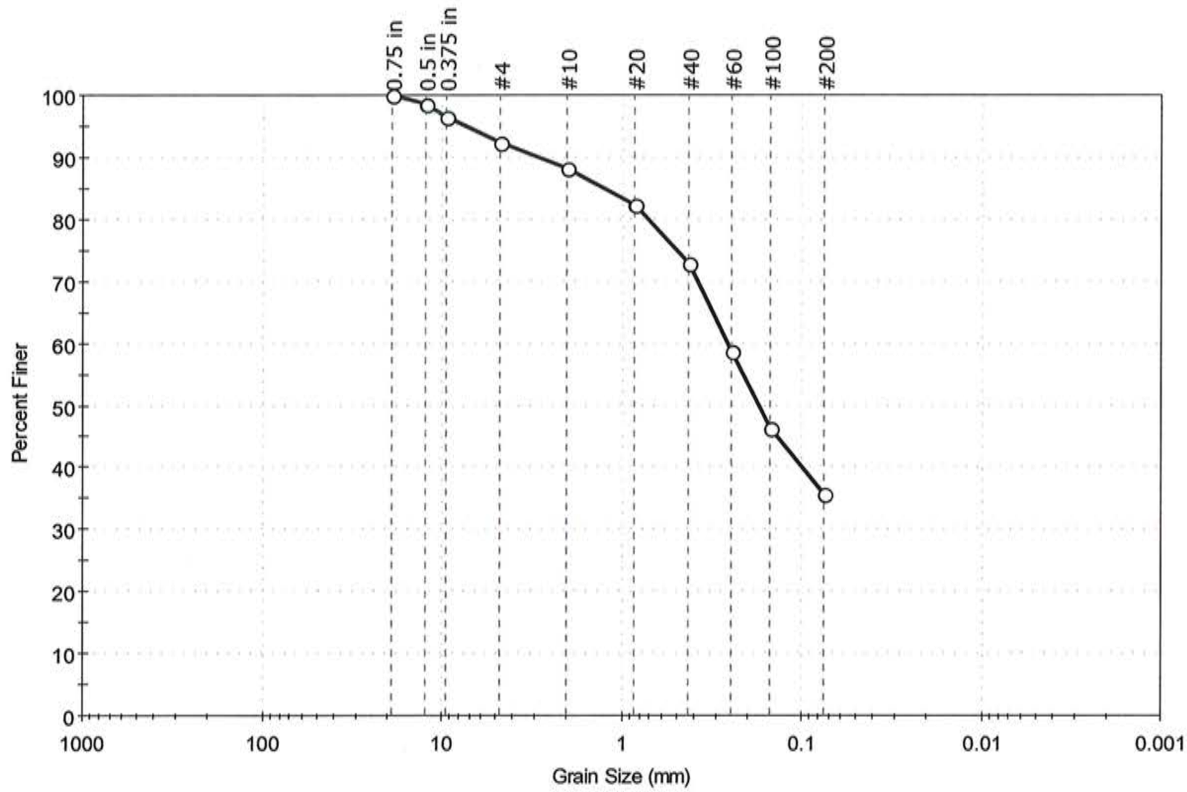
Client:	GeoDesign, Inc.				
Project:	CCSU Kaiser Hall				
Location:	New Britian, CT			Project No:	GTX-304364
Boring ID:	B-5	Sample Type:	jar	Tested By:	GA
Sample ID:	S-1	Test Date:	02/16/16	Checked By:	jdt
Depth :	0-2 ft	Test Id:	364683		

Test Comment: ---
Visual Description: Moist, dark reddish brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	7.6	56.7	35.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	98		
0.375 in	9.50	96		
#4	4.75	92		
#10	2.00	88		
#20	0.85	82		
#40	0.42	73		
#60	0.25	59		
#100	0.15	46		
#200	0.075	36		

Coefficients

D_{85} = 1.2651 mm — D_{30} = N/A
D_{60} = 0.2611 mm — D_{15} = N/A
D_{50} = 0.1748 mm — D_{10} = N/A
C_u = N/A — C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD

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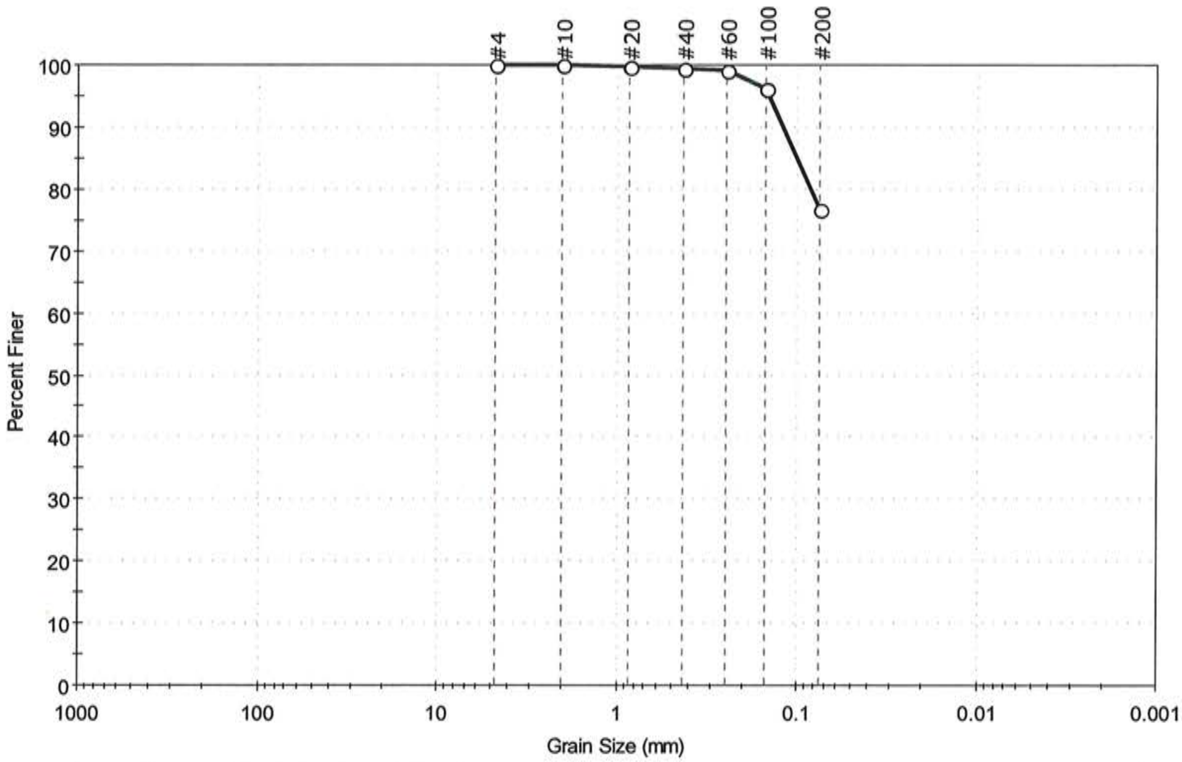
GeoTesting EXPRESS

Client:	GeoDesign, Inc.				
Project:	CCSU Kaiser Hall				
Location:	New Britian, CT			Project No:	GTX-304364
Boring ID:	B-6	Sample Type:	jar	Tested By:	GA
Sample ID:	S-6	Test Date:	02/16/16	Checked By:	jdt
Depth :	15-17 ft	Test Id:	364681		
Test Comment:	---				
Visual Description:	Moist, dark reddish brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	23.2	76.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	96		
#200	0.075	77		

Coefficients

D_{85} = 0.1004 mm　　D_{30} = N/A

D_{60} = N/A　　D_{15} = N/A

D_{50} = N/A　　D_{10} = N/A

C_u = N/A　　C_c = N/A

Classification

ASTM　N/A

AASHTO　Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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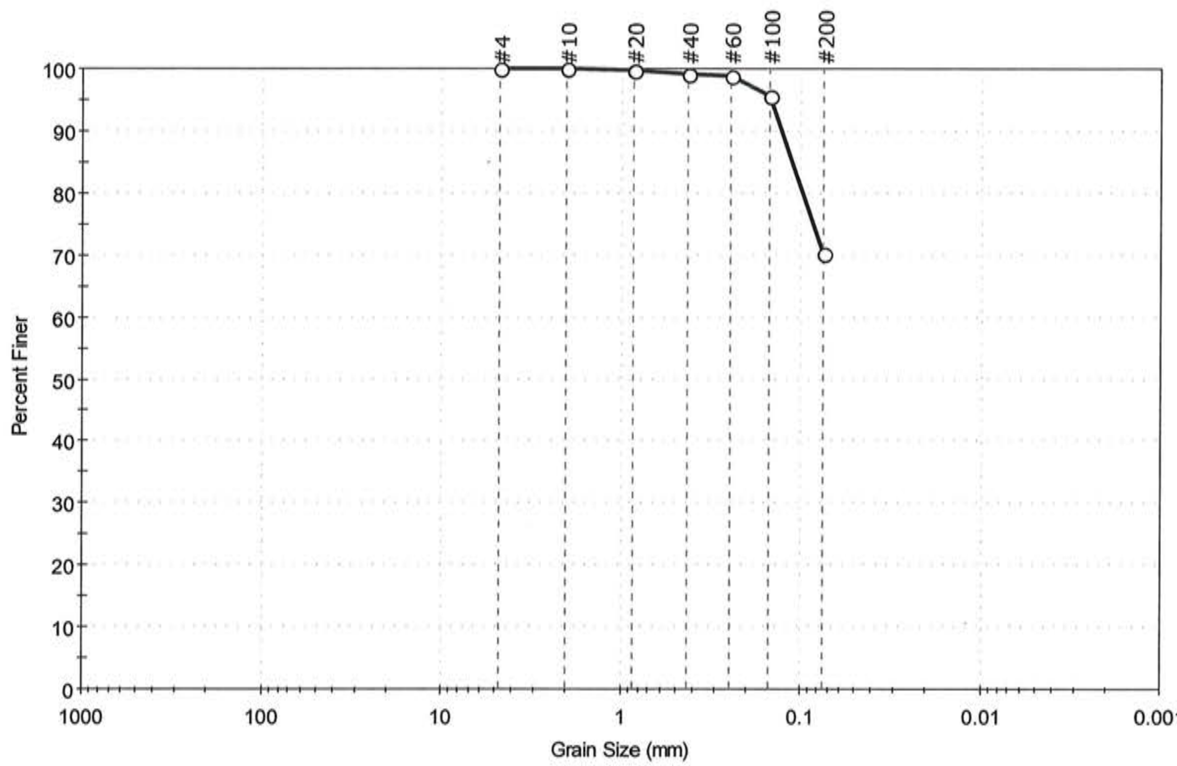
Client:	GeoDesign, Inc.				
Project:	CCSU Kaiser Hall				
Location:	New Britian, CT			Project No:	GTX-304364
Boring ID:	B-7	Sample Type:	jar	Tested By:	GA
Sample ID:	S-6	Test Date:	02/16/16	Checked By:	jdt
Depth :	15-17 ft	Test Id:	364682		
Test Comment:	---				
Visual Description:	Moist, dark reddish brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	29.9	70.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	96		
#200	0.075	70		

Coefficients

D_{85} =0.1125 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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Appendix 5 – Preliminary Soil Pre Characterization Report

APPENDIX 5
Preliminary Environmental Characterization Report

March 17, 2015; File No. 0185-49.00

Re: CCSU Kaiser Hall
DAS Project No. BI-RC-393
New Britain, CT

DESIGN PHASE PRELIMINARY SOIL PRE-CHARACTERIZATION PROGRAM

a. GeoDesign planned and conducted a Phase Preliminary Soil Pre-characterization Program to initially assess the environmental quality of shallow soil samples for beneficial reuse in area of likely construction-phase excavations. This program consisted of the following:

b. Soil samples were obtained semi-continuously from the ground surface to the top of the groundwater table. Boring logs were logged by a field engineer/geologist. Soil samples were screened for the presence of volatile organic contaminants using a calibrated photoionization detector (PID). The boring logs summarize the subsurface conditions encountered and noted the potential presence of contamination (PID readings, color, and odor).

c. Soil samples were selected for analysis based on location, a range of potential contaminants of concern, sample depth, PID screening results, and/or visual and olfactory field observations. Phoenix Environmental Laboratories (a State of Connecticut certified laboratory) completed the following types and number of soil analyses in accordance with the CTDEEP’s Reasonable Confidence Protocols (RCP) guidance:

Type of Analyses	No. of Analyses
Volatile organic compounds (VOCs) by EPA Method 8260B using sample preservation methods	2
CT Extractable Total Petroleum Hydrocarbons (CT ETPH)	2
Polychlorinated Biphenyls by EPA Method 8082	2
Semi-volatile Organic compounds (SVOCs) by EPA Method 8270C	2
Waste Characterization Parameters • Ignitability / Flashpoint (Setaflash) - SW846 1020 • Reactive Cyanide - SW846 7.3.3 • Reactive Sulfide - SW846 7.3.4 • Corrosivity, pH - SW846 9040 • Conductivity - SW846 9045D	2
Total RCRA 8 Metals	2
Toxicity characteristic leachate procedure (TCLP) RCRA 8 Metals	2

DESIGN PHASE PRELIMINARY SOIL PRE-CHARACTERIZATION RESULTS

Boring logs which provide the details for each subsurface exploration performed are included in Appendix 2 and described in the text of the report.

Soil samples were screened in the field for the presence of volatile organic compounds (VOCs) using a calibrated photoionization detector (PID). The PID provides a relative indication of the total concentration of certain VOCs in the headspace of soil samples. Each split spoon sample was screened in the field with the PID. None of the soil samples indicated elevated readings above the detection limit except in Boring B-2 with a detection of 0.2 part per million (ppm) at 5 – 7 feet and B-10 with detections of 1.6 and 9.8 ppm at 0 – 2 feet and 2 – 4 feet, respectively. PID screening results are summarized on the boring logs in Appendix 2 of this report. No discoloration or odor was noted in the sample soils.

Based on the site environmental setting and land use, the applicable remedial standards for soils are the Residential Direct Exposure Criteria (RES-DEC), Industrial/Commercial Direct Exposure Criteria (I/C-DEC) and the GA groundwater Pollutant Mobility Criteria (GA-PMC). The Connecticut Department of Energy and Environmental Protection (CTDEEP) CT-ECO website (http://ctecoapp1.uconn.edu/advancedviewer) indicated that the CTDEEP has classified groundwater underlying the Site as "GA". GA groundwater is presumed suitable for use as an existing private and potential public water supply without prior treatment. It may be used as a supply of agricultural or industrial process water. [1]

Soil samples were analyzed for the parameters listed on Page 1 based upon proposed use of the site and observations (e.g. color, staining, odor and PID screening). Samples were analyzed from discrete depth intervals for volatile organic compounds testing, and wider depth intervals, for overall soil reuse characterization.

The analytical laboratory results are included at the end of this appendix, and are summarized in Tables 1 and 2. The tables include a comparison of the analytical data to numeric remedial criteria specified in Connecticut's Remediation Standard Regulations (RCSA 22a-133k).

The hydrocarbon compound Naphthalene is a hydrocarbon that is quantified both on the volatile organics test (Table 1) and on the polynuclear aromatic hydrocarbons test (Table 2). The volatile organic compound test of the discrete 3-foot deep sample in Boring B-10, the concentration of Naphthalene exceeded the GA Pollutant Mobility Criteria (GA-PCM) by a factor of 1.78 (10,000 ug/kg vs. 5,600 ug/kg). However, that VOC sample was subject of a 50X dilution, and the laboratory result for this Naphthalene detection was flagged, as being

[1] State of Connecticut Department of Environmental Protection, "Water Quality Standards", Effective February 25, 2011 .

outside of laboratory-specified recovery limits, and therefore the result by the VOC test is suspect and is indicated as such on Table 1. The Naphthalene result from the polynuclear aromatic hydrocarbons test in the B-10 sample (0-5 ft depth interval) summarized on Table 2 indicated no detection, at an appropriately low detection limit of <270 ug/kg, well below the 5,600 ug/kg groundwater protection criteria standard.

In the 0 to 4-foot deep sample in Boring B-1, the concentration of leachable Lead by the toxicity characteristic leaching procedure (TCLP) exceed the GA Pollutant Mobility Criteria (GA-PCM) by a factor of 7.4 (0.111 mg/l vs. 0.015 mg/l). We note however that the corresponding total lead value in that sample was low (17.8 mg/kg) which is in the range of typical background conditions. Re-testing this area for total lead and leachable lead (by a different method, synthetic precipitation leaching procedure, SPLP), is recommended to better characterize conditions with respect to lead in this area.

PRELIMINARY ENVIRONMENTAL-RELATED OPINION

We offer the following preliminary opinion as to the significance of the environmental conditions relative to the proposed site construction:

We anticipate two types of earthwork and foundation construction activities to occur as part of the proposed addition and related site work. In the building footprint, we anticipate a general excavation to a depth of up to about four feet below site grades, and locally (at the connector and at the southwest building corner) deeper to remove existing fill. The area will then be covered with the new addition's concrete slab-on-grade. In the area of the proposed storm water infiltration area(s), storm water will be infiltrated into shallow site soils and either a vegetative revetment or common earth/impounded water will cover the final ground surface. Of these two proposed activities, the latter is more critical as it will allow surface and storm water to infiltrate into existing site soils.

In light of the previously described soil analytical results, it is our opinion that additional testing for PAHs and total and SPLP lead be performed to further characterize shallow site soils, particularly in the area of Boring B-10 which is in the general area that is slated for the infiltration areas.

LIMITATIONS

This appendix is subject to the limitations included in Appendix 7.

TABLE 1
SUMMARY OF DETECTED COMPOUNDS IN SOIL SAMPLES
CCSU KAISER HALL
NEW BRITIAN , CONNECTICUT

Parameter	Remedial Standards			Sample Description, Depth (ft) and Analytical Result	
				B-1 2.5 FT	B-10 3.0 FT
	GA-PMC	I/C-DEC	RES-DEC		
Volatiles By SW8260C in ug/kg					
Ethylbenzene	10,100	1,000,000	500,000	< 4.0	250
m&p-Xylene	19,500	1,000,000	500,000	< 4.0	1,500
Naphthalene	5,600	2,500,000	1,000,000	< 4.0	10,000
n-Butylbenzene	1,400	1,000,000	500,000	< 4.0	290
o-Xylene	19,500	1,000,000	500,000	< 4.0	670
Total Xylenes	19,500	1,000,000	500,000	< 4.0	2,170

Legend
RES-DEC = Residential Direct Exposure Criteria
I/C-DEC = Industrial/Commercial Direct Exposure Criteria
GA PMC= GA Pollutant Mobility Criteria
< 4.0 = Not Detected Above Laboratory Detection Limit
Highlighted Value Denotes Analytical Detection Above Remedial Standard

Notes
1. Samples were obtained on Feb. 1 and 2, 2016 by Geo**Design,** Inc and submitted to Phoenix Environmental Laboratories of Manchester, Connecticut.
2. Remedial standards were obtained from the Connecticut Remediation Standard Regulations 22a-133k-2.

TABLE 2
SUMMARY OF DETECTED COMPOUNDS IN SOIL SAMPLES
CCSU KAISER HALL
NEW BRITIAN, CONNECTICUT

Parameter	Remedial Standards			Sample Description, Depth in feet and Analytical Result	
	GA-PMC	I/C-DEC	RES-DEC	B-1 0 - 4 FT	B-10 0 - 5 FT
Polynuclear Aromatic Hydrocarbons in ug/kg					
2-Methylnaphthalene	980	2,500,000	474,000	< 270	< 280
Acenaphthene	84,000	2,500,000	1,000,000	< 270	< 280
Acenaphthylene	8,400	2,500,000	1,000,000	< 270	< 280
Anthracene	40,000	2,500,000	1,000,000	< 270	< 280
Benz(a)anthracene	1,000	7,800	1,000	< 270	590
Benzo(a)pyrene	1,000	1,000	1,000	< 270	600
Benzo(b)fluoranthene	1,000	7,800	1,000	< 270	490
Benzo(ghi)perylene	4,200	2,500,000	1,000,000	< 270	380
Benzo(k)fluoranthene	1,000	78,000	8,400	< 270	470
Chrysene	1,000	780,000	84,000	< 270	660
Dibenz(a,h)anthracene	1,000	1,000	1,000	< 270	< 280
Fluoranthene	5,600	2,500,000	1,000,000	< 270	1,000
Fluorene	5,600	2,500,000	1,000,000	< 270	< 280
Indeno(1,2,3-cd)pyrene	1,000	7,800	1,000	< 270	380
Naphthalene	5,600	2,500,000	1,000,000	< 270	< 280
Phenanthrene	4,000	2,500,000	1,000,000	< 270	460
Pyrene	4,000	2,500,000	1,000,000	< 270	990
Extractable Total Petroleum Hydrocarbons mg/kg					
ETPH	500	2,500	500	< 58	70
Polychlorinated Byphenls in ug/kg					
PCB-1016	NA	10,000	1,000	< 390	< 400
PCB-1221		10,000	1,000	< 390	< 400
PCB-1232		10,000	1,000	< 390	< 400
PCB-1242		10,000	1,000	< 390	< 400
PCB-1248		10,000	1,000	< 390	< 400
PCB-1254		10,000	1,000	< 390	< 400
PCB-1260		10,000	1,000	< 390	< 400
PCB-1262		10,000	1,000	< 390	< 400
PCB-1268		10,000	1,000	< 390	< 400
Total PCBs		10,000	1,000	< 390	< 400
Total Metals mg/kg					
Arsenic	NA	10	10	5.3	6.7
Barium		140,000	4,700	81.2	114
Cadmium		1,000	34	< 0.38	< 0.36
Chromium		100	100	25.4	27.5
Lead		1,000	400	17.8	51
Mercury		610	20	< 0.03	0.07
Selenium		10,000	340	< 1.5	< 1.4
Silver		10,000	340	< 0.38	< 0.36
TCLP Metals mg/l					
TCLP Arsenic	0.01	NA	NA	< 0.01	< 0.01
TCLP Barium	1.0			0.86	0.74
TCLP Cadmium	0.005			< 0.005	< 0.005
TCLP Chromium	NE			< 0.010	< 0.010
TCLP Lead	0.015			0.111	0.01
TCLP Mercury	0.002			< 0.0002	< 0.0002
TCLP Selenium	0.05			< 0.01	< 0.01
TCLP Silver	0.036			< 0.010	< 0.010
Miscellaneous/Inorganics					
Conductivity - Soil Matrix in umhos/cm	~	~	~	100	26
Corrosivity - POS/NEG	~	~	~	Negative	Negative
Flash Point in Degrees F	~	~	~	>200	>200
Ignitability in Degrees F	~	~	~	Passed	Passed
pH - Soil - pH Units	~	~	~	7.66	6.82
Reactivity Cyanide in mg/kg	~	~	~	< 5.7	< 6.1
Reactivity Sulfide in mg/kg	~	~	~	< 20	< 20
Reactivity - POS/NEG	~	~	~	Negative	Negative

Legend
RES-DEC = Residential Direct Exposure Criteria
I/C-DEC = Industrial/Commercial Direct Exposure Criteria
GA PMC= GA Pollutant Mobility Criteria
< 270 = Not Detected Above Laboratory Detection Limit
NE = Not Established
NA = Not Applicable
~ Denotes that there is no standard for this parameter
Highlighted Value Denotes Analytical Detection Above Remedial Standard

Notes
1. Samples were obtained on Feb. 1 and 2, 2016 by Geo**Design,** Inc and submitted to Phoenix Environmental Labortatories of Manchester, Connecticut.
2. Remedial standards were obtained from the Connecticut Remediation Standard Regulations 22a-133k-2.

Monday, February 08, 2016

Attn: Ulrich Lafosse
GeoDesign
984 Southford Road
Middlebury, CT 06762

Project ID: CCSU KAISER HALL NEW BRITAIN
Sample ID#s: BK59760 - BK59761

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

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Telephone (860) 645-1102 Fax (860) 645-0823

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

February 08, 2016

FOR: Attn: Ulrich Lafosse
GeoDesign
984 Southford Road
Middlebury, CT 06762

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		02/01/16	9:30
Location Code:	GEODSIGN	Received by:	SW	02/01/16	15:20
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	185-49				

Laboratory Data

SDG ID: GBK59760
Phoenix ID: BK59760

Project ID: CCSU KAISER HALL NEW BRITAIN
Client ID: B-10 3.0 FT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	83		%		02/01/16	W	SW846-%Solid
Field Extraction	Completed				02/01/16		SW5035A
Volatiles							
1,1,1,2-Tetrachloroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	180	ug/Kg	50	02/02/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,1-Dichloroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,1-Dichloroethene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,1-Dichloropropene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2-Dibromoethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2-Dichloroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,2-Dichloropropane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,3-Dichloropropane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
2,2-Dichloropropane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
2-Chlorotoluene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
2-Hexanone	ND	1500	ug/Kg	50	02/02/16	JLI	SW8260C
2-Isopropyltoluene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C

Project ID: CCSU KAISER HALL NEW BRITAIN

Client ID: B-10 3.0 FT

Phoenix I.D.: BK59760

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
4-Chlorotoluene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	1500	ug/Kg	50	02/02/16	JLI	SW8260C
Acetone	ND	15000	ug/Kg	50	02/02/16	JLI	SW8260C
Acrylonitrile	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Benzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Bromobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Bromochloromethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Bromodichloromethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Bromoform	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Bromomethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Carbon Disulfide	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Carbon tetrachloride	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Chlorobenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Chloroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Chloroform	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Chloromethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Dibromochloromethane	ND	180	ug/Kg	50	02/02/16	JLI	SW8260C
Dibromomethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Dichlorodifluoromethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Ethylbenzene	250	200	ug/Kg	50	02/02/16	JLI	SW8260C
Hexachlorobutadiene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Isopropylbenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
m&p-Xylene	1500	290	ug/Kg	50	02/02/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	1800	ug/Kg	50	02/02/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	590	ug/Kg	50	02/02/16	JLI	SW8260C
Methylene chloride	ND	590	ug/Kg	50	02/02/16	JLI	SW8260C
Naphthalene	10000	290	ug/Kg	50	02/02/16	JLI	SW8260C
n-Butylbenzene	290	290	ug/Kg	50	02/02/16	JLI	SW8260C
n-Propylbenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
o-Xylene	670	290	ug/Kg	50	02/02/16	JLI	SW8260C
p-Isopropyltoluene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
sec-Butylbenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Styrene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
tert-Butylbenzene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Tetrachloroethene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	590	ug/Kg	50	02/02/16	JLI	SW8260C
Toluene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Total Xylenes	2170	290	ug/Kg	50	02/02/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	590	ug/Kg	50	02/02/16	JLI	SW8260C
Trichloroethene	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Trichlorofluoromethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
Vinyl chloride	ND	290	ug/Kg	50	02/02/16	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	50	02/02/16	JLI	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Bromofluorobenzene	97		%	50	02/02/16	JLI	70 - 130 %
% Dibromofluoromethane	94		%	50	02/02/16	JLI	70 - 130 %
% Toluene-d8	98		%	50	02/02/16	JLI	70 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Elevated reporting limits for volatiles due to the presence of target and/or non-target compounds.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
February 08, 2016
Reviewed and Released by: Ethan Lee, Project Manager

PHOENIX

Environmental Laboratories, Inc.
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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

February 08, 2016

FOR: Attn: Ulrich Lafosse
GeoDesign
984 Southford Road
Middlebury, CT 06762

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		02/01/16	10:10
Location Code:	GEODSIGN	Received by:	SW	02/01/16	15:20
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	185-49				

Laboratory Data

SDG ID: GBK59760
Phoenix ID: BK59761

Project ID: CCSU KAISER HALL NEW BRITAIN
Client ID: B-10 COMPOSITE

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	02/02/16	LK	SW6010C
Arsenic	6.7	0.7	mg/Kg	1	02/02/16	LK	SW6010C
Barium	114	0.36	mg/Kg	1	02/02/16	LK	SW6010C
Cadmium	< 0.36	0.36	mg/Kg	1	02/02/16	LK	SW6010C
Chromium	27.5	0.36	mg/Kg	1	02/02/16	LK	SW6010C
Mercury	0.07	0.03	mg/Kg	1	02/02/16	RS	SW7471B
Lead	51.0	0.36	mg/Kg	1	02/02/16	LK	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	02/02/16	LK	SW6010C
TCLP Silver	< 0.010	0.010	mg/L	1	02/03/16	LK	SW6010C
TCLP Arsenic	< 0.01	0.01	mg/L	1	02/03/16	LK	SW6010C
TCLP Barium	0.74	0.01	mg/L	1	02/03/16	LK	SW6010C
TCLP Cadmium	< 0.005	0.005	mg/L	1	02/03/16	LK	SW6010C
TCLP Chromium	< 0.010	0.010	mg/L	1	02/03/16	LK	SW6010C
TCLP Mercury	< 0.0002	0.0002	mg/L	1	02/02/16	RS	SW7470A
TCLP Lead	0.010	0.010	mg/L	1	02/03/16	LK	SW6010C
TCLP Selenium	< 0.01	0.01	mg/L	1	02/03/16	LK	SW6010C
TCLP Metals Digestion	Completed				02/02/16	W/W	SW3005A
Percent Solid	82		%		02/01/16	W	SW846-%Solid
Conductivity - Soil Matrix	26	5	umhos/cm	1	02/05/16	RWR	SM2510B-97
Corrosivity	Negative		Pos/Neg	1	02/01/16	DH/KDB	SW846-Corr
Flash Point	>200	200	Degree F	1	02/03/16	Y	SW1010A
Ignitability	Passed	140	degree F	1	02/03/16	Y	SW846-Ignit
pH - Soil	6.82	0.10	pH Units	1	02/01/16 20:00	DH/KDB	SW9045
Reactivity Cyanide	< 6.1	6.1	mg/Kg	1	02/02/16	BS/GD	SW846-ReactCyn
Reactivity Sulfide	< 20	20	mg/Kg	1	02/02/16	BS/GD	SW-7.3
Reactivity	Negative		Pos/Neg	1	02/02/16	BS/GD	SW846-React
Soil Extraction for PCB	Completed				02/01/16	JC/V	SW3545A
Soil Extraction for SVOA	Completed				02/01/16	JJ/CKV	SW3545A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				02/01/16	BC/V	SW3545A
Mercury Digestion	Completed				02/02/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				02/02/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				02/01/16	w	SW1311
Total Metals Digest	Completed				02/01/16	G/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum HC	70	60	mg/Kg	1	02/05/16	JRB	CTETPH 8015D
Identification	**		mg/Kg	1	02/05/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	88		%	1	02/05/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1221	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1232	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1242	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1248	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1254	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1260	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1262	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
PCB-1268	ND	400	ug/Kg	10	02/02/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	95		%	10	02/02/16	AW	30 - 150 %
% TCMX	81		%	10	02/02/16	AW	30 - 150 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
1,2-Dichlorobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
1,3-Dichlorobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
1,4-Dichlorobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2,4-Dichlorophenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2,4-Dimethylphenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2,4-Dinitrophenol	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
2,4-Dinitrotoluene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2,6-Dinitrotoluene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2-Chloronaphthalene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2-Chlorophenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2-Methylnaphthalene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
2-Nitroaniline	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
2-Nitrophenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
3-Nitroaniline	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	400	ug/Kg	1	02/02/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
4-Bromophenyl phenyl ether	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
4-Chloroaniline	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
4-Nitroaniline	ND	640	ug/Kg	1	02/02/16	DD	SW8270D
4-Nitrophenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Acenaphthene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Acenaphthylene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Acetophenone	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Aniline	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
Anthracene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Benz(a)anthracene	590	280	ug/Kg	1	02/02/16	DD	SW8270D
Benzidine	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Benzo(a)pyrene	600	280	ug/Kg	1	02/02/16	DD	SW8270D
Benzo(b)fluoranthene	490	280	ug/Kg	1	02/02/16	DD	SW8270D
Benzo(ghi)perylene	380	280	ug/Kg	1	02/02/16	DD	SW8270D
Benzo(k)fluoranthene	470	280	ug/Kg	1	02/02/16	DD	SW8270D
Benzoic acid	ND	800	ug/Kg	1	02/02/16	DD	SW8270D
Benzyl butyl phthalate	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Bis(2-chloroethyl)ether	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Carbazole	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
Chrysene	660	280	ug/Kg	1	02/02/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Dibenzofuran	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Diethyl phthalate	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Dimethylphthalate	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Di-n-butylphthalate	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Di-n-octylphthalate	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Fluoranthene	1000	280	ug/Kg	1	02/02/16	DD	SW8270D
Fluorene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Hexachlorobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Hexachlorobutadiene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Hexachloroethane	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	380	280	ug/Kg	1	02/02/16	DD	SW8270D
Isophorone	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Naphthalene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Nitrobenzene	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
N-Nitrosodimethylamine	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
Pentachloronitrobenzene	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
Pentachlorophenol	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
Phenanthrene	460	280	ug/Kg	1	02/02/16	DD	SW8270D
Phenol	ND	280	ug/Kg	1	02/02/16	DD	SW8270D
Pyrene	990	280	ug/Kg	1	02/02/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Pyridine	ND	400	ug/Kg	1	02/02/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	51		%	1	02/02/16	DD	30 - 130 %
% 2-Fluorobiphenyl	59		%	1	02/02/16	DD	30 - 130 %
% 2-Fluorophenol	47		%	1	02/02/16	DD	30 - 130 %
% Nitrobenzene-d5	54		%	1	02/02/16	DD	30 - 130 %
% Phenol-d5	50		%	1	02/02/16	DD	30 - 130 %
% Terphenyl-d14	58		%	1	02/02/16	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C18 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
February 08, 2016
Reviewed and Released by: Ethan Lee, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

February 08, 2016

QA/QC Data

SDG I.D.: GBK59760

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 333814 (mg/L), QC Sample No: BK59591 (BK59761)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	104	100	3.9	91.1	89.7	1.5	70 - 130	20
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.													
QA/QC Batch 333800 (mg/L), QC Sample No: BK59600 (BK59761)													
ICP Metals - TCLP Extraction													
Arsenic	BRL	0.01	<0.01	<0.01	NC	113			109			75 - 125	20
Barium	BRL	0.01	0.41	0.40	2.50	103			97.0			75 - 125	20
Cadmium	BRL	0.005	0.014	0.014	NC	103			99.3			75 - 125	20
Chromium	BRL	0.010	0.002	0.002	NC	107			103			75 - 125	20
Lead	BRL	0.010	0.083	0.083	0	107			103			75 - 125	20
Selenium	BRL	0.01	<0.01	<0.01	NC	123			118			75 - 125	20
Silver	BRL	0.010	<0.010	<0.010	NC	113			109			75 - 125	20
QA/QC Batch 333802 (mg/kg), QC Sample No: BK59656 (BK59761)													
Mercury - Soil	BRL	0.06	0.39	0.46	16.5	91.5	94.7	3.4	77.3	101	26.6	70 - 130	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.													
QA/QC Batch 333784 (mg/kg), QC Sample No: BK59841 (BK59761)													
ICP Metals - Soil													
Arsenic	BRL	0.67	3.3	3.58	NC	93.6			88.6			75 - 125	30
Barium	BRL	0.33	115	108	6.30	101			114			75 - 125	30
Cadmium	BRL	0.33	<0.36	<0.39	NC	92.5			92.4			75 - 125	30
Chromium	BRL	0.33	27.7	26.4	4.80	102			99.3			75 - 125	30
Lead	BRL	0.33	81.0	87.4	7.60	99.7			96.9			75 - 125	30
Selenium	BRL	1.3	<1.5	<1.6	NC	85.5			93.6			75 - 125	30
Silver	BRL	0.33	<0.36	<0.39	NC	96.4			98.1			75 - 125	30

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QA/QC Report

February 08, 2016

QA/QC Data

SDG I.D.: GBK59760

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 333815 (PH), QC Sample No: BK59600 (BK59761)													
pH - Soil			6.70	6.67	0.40	98.1						85 - 115	20
QA/QC Batch 333798 (mg/Kg), QC Sample No: BK59641 4.95X (BK59761)													
Reactivity Cyanide	BRL	0.05	<6.0	<5.6	NC	96.8						85 - 115	30
QA/QC Batch 333931 (Degree F), QC Sample No: BK60328 (BK59761)													
Flash Point			>200	>200	NC	101						85 - 115	30
QA/QC Batch 334182 (umhos/cm), QC Sample No: BK60376 (BK59761)													
Conductivity - Soil Matrix	BRL	1	330	340	3.00	101						85 - 115	30

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QA/QC Report

February 08, 2016

QA/QC Data

SDG I.D.: GBK59760

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 333740 (mg/Kg), QC Sample No: BK59500 (BK59761)											
TPH by GC (Extractable Products) - Solid											
Ext. Petroleum H.C.	ND	50	60	64	6.5	60	61	1.7	60 - 120	30	
% n-Pentacosane	85	%	79	82	3.7	94	94	0.0	50 - 150	30	
QA/QC Batch 333943 (ug/kg), QC Sample No: BK59642 (BK59760 (50X))											
Volatiles - Solid											
1,1,1,2-Tetrachloroethane	ND	5.0	89	96	7.6	99	108	8.7	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	81	95	15.9	91	95	4.3	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	98	98	0.0	115	131	13.0	70 - 130	30	m
1,1,2-Trichloroethane	ND	5.0	90	97	7.5	92	95	3.2	70 - 130	30	
1,1-Dichloroethane	ND	5.0	85	97	13.2	93	95	2.1	70 - 130	30	
1,1-Dichloroethene	ND	5.0	78	86	9.8	82	86	4.8	70 - 130	30	
1,1-Dichloropropene	ND	5.0	86	101	16.0	90	91	1.1	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	97	109	11.7	66	52	23.7	70 - 130	30	m
1,2,3-Trichloropropane	ND	5.0	93	93	0.0	107	123	13.9	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	97	108	10.7	65	53	20.3	70 - 130	30	m
1,2,4-Trimethylbenzene	ND	1.0	84	95	12.3	97	99	2.0	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	100	97	3.0	94	111	16.6	70 - 130	30	
1,2-Dibromoethane	ND	5.0	96	96	0.0	94	99	5.2	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	86	95	9.9	81	79	2.5	70 - 130	30	
1,2-Dichloroethane	ND	5.0	88	96	8.7	89	94	5.5	70 - 130	30	
1,2-Dichloropropane	ND	5.0	86	94	8.9	93	97	4.2	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	85	96	12.2	102	109	6.6	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	85	93	9.0	80	76	5.1	70 - 130	30	
1,3-Dichloropropane	ND	5.0	90	94	4.3	97	101	4.0	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	86	96	11.0	77	74	4.0	70 - 130	30	
2,2-Dichloropropane	ND	5.0	82	95	14.7	90	93	3.3	70 - 130	30	
2-Chlorotoluene	ND	5.0	87	96	9.8	99	102	3.0	70 - 130	30	
2-Hexanone	ND	25	88	85	3.5	80	84	4.9	70 - 130	30	
2-Isopropyltoluene	ND	5.0	86	98	13.0	104	109	4.7	70 - 130	30	
4-Chlorotoluene	ND	5.0	83	92	10.3	86	87	1.2	70 - 130	30	
4-Methyl-2-pentanone	ND	25	91	92	1.1	84	86	2.4	70 - 130	30	
Acetone	ND	10	73	69	5.6	70	72	2.8	70 - 130	30	l
Acrylonitrile	ND	5.0	102	98	4.0	94	96	2.1	70 - 130	30	
Benzene	ND	1.0	88	100	12.8	93	96	3.2	70 - 130	30	
Bromobenzene	ND	5.0	90	96	6.5	91	96	5.3	70 - 130	30	
Bromochloromethane	ND	5.0	91	94	3.2	93	97	4.2	70 - 130	30	
Bromodichloromethane	ND	5.0	89	100	11.6	93	94	1.1	70 - 130	30	
Bromoform	ND	5.0	99	104	4.9	95	98	3.1	70 - 130	30	
Bromomethane	ND	5.0	83	96	14.5	96	97	1.0	70 - 130	30	
Carbon Disulfide	ND	5.0	82	93	12.6	77	75	2.6	70 - 130	30	
Carbon tetrachloride	ND	5.0	82	97	16.8	87	93	6.7	70 - 130	30	
Chlorobenzene	ND	5.0	86	95	9.9	85	83	2.4	70 - 130	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Chloroethane	ND	5.0	80	93	15.0	86	90	4.5	70 - 130	30	
Chloroform	ND	5.0	84	92	9.1	90	93	3.3	70 - 130	30	
Chloromethane	ND	5.0	82	92	11.5	84	89	5.8	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	89	98	9.6	82	84	2.4	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	89	97	8.6	88	87	1.1	70 - 130	30	
Dibromochloromethane	ND	3.0	95	99	4.1	98	104	5.9	70 - 130	30	
Dibromomethane	ND	5.0	93	98	5.2	92	94	2.2	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	85	98	14.2	83	87	4.7	70 - 130	30	
Ethylbenzene	ND	1.0	87	97	10.9	93	95	2.1	70 - 130	30	
Hexachlorobutadiene	ND	5.0	89	101	12.6	67	60	11.0	70 - 130	30	m
Isopropylbenzene	ND	1.0	82	94	13.6	107	118	9.8	70 - 130	30	
m&p-Xylene	ND	2.0	86	96	11.0	89	89	0.0	70 - 130	30	
Methyl ethyl ketone	ND	5.0	80	80	0.0	73	81	10.4	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	86	90	4.5	92	94	2.2	70 - 130	30	
Methylene chloride	ND	5.0	78	82	5.0	85	89	4.6	70 - 130	30	
Naphthalene	ND	5.0	108	113	4.5	65	54	18.5	70 - 130	30	m
n-Butylbenzene	ND	1.0	85	98	14.2	80	72	10.5	70 - 130	30	
n-Propylbenzene	ND	1.0	83	94	12.4	96	102	6.1	70 - 130	30	
o-Xylene	ND	2.0	86	96	11.0	93	92	1.1	70 - 130	30	
p-Isopropyltoluene	ND	1.0	86	97	12.0	101	102	1.0	70 - 130	30	
sec-Butylbenzene	ND	1.0	87	99	12.9	101	101	0.0	70 - 130	30	
Styrene	ND	5.0	88	97	9.7	79	76	3.9	70 - 130	30	
tert-Butylbenzene	ND	1.0	83	97	15.6	109	116	6.2	70 - 130	30	
Tetrachloroethene	ND	5.0	84	102	19.4	87	84	3.5	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	101	95	6.1	88	100	12.8	70 - 130	30	
Toluene	ND	1.0	84	98	15.4	88	88	0.0	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	78	88	12.0	81	79	2.5	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	89	96	7.6	82	81	1.2	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	97	96	1.0	96	105	9.0	70 - 130	30	
Trichloroethene	ND	5.0	88	101	13.8	38	72	61.8	70 - 130	30	m,r
Trichlorofluoromethane	ND	5.0	74	87	16.1	80	84	4.9	70 - 130	30	
Trichlorotrifluoroethane	ND	5.0	77	94	19.9	87	92	5.6	70 - 130	30	
Vinyl chloride	ND	5.0	83	91	9.2	84	84	0.0	70 - 130	30	
% 1,2-dichlorobenzene-d4	101	%	100	100	0.0	99	104	4.9	70 - 130	30	
% Bromofluorobenzene	97	%	99	98	1.0	91	87	4.5	70 - 130	30	
% Dibromofluoromethane	96	%	101	98	3.0	100	101	1.0	70 - 130	30	
% Toluene-d8	98	%	98	99	1.0	98	98	0.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 333756 (ug/Kg), QC Sample No: BK59841 2X (BK59761)

Polychlorinated Biphenyls - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
PCB-1016	ND	33	83	78	6.2	84	84	0.0	40 - 140	30
PCB-1221	ND	33							40 - 140	30
PCB-1232	ND	33							40 - 140	30
PCB-1242	ND	33							40 - 140	30
PCB-1248	ND	33							40 - 140	30
PCB-1254	ND	33							40 - 140	30
PCB-1260	ND	33	92	89	3.3	91	85	6.8	40 - 140	30
PCB-1262	ND	33							40 - 140	30
PCB-1268	ND	33							40 - 140	30
% DCBP (Surrogate Rec)	99	%	109	99	9.6	100	97	3.0	30 - 150	30
% TCMX (Surrogate Rec)	80	%	80	72	10.5	81	80	1.2	30 - 150	30

QA/QC Batch 333776 (ug/kg), QC Sample No: BK59841 (BK59761)

Semivolatiles - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,2,4,5-Tetrachlorobenzene	ND	230	60	60	0.0	58	55	5.3	30 - 130	30	
1,2,4-Trichlorobenzene	ND	230	55	58	5.3	55	53	3.7	30 - 130	30	
1,2-Dichlorobenzene	ND	180	54	57	5.4	54	51	5.7	30 - 130	30	
1,2-Diphenylhydrazine	ND	230	64	62	3.2	60	58	3.4	30 - 130	30	
1,3-Dichlorobenzene	ND	230	51	54	5.7	51	49	4.0	30 - 130	30	
1,4-Dichlorobenzene	ND	230	51	54	5.7	52	50	3.9	30 - 130	30	
2,4,5-Trichlorophenol	ND	230	77	74	4.0	70	68	2.9	30 - 130	30	
2,4,6-Trichlorophenol	ND	130	77	76	1.3	71	67	5.8	30 - 130	30	
2,4-Dichlorophenol	ND	130	67	67	0.0	62	61	1.6	30 - 130	30	
2,4-Dimethylphenol	ND	230	65	64	1.6	64	63	1.6	30 - 130	30	
2,4-Dinitrophenol	ND	230	31	34	9.2	85	81	4.8	30 - 130	30	
2,4-Dinitrotoluene	ND	130	77	76	1.3	72	69	4.3	30 - 130	30	
2,6-Dinitrotoluene	ND	130	74	73	1.4	68	66	3.0	30 - 130	30	
2-Chloronaphthalene	ND	230	63	63	0.0	60	57	5.1	30 - 130	30	
2-Chlorophenol	ND	230	61	63	3.2	58	56	3.5	30 - 130	30	
2-Methylnaphthalene	ND	230	59	61	3.3	58	58	0.0	30 - 130	30	
2-Methylphenol (o-cresol)	ND	230	63	65	3.1	60	59	1.7	30 - 130	30	
2-Nitroaniline	ND	330	79	76	3.9	70	68	2.9	30 - 130	30	
2-Nitrophenol	ND	230	67	70	4.4	65	63	3.1	30 - 130	30	
3&4-Methylphenol (m&p-cresol)	ND	230	66	67	1.5	64	63	1.6	30 - 130	30	
3,3'-Dichlorobenzidine	ND	130	71	68	4.3	71	68	4.3	30 - 130	30	
3-Nitroaniline	ND	330	71	70	1.4	65	63	3.1	30 - 130	30	
4,6-Dinitro-2-methylphenol	ND	230	70	70	0.0	99	92	7.3	30 - 130	30	
4-Bromophenyl phenyl ether	ND	230	70	69	1.4	65	64	1.6	30 - 130	30	
4-Chloro-3-methylphenol	ND	230	75	74	1.3	71	68	4.3	30 - 130	30	
4-Chloroaniline	ND	230	63	63	0.0	56	55	1.8	30 - 130	30	
4-Chlorophenyl phenyl ether	ND	230	67	67	0.0	64	62	3.2	30 - 130	30	
4-Nitroaniline	ND	230	75	75	0.0	69	67	2.9	30 - 130	30	
4-Nitrophenol	ND	230	86	79	8.5	78	77	1.3	30 - 130	30	
Acenaphthene	ND	230	66	67	1.5	62	61	1.6	30 - 130	30	
Acenaphthylene	ND	130	64	64	0.0	60	58	3.4	30 - 130	30	
Acetophenone	ND	230	56	58	3.5	56	54	3.6	30 - 130	30	
Aniline	ND	330	50	51	2.0	46	44	4.4	30 - 130	30	
Anthracene	ND	230	71	70	1.4	66	65	1.5	30 - 130	30	
Benz(a)anthracene	ND	230	75	72	4.1	69	66	4.4	30 - 130	30	
Benzidine	ND	330	67	54	21.5	48	32	40.0	30 - 130	30	r
Benzo(a)pyrene	ND	130	71	69	2.9	66	63	4.7	30 - 130	30	
Benzo(b)fluoranthene	ND	160	73	71	2.8	66	64	3.1	30 - 130	30	
Benzo(ghi)perylene	ND	230	66	65	1.5	63	60	4.9	30 - 130	30	
Benzo(k)fluoranthene	ND	230	70	69	1.4	66	63	4.7	30 - 130	30	
Benzoic Acid	ND	330	<10	<10	NC	41	67	48.1	30 - 130	30	l,r
Benzyl butyl phthalate	ND	230	77	73	5.3	70	68	2.9	30 - 130	30	
Bis(2-chloroethoxy)methane	ND	230	62	64	3.2	59	57	3.4	30 - 130	30	
Bis(2-chloroethyl)ether	ND	130	51	52	1.9	49	46	6.3	30 - 130	30	
Bis(2-chloroisopropyl)ether	ND	230	50	51	2.0	49	47	4.2	30 - 130	30	
Bis(2-ethylhexyl)phthalate	ND	230	84	82	2.4	72	71	1.4	30 - 130	30	
Carbazole	ND	330	71	69	2.9	66	64	3.1	30 - 130	30	
Chrysene	ND	230	72	70	2.8	68	65	4.5	30 - 130	30	
Dibenz(a,h)anthracene	ND	130	68	67	1.5	67	63	6.2	30 - 130	30	
Dibenzofuran	ND	230	66	65	1.5	62	60	3.3	30 - 130	30	

QA/QC Data

SDG I.D.: GBK59760

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Diethyl phthalate	ND	230	72	71	1.4	66	64	3.1	30 - 130	30	
Dimethylphthalate	ND	230	72	70	2.8	66	62	6.3	30 - 130	30	
Di-n-butylphthalate	ND	230	77	75	2.6	69	67	2.9	30 - 130	30	
Di-n-octylphthalate	ND	230	83	80	3.7	76	74	2.7	30 - 130	30	
Fluoranthene	ND	230	73	71	2.8	69	67	2.9	30 - 130	30	
Fluorene	ND	230	65	66	1.5	63	61	3.2	30 - 130	30	
Hexachlorobenzene	ND	130	68	67	1.5	63	62	1.6	30 - 130	30	
Hexachlorobutadiene	ND	230	56	58	3.5	55	52	5.6	30 - 130	30	
Hexachlorocyclopentadiene	ND	230	55	57	3.6	55	51	7.5	30 - 130	30	
Hexachloroethane	ND	130	49	51	4.0	48	45	6.5	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	230	68	68	0.0	64	63	1.6	30 - 130	30	
Isophorone	ND	130	57	58	1.7	55	53	3.7	30 - 130	30	
Naphthalene	ND	230	56	58	3.5	56	54	3.6	30 - 130	30	
Nitrobenzene	ND	130	60	62	3.3	58	57	1.7	30 - 130	30	
N-Nitrosodimethylamine	ND	230	43	46	6.7	44	42	4.7	30 - 130	30	
N-Nitrosodi-n-propylamine	ND	130	63	63	0.0	60	59	1.7	30 - 130	30	
N-Nitrosodiphenylamine	ND	130	76	74	2.7	70	66	5.9	30 - 130	30	
Pentachloronitrobenzene	ND	230	71	69	2.9	67	64	4.6	30 - 130	30	
Pentachlorophenol	ND	230	82	78	5.0	78	76	2.6	30 - 130	30	
Phenanthrene	ND	130	68	67	1.5	64	63	1.6	30 - 130	30	
Phenol	ND	230	63	61	3.2	57	56	1.8	30 - 130	30	
Pyrene	ND	230	74	72	2.7	69	67	2.9	30 - 130	30	
Pyridine	ND	230	29	31	6.7	31	29	6.7	30 - 130	30	l,m
% 2,4,6-Tribromophenol	59	%	74	72	2.7	67	65	3.0	30 - 130	30	
% 2-Fluorobiphenyl	52	%	61	61	0.0	57	54	5.4	30 - 130	30	
% 2-Fluorophenol	40	%	52	53	1.9	49	48	2.1	30 - 130	30	
% Nitrobenzene-d5	51	%	60	61	1.7	58	56	3.5	30 - 130	30	
% Phenol-d5	48	%	59	59	0.0	55	54	1.8	30 - 130	30	
% Terphenyl-d14	60	%	71	69	2.9	64	63	1.6	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller

Phyllis Shiller, Laboratory Director
February 08, 2016

Criteria: None

State: CT

Sample Criteria Exceedences Report

GBK59760 - GEODSIGN

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Reasonable Confidence Protocol
Laboratory Analysis QA/QC Certification Form

Laboratory Name: Phoenix Environmental Labs, Inc. **Client:** GeoDesign

Project Location: CCSU KAISER HALL NEW BRIT **Project Number:**

Laboratory Sample ID(s): BK59760, BK59761

Sampling Date(s): 2/1/2016

RCP Methods Used:

☑ 1311/1312 ☑ 6010 ☐ 7000 ☐ 7196 ☑ 7470/7471 ☐ 8081 ☐ EPH ☐ TO15

☑ 8082 ☐ 8151 ☑ 8260 ☑ 8270 ☑ ETPH ☐ 9010/9012 ☐ VPH

1.	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	☑ Yes ☐ No
1a.	Were the method specified preservation and holding time requirements met?	☑ Yes ☐ No
1b.	EPH and VPH methods only: Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)	☐ Yes ☐ No ☑ NA
2.	Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?	☑ Yes ☐ No
3.	Were samples received at an appropriate temperature (< 6 Degrees C)?	☑ Yes ☐ No ☐ NA
4.	Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Sections: SVOA Narration, VOA Narration.	☐ Yes ☑ No
5a.	Were reporting limits specified or referenced on the chain-of-custody?	☐ Yes ☑ No
5b.	Were these reporting limits met?	☐ Yes ☐ No ☑ NA
6.	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	☐ Yes ☑ No ☐ NA
7.	Are project-specific matrix spikes and laboratory duplicates included in the data set?	☐ Yes ☑ No ☐ NA

Note: For all questions to which the response was "No" (with the exception of question #5a, #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence".

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee

Date: Monday, February 08, 2016

Printed Name: Ethan Lee

Position: Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

RCP Certification Report

February 08, 2016

SDG I.D.: GBK59760

BK59761 - The following analytes from the 6010 RCP Metals list were not reported: Antimony, Beryllium, Copper, Nickel, Thallium, Vanadium, Zinc.

Cyanide Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Lachat 02/02/16-1 (BK59761)

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

Printed Name Greg Danielewski
Position: Chemist
Date: 2/2/2016

QC (Batch Specific)

----------- Sample No: BK59641, QA/QC Batch: 333798 -----------

All LCS recoveries were within 85 - 115 with the following exceptions: None.

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Au-fid11 02/04/16-3 (BK59761)

The initial calibration (ETPH117I) RSD for the compound list was less than 30% except for the following compounds: None.

As per section 7.2.3, a discrimination check standard was run (204A023) and contained the following outliers:
C36 (24.2%L)

The continuing calibration %D for the compound list was less than 30% except for the following compounds: None.

Printed Name Jeff Bucko
Position: Chemist
Date: 2/4/2016

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RCP Certification Report

February 08, 2016

SDG I.D.: GBK59760

QC (Batch Specific)

----------- Sample No: BK59500, QA/QC Batch: 333740 -----------

All LCS recoveries were within 60 - 120 with the following exceptions: None.

All LCSD recoveries were within 60 - 120 with the following exceptions: None.

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Mercury Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Merlin 02/02/16-1 (BK59761)

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interfernce for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.

Printed Name Rick Schweitzer
Position: Chemist
Date: 2/2/2016

QC (Batch Specific)

----------- Sample No: BK59591, QA/QC Batch: 333814 -----------

All LCS recoveries were within 70 - 130 with the following exceptions: None.

All LCSD recoveries were within 70 - 130 with the following exceptions: None.

All LCS/LCSD RPDs were less than 20% with the following exceptions: None.

----------- Sample No: BK59656, QA/QC Batch: 333802 -----------

All LCS recoveries were within 70 - 130 with the following exceptions: None.

All LCSD recoveries were within 70 - 130 with the following exceptions: None.

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

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RCP Certification Report

February 08, 2016

SDG I.D.: GBK59760

ICP Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Arcos 02/03/16-1 (BK59761)

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.

Printed Name Laura Kinnin
Position: Chemist
Date: 2/3/2016

QC (Batch Specific)

----------- Sample No: BK59600, QA/QC Batch: 333800 -----------

All LCS recoveries were within 75 - 125 with the following exceptions: None.

----------- Sample No: BK59841, QA/QC Batch: 333784 -----------

All LCS recoveries were within 75 - 125 with the following exceptions: None.

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Au-ecd1 02/02/16-1 (BK59761)

The initial calibration (PC1229AI) RSD for the compound list was less than 20% except for the following compounds: None.

The initial calibration (PC1229BI) RSD for the compound list was less than 20% except for the following compounds: None.

The continuing calibration %D for the compound list was less than 15% except for the following compounds: None.

Printed Name Adam Werner
Position: Chemist
Date: 2/2/2016

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587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

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RCP Certification Report

February 08, 2016

SDG I.D.: GBK59760

QC (Batch Specific)

----------- Sample No: BK59841, QA/QC Batch: 333756 -----------

All LCS recoveries were within 40 - 140 with the following exceptions: None.

All LCSD recoveries were within 40 - 140 with the following exceptions: None.

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

SVOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 333776 (Samples: BK59761): -----

The QC recoveries for one or more analytes are below method criteria. A low bias is possible. (Pyridine)

The LCS and/or LCSD recoveries for one or more analytes is below the method criteria. A low bias for these analytes is possible. (Benzoic Acid)

Instrument: Chem25 02/01/16-1 (BK59761)

Initial Calibration Verification (CHEM25/SV_0128):
95% of target compounds met criteria.
The following compounds had %RSDs >20%: 2,4-Dinitrophenol (39%), 2-Nitrophenol (21%), 4,6-Dinitro-2-methylphenol (27%), 4-Nitrophenol (26%)
The following compounds did not meet recommended response factors: 2-Nitrophenol (.085)[0.1]
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/0201_04-SV_0128):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: 2,4-dinitrophenol (37%H)[30%]
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 2-nitrophenol (.073)[0.1]
The following compounds did not meet minimum response factors: None.

Printed Name Damien Drobinski
Position: Chemist
Date: 2/1/2016

Environmental Laboratories, Inc.
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Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

February 08, 2016

SDG I.D.: GBK59760

QC (Batch Specific)

----------- Sample No: BK59841, QA/QC Batch: 333776 -----------

All LCS recoveries were within 30 - 130 with the following exceptions: Benzoic Acid(<10%), Pyridine(29%)

All LCSD recoveries were within 30 - 130 with the following exceptions: Benzoic Acid(<10%)

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 333943 (Samples: BK59760): -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Acetone)

Instrument: Chem03 02/01/16-1 (BK59760)

Initial Calibration Verification (CHEM03/VT-L0126):
99% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone (25%)
The following compounds did not meet recommended response factors: Acrolein (.036)[0.05]
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM03/0201L02-VT-L0126):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: Acrolein (.038)[0.05]
The following compounds did not meet minimum response factors: None.

Printed Name Jane Li
Position: Chemist
Date: 2/1/2016

Instrument: Chem03 02/02/16-1 (BK59760)

Initial Calibration Verification (CHEM03/VT-L0126):
99% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone (25%)
The following compounds did not meet recommended response factors: Acrolein (.036)[0.05]

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RCP Certification Report

February 08, 2016

SDG I.D.: GBK59760

The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM03/0202L02-VT-L0126):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: Acrolein (.034)[0.05]
The following compounds did not meet minimum response factors: None.

Printed Name Jane Li
Position: Chemist
Date: 2/2/2016

QC (Batch Specific)

----------- Sample No: BK59642, QA/QC Batch: 333943 -----------

All LCS recoveries were within 70 - 130 with the following exceptions: None.

All LCSD recoveries were within 70 - 130 with the following exceptions: Acetone(69%)

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Temperature Narration

The samples were received at 6C with cooling initiated.
(Note acceptance criteria is above freezing up to 6°C)

Cooler: Yes [x] No [ ]
Coolant: IPK [x] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

Temp 6 °C Pg of

PHOENIX Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Contact Options:
[ ] Fax:
[x] Phone: 203-733-5217
[x] Email: U.Lafosse@geodesign.net

Customer: GeoDesign
Address: 984 Southford Rd
Middlebury CT 06762

Project: CCSU Kaiser Hall New Britain
Report to: Ulrich Lafosse #ULF
Invoice to: Ulrich Lafosse

Project P.O: 185-49

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature [signature] Date: 2-1-16

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe
OIL=Oil B=Bulk L=Liquid

Analysis Request: See Attached

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container (4)oz	GL Soil container (8)oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
59760	B-10 : 3.0'	S	2-1-16	0930	3	1	1							
59761	B-10: 0-15' Composite	S	2-1-16	1010		5	2							

Relinquished by:	Accepted by:	Date:	Time:
[signature]	Chris Lin	2-1-16	2:42pm
Chris Lin	[signature]	2-1-16	15:20

Comments, Special Requirements or Regulations:
VOC's on discrete sample
Remaining analysis on comp
per Ulrich @ GeoDesign. (8)

Turnaround:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[x] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] Direct Exposure (Residential)
[ ] GW
[ ] Other

CT Call ULF*
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[ ] MCP Certification
[ ] GW-1
[ ] GW-2
[ ] GW-3
[ ] S-1
[ ] S-2
[ ] S-3
[ ] MWRA eSMART
[ ] Other

State where samples were collected: CT

Data Format * CALL ULF
[ ] Excel
[ ] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other

* SURCHARGE APPLIES

Type of Analyses	**No. of ~~Analyses~~ JARS**	
Volatile organic compounds (VOCs) by EPA Method 8260B using sample preservation methods	~~4~~	3 VOAS + 1 4oz Jar
CT Extractable Total Petroleum Hydrocarbons (CT ETPH)	~~4~~ 1	4oz JAR
Polychlorinated Biphenyls by EPA Method 8082	~~4~~ 1	4
Semi-volatile Organic compounds (SVOCs) by EPA Method 8270C	~~4~~ 1	4
Waste Characterization Parameters • Ignitability / Flashpoint (Setaflash) - SW846 1020 • Reactive Cyanide - SW846 7.3.3 • Reactive Sulfide - SW846 7.3.4 • Corrosivity, pH - SW846 9040 • Conductivity - SW846 9045D	~~4~~ 2	8 JARS
Total RCRA 8 Metals	~~4~~ 1	4
Toxicity characteristic leachate procedure (TCLP) RCRA 8 Metals	~~4~~ 1	4

3 VOAS
6 4oz JARS
2 8oz

Tuesday, February 09, 2016

Attn: Ulrich Lafosse
GeoDesign
984 Southford Road
Middlebury, CT 06762

Project ID: CCSU KAISER HALL
Sample ID#s: BK60366 - BK60367

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

February 09, 2016

FOR: Attn: Ulrich Lafosse
GeoDesign
984 Southford Road
Middlebury, CT 06762

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		02/02/16	13:50
Location Code:	GEODSIGN	Received by:	SW	02/02/16	16:02
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	185-49				

Laboratory Data

SDG ID: GBK60366
Phoenix ID: BK60366

Project ID: CCSU KAISER HALL
Client ID: B-1 2.5 FT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	86		%		02/02/16	W	SW846-%Solid
Field Extraction	Completed				02/02/16		SW5035A
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.4	ug/Kg	1	02/03/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,1-Dichloroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,1-Dichloroethene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,1-Dichloropropene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2-Dibromoethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2-Dichloroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,2-Dichloropropane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,3-Dichloropropane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
2,2-Dichloropropane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
2-Chlorotoluene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
2-Hexanone	ND	20	ug/Kg	1	02/03/16	JLI	SW8260C
2-Isopropyltoluene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C

Project ID: CCSU KAISER HALL
Client ID: B-1 2.5 FT

Phoenix I.D.: BK60366

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
4-Chlorotoluene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	20	ug/Kg	1	02/03/16	JLI	SW8260C
Acetone	ND	200	ug/Kg	1	02/03/16	JLI	SW8260C
Acrylonitrile	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Benzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Bromobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Bromochloromethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Bromodichloromethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Bromoform	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Bromomethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Carbon Disulfide	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Carbon tetrachloride	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Chlorobenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Chloroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Chloroform	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Chloromethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Dibromochloromethane	ND	2.4	ug/Kg	1	02/03/16	JLI	SW8260C
Dibromomethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Dichlorodifluoromethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Ethylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Hexachlorobutadiene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Isopropylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
m&p-Xylene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	24	ug/Kg	1	02/03/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	8.0	ug/Kg	1	02/03/16	JLI	SW8260C
Methylene chloride	ND	8.0	ug/Kg	1	02/03/16	JLI	SW8260C
Naphthalene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
n-Butylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
n-Propylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
o-Xylene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
p-Isopropyltoluene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
sec-Butylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Styrene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
tert-Butylbenzene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Tetrachloroethene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	8.0	ug/Kg	1	02/03/16	JLI	SW8260C
Toluene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Total Xylenes	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	8.0	ug/Kg	1	02/03/16	JLI	SW8260C
Trichloroethene	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Trichlorofluoromethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
Vinyl chloride	ND	4.0	ug/Kg	1	02/03/16	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	99		%	1	02/03/16	JLI	70 - 130 %

Project ID: CCSU KAISER HALL
Client ID: B-1 2.5 FT

Phoenix I.D.: BK60366

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Bromofluorobenzene	102		%	1	02/03/16	JLI	70 - 130 %
% Dibromofluoromethane	100		%	1	02/03/16	JLI	70 - 130 %
% Toluene-d8	100		%	1	02/03/16	JLI	70 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
February 09, 2016
Reviewed and Released by: Ethan Lee, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

February 09, 2016

FOR: Attn: Ulrich Lafosse
GeoDesign
984 Southford Road
Middlebury, CT 06762

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		02/02/16	14:00
Location Code:	GEODSIGN	Received by:	SW	02/02/16	16:02
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	185-49				

Laboratory Data

SDG ID: GBK60366
Phoenix ID: BK60367

Project ID: CCSU KAISER HALL
Client ID: B-1 0-4 COMPOSITE

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.38	0.38	mg/Kg	1	02/03/16	LK	SW6010C
Arsenic	5.3	0.8	mg/Kg	1	02/03/16	LK	SW6010C
Barium	81.2	0.38	mg/Kg	1	02/03/16	LK	SW6010C
Cadmium	< 0.38	0.38	mg/Kg	1	02/03/16	LK	SW6010C
Chromium	25.4	0.38	mg/Kg	1	02/03/16	LK	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	02/03/16	RS	SW7471B
Lead	17.8	0.38	mg/Kg	1	02/03/16	LK	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	02/03/16	LK	SW6010C
TCLP Silver	< 0.010	0.010	mg/L	1	02/03/16	EK	SW6010C
TCLP Arsenic	< 0.01	0.01	mg/L	1	02/03/16	LK	SW6010C
TCLP Barium	0.86	0.01	mg/L	1	02/03/16	EK	SW6010C
TCLP Cadmium	< 0.005	0.005	mg/L	1	02/03/16	EK	SW6010C
TCLP Chromium	< 0.010	0.010	mg/L	1	02/03/16	EK	SW6010C
TCLP Mercury	< 0.0002	0.0002	mg/L	1	02/03/16	RS	SW7470A
TCLP Lead	0.111	0.010	mg/L	1	02/03/16	EK	SW6010C
TCLP Selenium	< 0.01	0.01	mg/L	1	02/03/16	LK	SW6010C
TCLP Metals Digestion	Completed				02/03/16	W/W	SW3005A
Percent Solid	84		%		02/02/16	W	SW846-%Solid
Conductivity - Soil Matrix	100	5	umhos/cm	1	02/05/16	RWR	SM2510B-97
Corrosivity	Negative		Pos/Neg	1	02/02/16	DH/KDB	SW846-Corr
Flash Point	>200	200	Degree F	1	02/03/16	Y	SW1010A
Ignitability	Passed	140	degree F	1	02/03/16	Y	SW846-Ignit
pH - Soil	7.66	0.10	pH Units	1	02/02/16 20:15	DH/KDB	SW9045
Reactivity Cyanide	< 5.7	5.7	mg/Kg	1	02/03/16	BS/GD	SW846-ReactCyn
Reactivity Sulfide	< 20	20	mg/Kg	1	02/02/16	BS/GD	SW-7.3
Reactivity	Negative		Pos/Neg	1	02/02/16	BS/GD	SW846-React
Soil Extraction for PCB	Completed				02/02/16	BC/V	SW3545A
Soil Extraction for SVOA	Completed				02/02/16	BJ/CKV	SW3545A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				02/02/16	BC/CK	SW3545A
Mercury Digestion	Completed				02/03/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				02/03/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				02/02/16	W	SW1311
Total Metals Digest	Completed				02/02/16	G/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	58	mg/Kg	1	02/04/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	02/04/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	74		%	1	02/04/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1221	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1232	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1242	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1248	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1254	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1260	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1262	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
PCB-1268	ND	390	ug/Kg	10	02/03/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	94		%	10	02/03/16	AW	30 - 150 %
% TCMX	79		%	10	02/03/16	AW	30 - 150 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
1,2-Dichlorobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
1,3-Dichlorobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
1,4-Dichlorobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2,4-Dichlorophenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2,4-Dimethylphenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2,4-Dinitrophenol	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
2,4-Dinitrotoluene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2,6-Dinitrotoluene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2-Chloronaphthalene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2-Chlorophenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2-Methylnaphthalene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
2-Nitroaniline	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
2-Nitrophenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
3-Nitroaniline	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	390	ug/Kg	1	02/03/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
4-Bromophenyl phenyl ether	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
4-Chloroaniline	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
4-Nitroaniline	ND	620	ug/Kg	1	02/03/16	DD	SW8270D
4-Nitrophenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Acenaphthene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Acenaphthylene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Acetophenone	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Aniline	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
Anthracene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benz(a)anthracene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benzidine	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benzo(a)pyrene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benzo(b)fluoranthene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benzo(ghi)perylene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benzo(k)fluoranthene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Benzoic acid	ND	780	ug/Kg	1	02/03/16	DD	SW8270D
Benzyl butyl phthalate	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Bis(2-chloroethyl)ether	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Carbazole	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
Chrysene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Dibenzofuran	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Diethyl phthalate	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Dimethylphthalate	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Di-n-butylphthalate	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Di-n-octylphthalate	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Fluoranthene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Fluorene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Hexachlorobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Hexachlorobutadiene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Hexachloroethane	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Isophorone	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Naphthalene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Nitrobenzene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
N-Nitrosodimethylamine	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
Pentachloronitrobenzene	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
Pentachlorophenol	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
Phenanthrene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Phenol	ND	270	ug/Kg	1	02/03/16	DD	SW8270D
Pyrene	ND	270	ug/Kg	1	02/03/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Pyridine	ND	390	ug/Kg	1	02/03/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	55		%	1	02/03/16	DD	30 - 130 %
% 2-Fluorobiphenyl	53		%	1	02/03/16	DD	30 - 130 %
% 2-Fluorophenol	43		%	1	02/03/16	DD	30 - 130 %
% Nitrobenzene-d5	45		%	1	02/03/16	DD	30 - 130 %
% Phenol-d5	45		%	1	02/03/16	DD	30 - 130 %
% Terphenyl-d14	63		%	1	02/03/16	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
February 09, 2016
Reviewed and Released by: Ethan Lee, Project Manager

PHOENIX

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QA/QC Report

February 09, 2016

QA/QC Data

SDG I.D.: GBK60366

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 333892 (mg/kg), QC Sample No: BK59877 (BK60367)														
Mercury - Soil	BRL	0.06	0.09	0.08	NC	102	99.5	2.5	86.3	84.0	2.7	70 - 130	30	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.														
QA/QC Batch 333865 (mg/kg), QC Sample No: BK60331 (BK60367)														
ICP Metals - Soil														
Arsenic	BRL	0.66	2.3	2.20	NC	100			92.7			75 - 125	30	
Barium	BRL	0.33	45.6	46.7	2.40	99.7			107			75 - 125	30	
Cadmium	BRL	0.33	<0.39	<0.44	NC	89.5			91.7			75 - 125	30	
Chromium	BRL	0.33	12.7	15.1	17.3	99.1			100			75 - 125	30	
Lead	BRL	0.33	19.7	27.1	31.6	100			95.7			75 - 125	30	r
Selenium	BRL	1.3	<1.5	<1.8	NC	93.5			81.8			75 - 125	30	
Silver	BRL	0.33	<0.39	<0.44	NC	97.4			98.2			75 - 125	30	
QA/QC Batch 333891 (mg/L), QC Sample No: BK60367 (BK60367)														
ICP Metals - TCLP Extraction														
Arsenic	BRL	0.01	<0.01	<0.01	NC	114			124			75 - 125	20	
Barium	BRL	0.01	0.86	0.86	0	101			123			75 - 125	20	
Cadmium	BRL	0.005	<0.005	<0.005	NC	101			104			75 - 125	20	
Chromium	BRL	0.010	<0.010	<0.010	NC	105			111			75 - 125	20	
Lead	BRL	0.010	0.111	0.107	3.70	106			112			75 - 125	20	
Selenium	BRL	0.01	<0.01	<0.01	NC	121			>130			75 - 125	20	m
Silver	BRL	0.010	<0.010	<0.010	NC	109			120			75 - 125	20	
QA/QC Batch 333894 (mg/L), QC Sample No: BK60567 (BK60367)														
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	91.3	101	10.1	96.2	90.1	6.5	70 - 130	20	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.														

m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

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QA/QC Report

February 09, 2016

QA/QC Data

SDG I.D.: GBK60366

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 333798 (mg/Kg), QC Sample No: BK59641 4.95X (BK60367)													
Reactivity Cyanide	BRL	0.05	<6.0	<5.6	NC	96.8						85 - 115	30
QA/QC Batch 333896 (PH), QC Sample No: BK60327 (BK60367)													
pH - Soil			7.28	7.20	1.10	99.8						85 - 115	20
QA/QC Batch 333931 (Degree F), QC Sample No: BK60328 (BK60367)													
Flash Point			>200	>200	NC	101						85 - 115	30
QA/QC Batch 334182 (umhos/cm), QC Sample No: BK60376 (BK60367)													
Conductivity - Soil Matrix	BRL	1	330	340	3.00	101						85 - 115	30

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QA/QC Report

February 09, 2016

QA/QC Data

SDG I.D.: GBK60366

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 333777 (ug/Kg), QC Sample No: BK59880 2X (BK60367)											
Polychlorinated Biphenyls - Solid											
PCB-1016	ND	33	79	85	7.3	118	100	16.5	40 - 140	30	
PCB-1221	ND	33							40 - 140	30	
PCB-1232	ND	33							40 - 140	30	
PCB-1242	ND	33							40 - 140	30	
PCB-1248	ND	33							40 - 140	30	
PCB-1254	ND	33							40 - 140	30	
PCB-1260	ND	33	81	88	8.3	108	98	9.7	40 - 140	30	
PCB-1262	ND	33							40 - 140	30	
PCB-1268	ND	33							40 - 140	30	
% DCBP (Surrogate Rec)	83	%	91	98	7.4	109	97	11.7	30 - 150	30	
% TCMX (Surrogate Rec)	66	%	74	80	7.8	94	84	11.2	30 - 150	30	
QA/QC Batch 333940 (ug/kg), QC Sample No: BK59987 (BK60366)											
Volatiles - Solid											
1,1,1,2-Tetrachloroethane	ND	5.0	102	95	7.1	105	104	1.0	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	100	91	9.4	107	104	2.8	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	97	91	6.4	114	115	0.9	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	101	90	11.5	100	97	3.0	70 - 130	30	
1,1-Dichloroethane	ND	5.0	103	90	13.5	109	104	4.7	70 - 130	30	
1,1-Dichloroethene	ND	5.0	104	92	12.2	107	101	5.8	70 - 130	30	
1,1-Dichloropropene	ND	5.0	103	93	10.2	108	104	3.8	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	103	91	12.4	57	50	13.1	70 - 130	30	m
1,2,3-Trichloropropane	ND	5.0	95	90	5.4	114	115	0.9	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	103	93	10.2	65	57	13.1	70 - 130	30	m
1,2,4-Trimethylbenzene	ND	1.0	101	91	10.4	115	107	7.2	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	101	91	10.4	99	98	1.0	70 - 130	30	
1,2-Dibromoethane	ND	5.0	97	89	8.6	100	99	1.0	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	101	90	11.5	95	88	7.7	70 - 130	30	
1,2-Dichloroethane	ND	5.0	101	92	9.3	104	100	3.9	70 - 130	30	
1,2-Dichloropropane	ND	5.0	99	92	7.3	106	101	4.8	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	101	92	9.3	119	115	3.4	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	101	91	10.4	101	94	7.2	70 - 130	30	
1,3-Dichloropropane	ND	5.0	97	89	8.6	103	102	1.0	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	101	90	11.5	99	91	8.4	70 - 130	30	
2,2-Dichloropropane	ND	5.0	99	88	11.8	110	105	4.7	70 - 130	30	
2-Chlorotoluene	ND	5.0	100	92	8.3	114	113	0.9	70 - 130	30	
2-Hexanone	ND	25	85	79	7.3	68	67	1.5	70 - 130	30	m
2-Isopropyltoluene	ND	5.0	106	97	8.9	122	115	5.9	70 - 130	30	
4-Chlorotoluene	ND	5.0	99	90	9.5	109	105	3.7	70 - 130	30	
4-Methyl-2-pentanone	ND	25	94	86	8.9	84	82	2.4	70 - 130	30	
Acetone	ND	10	68	63	7.6	71	72	1.4	70 - 130	30	l
Acrylonitrile	ND	5.0	104	92	12.2	73	69	5.6	70 - 130	30	m

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Benzene	ND	1.0	101	91	10.4	106	102	3.8	70 - 130	30	
Bromobenzene	ND	5.0	100	92	8.3	110	108	1.8	70 - 130	30	
Bromochloromethane	ND	5.0	105	92	13.2	108	104	3.8	70 - 130	30	
Bromodichloromethane	ND	5.0	107	96	10.8	106	102	3.8	70 - 130	30	
Bromoform	ND	5.0	113	99	13.2	99	97	2.0	70 - 130	30	
Bromomethane	ND	5.0	110	93	16.7	104	87	17.8	70 - 130	30	
Carbon Disulfide	ND	5.0	107	93	14.0	100	94	6.2	70 - 130	30	
Carbon tetrachloride	ND	5.0	102	92	10.3	105	103	1.9	70 - 130	30	
Chlorobenzene	ND	5.0	101	92	9.3	104	99	4.9	70 - 130	30	
Chloroethane	ND	5.0	118	97	19.5	122	107	13.1	70 - 130	30	
Chloroform	ND	5.0	102	90	12.5	108	104	3.8	70 - 130	30	
Chloromethane	ND	5.0	102	86	17.0	97	89	8.6	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	102	89	13.6	107	101	5.8	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	99	90	9.5	98	95	3.1	70 - 130	30	
Dibromochloromethane	ND	3.0	106	97	8.9	104	105	1.0	70 - 130	30	
Dibromomethane	ND	5.0	104	92	12.2	107	100	6.8	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	95	80	17.1	90	82	9.3	70 - 130	30	
Ethylbenzene	ND	1.0	104	93	11.2	110	105	4.7	70 - 130	30	
Hexachlorobutadiene	ND	5.0	107	96	10.8	92	78	16.5	70 - 130	30	
Isopropylbenzene	ND	1.0	99	91	8.4	124	121	2.4	70 - 130	30	
m&p-Xylene	ND	2.0	104	94	10.1	108	102	5.7	70 - 130	30	
Methyl ethyl ketone	ND	5.0	81	77	5.1	76	77	1.3	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	99	91	8.4	105	104	1.0	70 - 130	30	
Methylene chloride	ND	5.0	97	84	14.4	103	93	10.2	70 - 130	30	
Naphthalene	ND	5.0	105	93	12.1	68	63	7.6	70 - 130	30	m
n-Butylbenzene	ND	1.0	104	94	10.1	109	99	9.6	70 - 130	30	
n-Propylbenzene	ND	1.0	98	90	8.5	119	115	3.4	70 - 130	30	
o-Xylene	ND	2.0	105	93	12.1	109	104	4.7	70 - 130	30	
p-Isopropyltoluene	ND	1.0	104	95	9.0	118	111	6.1	70 - 130	30	
sec-Butylbenzene	ND	1.0	104	96	8.0	119	115	3.4	70 - 130	30	
Styrene	ND	5.0	104	91	13.3	98	93	5.2	70 - 130	30	
tert-Butylbenzene	ND	1.0	100	93	7.3	121	117	3.4	70 - 130	30	
Tetrachloroethene	ND	5.0	104	93	11.2	108	99	8.7	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	96	88	8.7	98	97	1.0	70 - 130	30	
Toluene	ND	1.0	103	93	10.2	108	101	6.7	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	102	91	11.4	109	103	5.7	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	102	91	11.4	97	94	3.1	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	95	89	6.5	101	100	1.0	70 - 130	30	
Trichloroethene	ND	5.0	102	94	8.2	106	102	3.8	70 - 130	30	
Trichlorofluoromethane	ND	5.0	102	89	13.6	102	95	7.1	70 - 130	30	
Trichlorotrifluoroethane	ND	5.0	108	96	11.8	110	107	2.8	70 - 130	30	
Vinyl chloride	ND	5.0	108	91	17.1	105	94	11.1	70 - 130	30	
% 1,2-dichlorobenzene-d4	98	%	102	98	4.0	99	99	0.0	70 - 130	30	
% Bromofluorobenzene	103	%	104	101	2.9	97	94	3.1	70 - 130	30	
% Dibromofluoromethane	102	%	102	102	0.0	105	101	3.9	70 - 130	30	
% Toluene-d8	99	%	103	101	2.0	103	100	3.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 333855 (ug/Kg), QC Sample No: BK60189 (BK60367)

Semivolatiles - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
1,2,4,5-Tetrachlorobenzene	ND	230	46	55	17.8	63	55	13.6	30 - 130	30
1,2,4-Trichlorobenzene	ND	230	44	54	20.4	62	53	15.7	30 - 130	30

QA/QC Data

SDG I.D.: GBK60366

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,2-Dichlorobenzene	ND	180	35	43	20.5	55	45	20.0	30 - 130	30	
1,2-Diphenylhydrazine	ND	230	46	55	17.8	60	52	14.3	30 - 130	30	
1,3-Dichlorobenzene	ND	230	32	38	17.1	50	41	19.8	30 - 130	30	
1,4-Dichlorobenzene	ND	230	34	42	21.1	53	44	18.6	30 - 130	30	
2,4,5-Trichlorophenol	ND	230	61	67	9.4	73	67	8.6	30 - 130	30	
2,4,6-Trichlorophenol	ND	130	54	63	15.4	71	61	15.2	30 - 130	30	
2,4-Dichlorophenol	ND	130	51	62	19.5	69	60	14.0	30 - 130	30	
2,4-Dimethylphenol	ND	230	49	59	18.5	67	56	17.9	30 - 130	30	
2,4-Dinitrophenol	ND	230	41	31	27.8	70	48	37.3	30 - 130	30	r
2,4-Dinitrotoluene	ND	130	55	64	15.1	69	61	12.3	30 - 130	30	
2,6-Dinitrotoluene	ND	130	50	59	16.5	64	54	16.9	30 - 130	30	
2-Chloronaphthalene	ND	230	46	56	19.6	64	53	18.8	30 - 130	30	
2-Chlorophenol	ND	230	44	52	16.7	60	49	20.2	30 - 130	30	
2-Methylnaphthalene	ND	230	45	53	16.3	63	54	15.4	30 - 130	30	
2-Methylphenol (o-cresol)	ND	230	50	57	13.1	64	53	18.8	30 - 130	30	
2-Nitroaniline	ND	330	47	55	15.7	59	51	14.5	30 - 130	30	
2-Nitrophenol	ND	230	37	45	19.5	51	43	17.0	30 - 130	30	
3&4-Methylphenol (m&p-cresol)	ND	230	49	57	15.1	67	56	17.9	30 - 130	30	
3,3'-Dichlorobenzidine	ND	130	47	56	17.5	57	42	30.3	30 - 130	30	
3-Nitroaniline	ND	330	50	60	18.2	64	55	15.1	30 - 130	30	
4,6-Dinitro-2-methylphenol	ND	230	52	51	1.9	71	50	34.7	30 - 130	30	r
4-Bromophenyl phenyl ether	ND	230	55	67	19.7	72	64	11.8	30 - 130	30	
4-Chloro-3-methylphenol	ND	230	53	64	18.8	70	63	10.5	30 - 130	30	
4-Chloroaniline	ND	230	44	52	16.7	59	49	18.5	30 - 130	30	
4-Chlorophenyl phenyl ether	ND	230	50	58	14.8	65	56	14.9	30 - 130	30	
4-Nitroaniline	ND	230	50	59	16.5	64	57	11.6	30 - 130	30	
4-Nitrophenol	ND	230	56	63	11.8	69	59	15.6	30 - 130	30	
Acenaphthene	ND	230	48	57	17.1	66	56	16.4	30 - 130	30	
Acenaphthylene	ND	130	45	54	18.2	61	52	15.9	30 - 130	30	
Acetophenone	ND	230	40	49	20.2	58	48	18.9	30 - 130	30	
Aniline	ND	330	37	44	17.3	52	44	16.7	30 - 130	30	
Anthracene	ND	230	54	62	13.8	62	54	13.8	30 - 130	30	
Benz(a)anthracene	ND	230	56	66	16.4	61	54	12.2	30 - 130	30	
Benzidine	ND	330	30	38	23.5	10	<10	NC	30 - 130	30	m
Benzo(a)pyrene	ND	130	52	61	15.9	56	48	15.4	30 - 130	30	
Benzo(b)fluoranthene	ND	160	54	65	18.5	59	54	8.8	30 - 130	30	
Benzo(ghi)perylene	ND	230	56	67	17.9	68	57	17.6	30 - 130	30	
Benzo(k)fluoranthene	ND	230	52	62	17.5	60	50	18.2	30 - 130	30	
Benzoic Acid	ND	330	25	16	43.9	51	44	14.7	30 - 130	30	l,r
Benzyl butyl phthalate	ND	230	52	62	17.5	64	59	8.1	30 - 130	30	
Bis(2-chloroethoxy)methane	ND	230	51	60	16.2	69	57	19.0	30 - 130	30	
Bis(2-chloroethyl)ether	ND	130	38	46	19.0	55	43	24.5	30 - 130	30	
Bis(2-chloroisopropyl)ether	ND	230	41	48	15.7	57	47	19.2	30 - 130	30	
Bis(2-ethylhexyl)phthalate	ND	230	58	67	14.4	67	60	11.0	30 - 130	30	
Carbazole	ND	330	53	62	15.7	67	60	11.0	30 - 130	30	
Chrysene	ND	230	54	65	18.5	61	54	12.2	30 - 130	30	
Dibenz(a,h)anthracene	ND	130	55	66	18.2	73	61	17.9	30 - 130	30	
Dibenzofuran	ND	230	49	59	18.5	66	56	16.4	30 - 130	30	
Diethyl phthalate	ND	230	52	61	15.9	65	57	13.1	30 - 130	30	
Dimethylphthalate	ND	230	52	61	15.9	65	56	14.9	30 - 130	30	
Di-n-butylphthalate	ND	230	61	67	9.4	64	57	11.6	30 - 130	30	
Di-n-octylphthalate	ND	230	55	64	15.1	64	58	9.8	30 - 130	30	
Fluoranthene	ND	230	56	65	14.9	54	45	18.2	30 - 130	30	

QA/QC Data

SDG I.D.: GBK60366

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Fluorene	ND	230	50	58	14.8	66	57	14.6	30 - 130	30	
Hexachlorobenzene	ND	130	47	56	17.5	59	53	10.7	30 - 130	30	
Hexachlorobutadiene	ND	230	43	51	17.0	61	51	17.9	30 - 130	30	
Hexachlorocyclopentadiene	ND	230	47	56	17.5	55	48	13.6	30 - 130	30	
Hexachloroethane	ND	130	29	36	21.5	46	38	19.0	30 - 130	30	l
Indeno(1,2,3-cd)pyrene	ND	230	53	65	20.3	65	53	20.3	30 - 130	30	
Isophorone	ND	130	44	53	18.6	61	50	19.8	30 - 130	30	
Naphthalene	ND	230	43	52	18.9	63	52	19.1	30 - 130	30	
Nitrobenzene	ND	130	38	47	21.2	55	46	17.8	30 - 130	30	
N-Nitrosodimethylamine	ND	230	35	44	22.8	58	51	12.8	30 - 130	30	
N-Nitrosodi-n-propylamine	ND	130	45	54	18.2	61	50	19.8	30 - 130	30	
N-Nitrosodiphenylamine	ND	130	57	66	14.6	74	62	17.6	30 - 130	30	
Pentachloronitrobenzene	ND	230	50	59	16.5	65	57	13.1	30 - 130	30	
Pentachlorophenol	ND	230	67	77	13.9	86	77	11.0	30 - 130	30	
Phenanthrene	ND	130	52	60	14.3	53	44	18.6	30 - 130	30	
Phenol	ND	230	51	61	17.9	69	58	17.3	30 - 130	30	
Pyrene	ND	230	58	67	14.4	60	50	18.2	30 - 130	30	
Pyridine	ND	230	23	29	23.1	44	39	12.0	30 - 130	30	l
% 2,4,6-Tribromophenol	47	%	43	52	18.9	53	49	7.8	30 - 130	30	
% 2-Fluorobiphenyl	45	%	44	53	18.6	60	49	20.2	30 - 130	30	
% 2-Fluorophenol	37	%	39	48	20.7	55	43	24.5	30 - 130	30	
% Nitrobenzene-d5	39	%	40	49	20.2	57	47	19.2	30 - 130	30	
% Phenol-d5	40	%	42	52	21.3	58	49	16.8	30 - 130	30	
% Terphenyl-d14	66	%	57	67	16.1	70	61	13.7	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 333866 (mg/Kg), QC Sample No: BK60367 (BK60367)

TPH by GC (Extractable Products) - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Ext. Petroleum H.C.	ND	50	64	60	6.5				60 - 120	30
% n-Pentacosane	63	%	88	78	12.0				50 - 150	30

Comment:

*The MS/MSD could not be reported due to the presence of ETPH in the original sample. The LCS was within QA/QC criteria.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
February 09, 2016

Sample Criteria Exceedences Report

GBK60366 - GEODSIGN

Criteria: None

State: CT

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Reasonable Confidence Protocol
Laboratory Analysis QA/QC Certification Form

Laboratory Name: Phoenix Environmental Labs, Inc. **Client:** GeoDesign

Project Location: CCSU KAISER HALL **Project Number:**

Laboratory Sample ID(s): BK60366, BK60367

Sampling Date(s): 2/2/2016

RCP Methods Used:

- [x] 1311/1312
- [x] 6010
- [ ] 7000
- [ ] 7196
- [x] 7470/7471
- [ ] 8081
- [ ] EPH
- [ ] TO15
- [x] 8082
- [ ] 8151
- [x] 8260
- [x] 8270
- [x] ETPH
- [ ] 9010/9012
- [ ] VPH

1.	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	☑ Yes ☐ No
1a.	Were the method specified preservation and holding time requirements met?	☑ Yes ☐ No
1b.	EPH and VPH methods only: Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)	☐ Yes ☐ No ☑ NA
2.	Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?	☑ Yes ☐ No
3.	Were samples received at an appropriate temperature (< 6 Degrees C)?	☑ Yes ☐ No ☐ NA
4.	Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Sections: SVOA Narration, VOA Narration.	☐ Yes ☑ No
5a.	Were reporting limits specified or referenced on the chain-of-custody?	☐ Yes ☑ No
5b.	Were these reporting limits met?	☐ Yes ☐ No ☑ NA
6.	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	☐ Yes ☑ No ☐ NA
7.	Are project-specific matrix spikes and laboratory duplicates included in the data set?	☐ Yes ☑ No ☐ NA

Note: For all questions to which the response was "No" (with the exception of question #5a, #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence".

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee

Date: Tuesday, February 09, 2016

Printed Name: Ethan Lee

Position: Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

February 09, 2016

SDG I.D.: GBK60366

BK60367 - The following analytes from the 6010 RCP Metals list were not reported: Antimony, Beryllium, Copper, Nickel, Thallium, Vanadium, Zinc.

Cyanide Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Lachat 02/03/16-1 (BK60367)

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

Printed Name Greg Danielewski
Position: Chemist
Date: 2/3/2016

QC (Batch Specific)

----------- Sample No: BK59641, QA/QC Batch: 333798 -----------

All LCS recoveries were within 85 - 115 with the following exceptions: None.

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Au-fid1 02/03/16-2 (BK60367)

As per section 7.2.3, a discrimination check standard was run (203A016_1) and contained the following outliers:
C30 (45.1%L), C36 (148.9%L)

The initial calibration (ETPH117I) RSD for the compound list was less than 30% except for the following compounds: None.

The continuing calibration %D for the compound list was less than 30% except for the following compounds: None.

Printed Name Jeff Bucko
Position: Chemist
Date: 2/3/2016

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

February 09, 2016

SDG I.D.: GBK60366

Instrument: Au-xl2 02/04/16-1 (BK60367)

Initial Calibration (FID1 - ETPH_1) - The initial calibration curve was within method criteria and had a %RSD less than 30%.

As per section 7.2.3, a discrimination check standard was run and contained the following outliers: None

The initial calibration (ETPHD09I) RSD for the compound list was less than 30% except for the following compounds: None.

As per section 7.2.3, a discrimination check standard was run (204A003_1) and contained the following outliers: None.

The continuing calibration %D for the compound list was less than 30% except for the following compounds: None.

Printed Name Jeff Bucko
Position: Chemist
Date: 2/4/2016

QC Comments: QC Batch 333866 02/02/16 (BK60367)

*The MS/MSD could not be reported due to the presence of ETPH in the original sample. The LCS was within QA/QC criteria.

QC (Batch Specific)

----------- Sample No: BK60367, QA/QC Batch: 333866 -----------

All LCS recoveries were within 60 - 120 with the following exceptions: None.

All LCSD recoveries were within 60 - 120 with the following exceptions: None.

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Mercury Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Merlin 02/03/16-1 (BK60367)

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interfernce for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.

Printed Name Rick Schweitzer
Position: Chemist
Date: 2/3/2016

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

February 09, 2016

SDG I.D.: GBK60366

QC (Batch Specific)

----------- Sample No: BK59877, QA/QC Batch: 333892 -----------

All LCS recoveries were within 70 - 130 with the following exceptions: None.

All LCSD recoveries were within 70 - 130 with the following exceptions: None.

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

----------- Sample No: BK60567, QA/QC Batch: 333894 -----------

All LCS recoveries were within 70 - 130 with the following exceptions: None.

All LCSD recoveries were within 70 - 130 with the following exceptions: None.

All LCS/LCSD RPDs were less than 20% with the following exceptions: None.

ICP Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Arcos 02/03/16-1 (BK60367)

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.

Printed Name Laura Kinnin
Position: Chemist
Date: 2/3/2016

QC (Batch Specific)

----------- Sample No: BK60331, QA/QC Batch: 333865 -----------

All LCS recoveries were within 75 - 125 with the following exceptions: None.

----------- Sample No: BK60367, QA/QC Batch: 333891 -----------

All LCS recoveries were within 75 - 125 with the following exceptions: None.

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument: Au-ecd29 02/03/16-1 (BK60367)

The initial calibration (PC0120AI) RSD for the compound list was less than 20% except for the following compounds: None.

The initial calibration (PC0120BI) RSD for the compound list was less than 20% except for the following compounds: None.

The continuing calibration %D for the compound list was less than 15% except for the following compounds: None.

Printed Name Adam Werner
Position: Chemist
Date: 2/3/2016

QC (Batch Specific)

----------- Sample No: BK59880, QA/QC Batch: 333777 -----------

All LCS recoveries were within 40 - 140 with the following exceptions: None.

All LCSD recoveries were within 40 - 140 with the following exceptions: None.

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

SVOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 333855 (Samples: BK60367): -----

The LCS and/or LCDS recoveries for one or more analytes is below the method criteria. A low bias for these analytes is possible. (Benzoic Acid, Pyridine)

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Hexachloroethane)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Benzoic Acid)

Instrument: Chem25 02/02/16-1 (BK60367)

Initial Calibration Verification (CHEM25/SV_0128):
95% of target compounds met criteria.
The following compounds had %RSDs >20%: 2,4-Dinitrophenol (39%), 2-Nitrophenol (21%), 4,6-Dinitro-2-methylphenol (27%), 4-Nitrophenol (26%)
The following compounds did not meet recommended response factors: 2-Nitrophenol (.085)[0.1]
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/0202_07-SV_0128):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: 2,4-dinitrophenol (34%H)[30%]
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 2-nitrophenol (.065)[0.1]

The following compounds did not meet minimum response factors: None.

Printed Name Damien Drobinski
Position: Chemist
Date: 2/2/2016

QC (Batch Specific)

----------- Sample No: BK60189, QA/QC Batch: 333855 -----------

All LCS recoveries were within 30 - 130 with the following exceptions: Benzoic Acid(25%), Hexachloroethane(29%), Pyridine(23%)

All LCSD recoveries were within 30 - 130 with the following exceptions: Benzoic Acid(16%), Pyridine(29%)

All LCS/LCSD RPDs were less than 30% with the following exceptions: Benzoic Acid(43.9%)

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 333940 (Samples: BK60366): -----

The LCS and/or LCSD recoveries for one or more analytes is below the method criteria. A low bias for these analytes is possible. (Acetone)

Instrument: Chem15 02/02/16-2 (BK60366)

Initial Calibration Verification (CHEM15/VT-B0202):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: 1,4-Dioxane (22%), Acetone (25%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM15/0202B14-VT-B0202):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

Printed Name Jane Li
Position: Chemist
Date: 2/2/2016

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

February 09, 2016

SDG I.D.: GBK60366

QC (Batch Specific)

----------- Sample No: BK59987, QA/QC Batch: 333940 -----------

All LCS recoveries were within 70 - 130 with the following exceptions: Acetone(68%)

All LCSD recoveries were within 70 - 130 with the following exceptions: Acetone(63%)

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Temperature Narration

The samples in this delivery group were received at 1°C.
(Note acceptance criteria is above freezing up to 6°C)

Cooler: Yes [x] No [ ]
Coolant: IPK [x] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

PHOENIX
Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Temp / °C Pg of

Contact Options:
[ ] Fax:
[x] Phone: 203-733-5217 cell
[x] Email: U.lafosse@geodesign.net

Customer: GeoDesign
Address: 984 Southford Rd
Middlebury CT 06762

Project: CCSU Kaiser Hall New Britain CT
Report to: Ulrich Lafosse * ULF
Invoice to: Ulrich Lafosse
Project P.O: 185-49

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 2-2-16

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe
OIL=Oil B=Bulk L=Liquid

Analysis Request: SEE ATTACHED

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container (4) oz	GL Soil container (8) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
60366	B-1: 2.5'	S	2-2-16	1350	3	1								
60367	B-1: 0-0.4 Compost	S	2-2-16	1400		5	2							

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	2-2-16	3:30
[signature]	[signature]	2/2/16	16:02

Comments, Special Requirements or Regulations:

Turnaround:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[x] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] Direct Exposure (Residential)
[ ] GW
[ ] Other

CT Call ULF*
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[ ] MCP Certification
[ ] GW-1
[ ] GW-2
[ ] GW-3
[ ] S-1
[ ] S-2
[ ] S-3
[ ] MWRA eSMART
[ ] Other

State where samples were collected: CT

Data Format Call ULF*
[ ] Excel
[ ] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

GBK60366

Type of Analyses	No. of ~~Analyses~~ Bottles	
Volatile organic compounds (VOCs) by EPA Method 8260B using sample preservation methods	4 3	40 Ml VOAS, 1 4oz ~~%M~~
CT Extractable Total Petroleum Hydrocarbons (CT ETPH)	4 1	4oz
Polychlorinated Biphenyls by EPA Method 8082	4 1	"
Semi-volatile Organic compounds (SVOCs) by EPA Method 8270C	4 1	"
Waste Characterization Parameters • Ignitability / Flashpoint (Setaflash) - SW846 1020 • Reactive Cyanide - SW846 7.3.3 • Reactive Sulfide - SW846 7.3.4 • Corrosivity, pH - SW846 9040 • Conductivity - SW846 9045D	4 2	8oz
Total RCRA 8 Metals	4 1	4oz
Toxicity characteristic leachate procedure (TCLP) RCRA 8 Metals	4 1	"

TOTAL 3 40 Ml VOAS
6 4oz Glass Jars
2 8 oz Glass Jars

Appendix 6 – Soil Infiltration Investigation

APPENDIX 6
Soil Infiltration Investigation

March 17, 2015; File No. 0185-49.00

Re: CCSU Kaiser Hall
DAS Project No. BI-RC-393
New Britain, CT

For the purpose of estimating infiltration rates for use in the design of storm water features, we selected two borings in the general area planned for infiltration features and performed eight infiltration tests. Selected Borings were B-10 and B-10A. Refer to Appendix 2 for test boring logs and refer to Appendix 4 for laboratory gradation test data. The locations of these borings are shown as shown on Figure 2 (Appendix 1). Depth to groundwater in the tested areas is at least 17 feet below present ground surface

The infiltrometer tests were performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method) using the Boring Percolation Test Procedure. The details of this procedure are attached. The test method consists of installing well screens in 4- to 6-inch diameter holes, and directly measuring the time for water to percolate after a specified pre-soaking period. Bottom depth of the tests was either four feet or six feet below exiting site grades.

Test results are attached as Table 1 to 8 and summarized below. Test results indicate Stabilized Measured Percolation Rates (in inches per hour) ranging from about 5 to 10 in./hr. in B-10, and about 24 to 36 in./hr. in B-10A. Refer each table for the Stabilized Measured Percolation Rate and the corresponding reduction factor (R_f) for each test. Note that R_f = CF_t for the Boring Percolation Test Procedure.

Assuming CF_v and CF_s are both equal to 1.0, the calculated Design Infiltration Rate = Stabilized Measured Percolation Rate/CF_t. Based on our data the calculated Design Infiltration Rates are as follows:

Test Boring	Test Number	Design Infiltration Rate
B-10	1	0.7 in./hr.
B-10	2	2.0 in./hr.
B-10A	1	6.5 in./hr.
B-10A	2	4.6 in./hr.
B-10A	3	5.5 in./hr.
B-10A	4	4.8 in./hr.
B-10A	5	5.7 in./hr.
B-10A	6	3.5 in./hr.

Also, refer to Appendix 5, for a discussion of environmental conditions encountered at the site and their implications on infiltrating storm water at the site.

TABLE 1
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	1	Boring:	B-10
Test Depth (feet):	4.0	Borehole Depth (feet):	4.0
Test Date:	2/1/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall	Stickup (feet):	2.01
Depth to Groundwater:	No groundwater encountered		

Notes	Time	Below Reference: Depth with stickup (ft)	Below Reference: Depth without stickup (ft)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)
	9:25	3.01	1.00	-	-	-
	9:42	4.16	2.15	0:17	13.80	48.71
Presoak	9:50	3.95	1.94	0:08	-2.52	-18.90
	9:55	4.08	2.07	0:05	1.56	18.72
	10:25	4.35	2.34	0:30	3.24	6.48
Start Test	10:40	4.11	2.10	0:15	-2.88	-11.52
	10:45	4.19	2.18	0:05	0.96	11.52
	10:50	4.25	2.24	0:05	0.72	8.64
	11:00	4.32	2.31	0:10	0.84	5.04
	11:15	4.42	2.41	0:15	1.20	4.80
	11:45	4.56	2.55	0:30	1.68	3.36
	12:15	4.67	2.66	0:30	1.32	2.64
	13:00	4.76	2.75	0:45	1.08	1.44
	13:35	4.80	2.79	0:35	0.48	0.82
	14:00	4.83	2.82	0:25	0.36	0.86
End Test	14:45	4.95	2.94	0:45	1.44	1.92

* 4.92

*Stabilized Measured Percolation Rate (in/hr): 4.92

Reduction Factor: 7.39 $R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 19.68
$\Delta d = Water\ Level\ Drop\ (in.)$ = 1.02
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes:
1) Percolation Tests 1 & 2 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Screen was filled with coarse sand up to 1-foot below ground surface.

TABLE 2
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	2	Boring:	B-10
Test Depth (feet):	6.0	Borehole Depth (feet):	6.0
Test Date:	2/1/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall	Stickup (feet):	1.84
Depth to Groundwater:	No groundwater encountered		

Notes	Time	Below Reference: Depth with stickup (ft)	Below Reference: Depth without stickup (ft)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)
Presoak	9:45	4.84	3.00	-	-	-
	9:55	6.00	4.16	0:10	13.92	83.52
	10:25	6.72	4.88	0:30	8.64	17.28
Start Test	10:40	5.84	4.00	0:15	-10.56	-42.24
	10:45	5.95	4.11	0:05	1.32	15.84
	10:50	6.18	4.34	0:05	2.76	33.12
	11:00	6.35	4.51	0:10	2.04	12.24
	11:15	6.58	4.74	0:15	2.76	11.04
	11:45	6.91	5.07	0:30	3.96	7.92
	12:15	7.14	5.30	0:30	2.76	5.52
	13:00	7.35	5.51	0:45	2.52	3.36
	13:35	7.45	5.61	0:35	1.20	2.06
	14:00	7.52	5.68	0:25	0.84	2.02
End Test	14:45	7.60	5.76	0:45	0.96	1.28

*9.48

*Stabilized Measured Percolation Rate (in/hr): 9.48

Reduction Factor: 4.82 $R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 13.14
$\Delta d = Water\ Level\ Drop\ (in.)$ = 3.36
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes: 1) Percolation Tests 1 & 2 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Screen annulas was filled with coarse sand up to 3-feet below ground surface.

TABLE 3
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	1	Boring:	B-10A
Test Depth (feet):	4.0	Borehole Depth (feet):	4.0
Test Date:	2/2/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall/D. Pell	Stickup (feet):	1.93
Depth to Groundwater:	No groundwater encountered		

Notes	Time	Below Reference		Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)	
		Depth with stickup (ft)	Depth without stickup (ft)				
Presoak	8:30	2.93	1.00	-	-	-	
	8:32	3.28	1.35	0:02	4.20	126.00	
	8:50	4.85	2.92	0:18	18.84	62.80	
	9:00	5.13	3.20	0:10	3.36	20.16	
Start Test	9:03	3.85	1.92	0:03	-15.36	-307.20	
	9:08	4.08	2.15	0:05	2.76	33.12	
	9:13	4.49	2.56	0:05	4.92	59.04	
	9:18	4.68	2.75	0:05	2.28	27.36	*28.80
	9:28	5.10	3.17	0:10	5.04	30.24	
	9:38	5.30	3.37	0:10	2.40	14.40	
	10:08	5.50	3.57	0:30	2.40	4.80	
	10:38	5.50	3.57	0:30	0.00	0.00	
	11:03	5.65	3.72	0:25	1.80	4.32	
Refill	11:08	3.60	1.67	0:05	-24.60	-295.20	
	11:13	3.94	2.01	0:05	4.08	48.96	
	11:18	4.23	2.30	0:05	3.48	41.76	
	11:28	4.72	2.79	0:10	5.88	35.28	*30.60
	11:38	5.08	3.15	0:10	4.32	25.92	
End Test	12:08	5.55	3.62	0:30	5.64	11.28	

*Stabilized Measured Percolation Rate (in/hr): 29.70

Reduction Factor: 4.41 $R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 12.42
$\Delta d = Water\ Level\ Drop\ (in.)$ = 4.38
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes: 1) Percolation Tests 1 & 2 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Screen was filled with filter sand up to 1-foot below ground surface.

TABLE 4
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	2	Boring:	B-10A
Test Depth (feet):	6.0	Borehole Depth (feet):	6.0
Test Date:	2/2/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall/D. Pell	Stickup (feet):	2.03
Depth to Groundwater:	No groundwater encountered		

Notes	Time	Below Reference Depth with stickup (ft)	Below Reference Depth without stickup (ft)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)	
Presoak	8:30	5.03	3.00	-	-	-	
	8:32	4.81	2.78	0:02	-2.64	-79.20	
	8:50	6.95	4.92	0:18	25.68	85.60	
	9:00	7.38	5.35	0:10	5.16	30.96	
Start Test	9:04	5.72	3.69	0:04	-19.92	-298.80	
	9:08	5.92	3.89	0:04	2.40	36.00	
	9:13	6.35	4.32	0:05	5.16	61.92	
	9:18	6.49	4.46	0:05	1.68	20.16	* 23.76
	9:28	6.90	4.87	0:10	4.92	29.52	
	9:38	7.20	5.17	0:10	3.60	21.60	
	10:08	7.45	5.42	0:30	3.00	6.00	
	10:38	7.50	5.47	0:30	0.60	1.20	
	11:03	7.55	5.52	0:25	0.60	1.44	
Refill	11:10	5.80	3.77	0:07	-21.00	-180.00	
	11:13	5.90	3.87	0:03	1.20	24.00	
	11:18	6.21	4.18	0:05	3.72	44.64	
	11:28	6.58	4.55	0:10	4.44	26.64	* 25.92
	11:38	6.93	4.90	0:10	4.20	25.20	
End Test	12:08	7.55	5.52	0:30	7.44	14.88	

*Stabilized Measured Percolation Rate (in/hr): 24.84

Reduction Factor: 5.21

$$R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 14.52
$\Delta d = Water\ Level\ Drop\ (in.)$ = 3.77
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes: 1) Percolation Tests 1 & 2 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.

TABLE 5
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	3	Boring:	B-10A
Test Depth (feet):	4.0	Borehole Depth (feet):	4.0
Test Date:	2/2/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall/D. Pell	Stickup (feet):	1.93
Depth to Groundwater:	No groundwater encountered		

Notes	Time	Below Reference: Depth with stickup (ft)	Below Reference: Depth without stickup (ft)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)
Start Test	13:13	3.98	2.05	-	-	-
	13:16	4.12	2.19	0:03	1.68	33.60
	13:21	4.37	2.44	0:05	3.00	36.00
	13:26	4.57	2.64	0:05	2.40	28.80
	13:36	4.95	3.02	0:10	4.56	27.36
	13:46	5.18	3.25	0:10	2.76	16.56
	13:56	5.48	3.55	0:10	3.60	21.60
	14:06	5.54	3.61	0:10	0.72	4.32
End Test	14:16	5.50	3.57	0:10	-0.48	-2.88

*28.08

*Stabilized Measured Percolation Rate (in/hr): 28.08

Reduction Factor: 5.10 $R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 14.04
$\Delta d = Water\ Level\ Drop\ (in.)$ = 3.48
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes:
1) Percolation Tests 3 & 4 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Existing presoaked conditions due to Test #1 for B-10A being performed earlier that day.
4) Screen was filled with filter sand up to 1-foot below ground surface.

TABLE 6
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	4	Boring:	B-10A
Test Depth (feet):	6.0	Borehole Depth (feet):	6.0
Test Date:	2/2/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall/D. Pell	Stickup (feet):	2.03
Depth to Groundwater:	No groundwater encountered		

		Below Reference				
Notes	Time	Depth with stickup (ft)	Depth without stickup (ft)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)
Start Test	13:11	5.66	3.63	-	-	-
	13:16	6.00	3.97	0:05	4.08	48.96
	13:21	6.25	4.22	0:05	3.00	36.00
	13:26	6.40	4.37	0:05	1.80	21.60
	13:36	6.89	4.86	0:10	5.88	35.28
	13:46	6.94	4.91	0:10	0.60	3.60
	13:56	7.19	5.16	0:10	3.00	18.00
	14:06	7.38	5.35	0:10	2.28	13.68
End Test	14:16	7.50	5.47	0:10	1.44	8.64

* 31.0

*Stabilized Measured Percolation Rate (in/hr): 30.96

Reduction Factor: 6.47 $$R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 18.20
$\Delta d = Water\ Level\ Drop\ (in.)$ = 3.56
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes: 1) Percolation Tests 3 & 4 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Existing presoaked conditions due to Test #2 for B-10A being performed earlier that day.
4) Screen was filled with filter sand up to 3-feet below ground surface.

TABLE 7
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	5	Boring:	B-10A
Test Depth (feet):	4.0	Borehole Depth (feet):	4.0
Test Date:	2/2/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall/D. Pell	Stickup (feet):	1.93
Depth to Groundwater:	No groundwater encountered		

Notes	Time	Below Reference: Depth with stickup (ft)	Below Reference: Depth without stickup (ft)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)	
Start Test	14:30	3.19	1.26	-	-	-	
	14:35	3.59	1.66	0:05	4.80	57.60	
	14:40	3.84	1.91	0:05	3.00	36.00	* 36.0
	14:45	4.10	2.17	0:05	3.12	37.44	
	14:55	4.63	2.70	0:10	6.36	38.16	
	15:05	5.08	3.15	0:10	5.40	32.40	
	15:15	5.15	3.22	0:10	0.84	5.04	
	15:25	5.38	3.45	0:10	2.76	16.56	
	15:35	5.50	3.57	0:10	1.44	8.64	
End Test	15:45	5.50	3.57	0:10	0.00	0.00	

*Stabilized Measured Percolation Rate (in/hr): 36.00

Reduction Factor: 6.33 $R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 18.21
$\Delta d = Water\ Level\ Drop\ \ (in.)$ = 4.47
$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes: 1) Percolation Tests 5 & 6 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Existing presoaked conditions due to Tests #1 & #3 for B-10A being performed earlier that day.
4) Screen was filled with filter sand up to 1-foot below ground surface.

TABLE 8
BOREHOLE INFILTROMETER TEST DATA
CCSU KAISER HALL
NEW BRITAIN , CONNECTICUT
PROJECT NUMBER: 0185-049

Test #:	6	Boring:	B-10A
Test Depth (feet):	6.0	Borehole Depth (feet):	6.0
Test Date:	2/2/2016	Borehole Diameter (in):	6.0
Test Performed By:	R. Marshall/D. Pell	Stickup (feet):	2.03
Depth to Groundwater:	No groundwater encountered		

		Below Reference				
Notes	Time	Depth with stickup (ft.)	Depth without stickup (ft.)	Elapsed Time (mins)	Water Drop (in)	Percolation Rate (in/hr)
Start Test	14:33	5.38	3.35	-	-	-
	14:35	5.49	3.46	0:02	1.32	39.60
	14:40	5.81	3.78	0:05	3.84	46.08
	14:45	5.95	3.92	0:05	1.68	20.16
	14:55	6.40	4.37	0:10	5.40	32.40
	15:05	6.71	4.68	0:10	3.72	22.32
	15:15	6.76	4.73	0:10	0.60	3.60
	15:25	7.09	5.06	0:10	3.96	23.76
	15:35	7.42	5.39	0:10	3.96	23.76
End Test	15:45	7.43	5.40	0:10	0.12	0.72

*24.96

*Stabilized Measured Percolation Rate (in/hr): 24.96

Reduction Factor: 7.11

$$R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$$

$d_1 = Initial\ Water\ Depth\ (in.)$ = 20.12

$\Delta d = Water\ Level\ Drop\ (in.)$ = 3.60

$DIA = Diameter\ of\ the\ boring\ (in.)$ = 6.00

Reference: Test was performed in general accordance with USBR 7300-89 (Performing Field Permeability Testing by the Well Permeameter Method).

Notes:
1) Percolation Tests 5 & 6 were performed in adjacent, dedicated holes, approximately 6 ft. apart.
2) 2 in. Diameter PVC screen installed to test depth.
3) Existing presoaked conditions due to Tests #2 & #4 for B-10A being performed earlier that day.
4) Screen was filled with filter sand up to 3-feet below ground surface.

Boring Percolation Test Procedure

This procedure is similar to the USBR 7300-89 Well Permeameter Testing Procedure and is useful for LID features that are proposed at depth, since the depth of testing can be isolated with slotted sections of PVC pipe, surrounded by a bentonite cap, and placed at any depth in the borehole. It requires the application of a reduction factor to account for non-vertical flow. A figure is attached on Plate 3-A. Field log template with example are attached on Plates 3-C and 3-D.

1. Using a hollow-stem auger, advance the boring at least 12 inches below the elevation of proposed invert of infiltration. Rotate the auger until all cuttings are removed. Care shall be taken to ensure smearing of clayey soils does not occur along augered surface as this will dramatically reduce the final calculated infiltration rate. Record the boring diameter and depth to be tested.

2. Install through the auger, a 2- to 4-inch-diameter perforated PVC casing with a solid end cap. Perforations shall be 0.02 inch slot or larger. Pour filter pack down inside of auger while withdrawing the auger such that the PVC casing is surrounded by the filter pack. The filter pack and perforated casing must have a larger hydraulic conductivity than the soil or rock that is to be tested.

3. For boreholes drilled below the proposed invert of infiltration that are being converted to boring percolation tests, careful attention must be paid to isolate the depth of the test section with an impermeable cap above and below it. The annulus between the slotted PVC and native materials in the test section must be backfilled with well-draining sand. The borehole below the desired test section, and the annulus between solid PVC and native materials above the desired test section, must be backfilled with bentonite or similar low-permeability material. The borehole itself shall not create a path of less resistance for the water than the in-situ materials being tested.

4. Presoak the hole immediately prior to the percolation testing. Presoaking the test hole shall maintain a water level above the percolation testing level and at least 12 inches above the bottom of the boring. If the water seeps completely away within 30 minutes after filling the boring two consecutive times, and the subsurface exploration has yielded permeable soils beneath the proposed invert of infiltration, presoaking can be considered complete and the testing can proceed. If the water does not completely drain within 30 minutes, presoak the hole for at least 4 hours before conducting the infiltration test. A sounder or piezometer may be used to determine the water level. Record all water levels to the nearest ⅛-inch increment.

5. After presoaking, determine the time interval that will be used to measure the water drop readings for the percolation test. Fill the hole to a minimum depth of 12 inches above the top of the bentonite plug. Observe the drop in the water during the next 30 minutes and compare with the condition that applies below. This will determine the standard time interval for this test location:

   a. If no water remains in the hole, the time interval between readings shall be 10 minutes.

   b. If water remains in the hole, the time interval between readings shall be 30 minutes.

6. Once the time interval for the test has been determined, add water to the casing to the depth of soil to be tested. The water depth must be less than or equal to the water level used to presoak the hole and a minimum depth of 12 inches above the bentonite plug. For each successive percolation test reading, the starting water level must be at this initial water depth.

7. Conduct the percolation test by taking readings of the water drop from the initial water depth. Record the time and the drop in water level during the standard time interval determined in Step 5. Fill the boring back to the initial water depth.

8. Repeat the percolation test readings a minimum of eight times or until a stabilized rate of drop is obtained, whichever occurs first. A stabilized rate is when the highest and lowest readings are within 10 percent of each other from three consecutive readings.

9. The average drop of the stabilized rate over the last three consecutive readings is the preadjusted percolation rate at the test location, expressed in inches per hour. The preadjusted percolation rate must be reduced to account for the discharge of water from both the sides and bottom of the boring (i.e., non-vertical flow). Use the following formula to determine the infiltration rate:

   Reduction Factor (R_f) = $R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$

   With:
   d_1 = Initial Water Depth (in.)
   Δd = Water Level Drop of the Final Period or Stabilized Rate (in.)
   DIA = Diameter of the boring (in.)

CORRECTION FACTORS

Measured infiltration rates must be reduced with correction factors to determine design values that will represent long-term performance of the proposed infiltration BMPs. Test-specific correction factors are applied to account for the direction of flow during the test and calculations. The correction factor for site variability, number of tests performed, and thoroughness of subsurface investigation should be selected by comparing the size and scope of subsurface exploration to similar projects. The correction factor for siltation, plugging, and maintenance should be selected based on the specified levels of pre-treatment and maintenance for the proposed BMPs. For example, stormwater infiltration BMPs that are proposed with pretreatment components and regular maintenance programs, a correction factor of 1 may be appropriate; for BMPs that are proposed to infiltrate untreated flow with unspecified maintenance programs, a high level of siltation and plugging is to be expected and a correction factor of 3 is likely more appropriate.

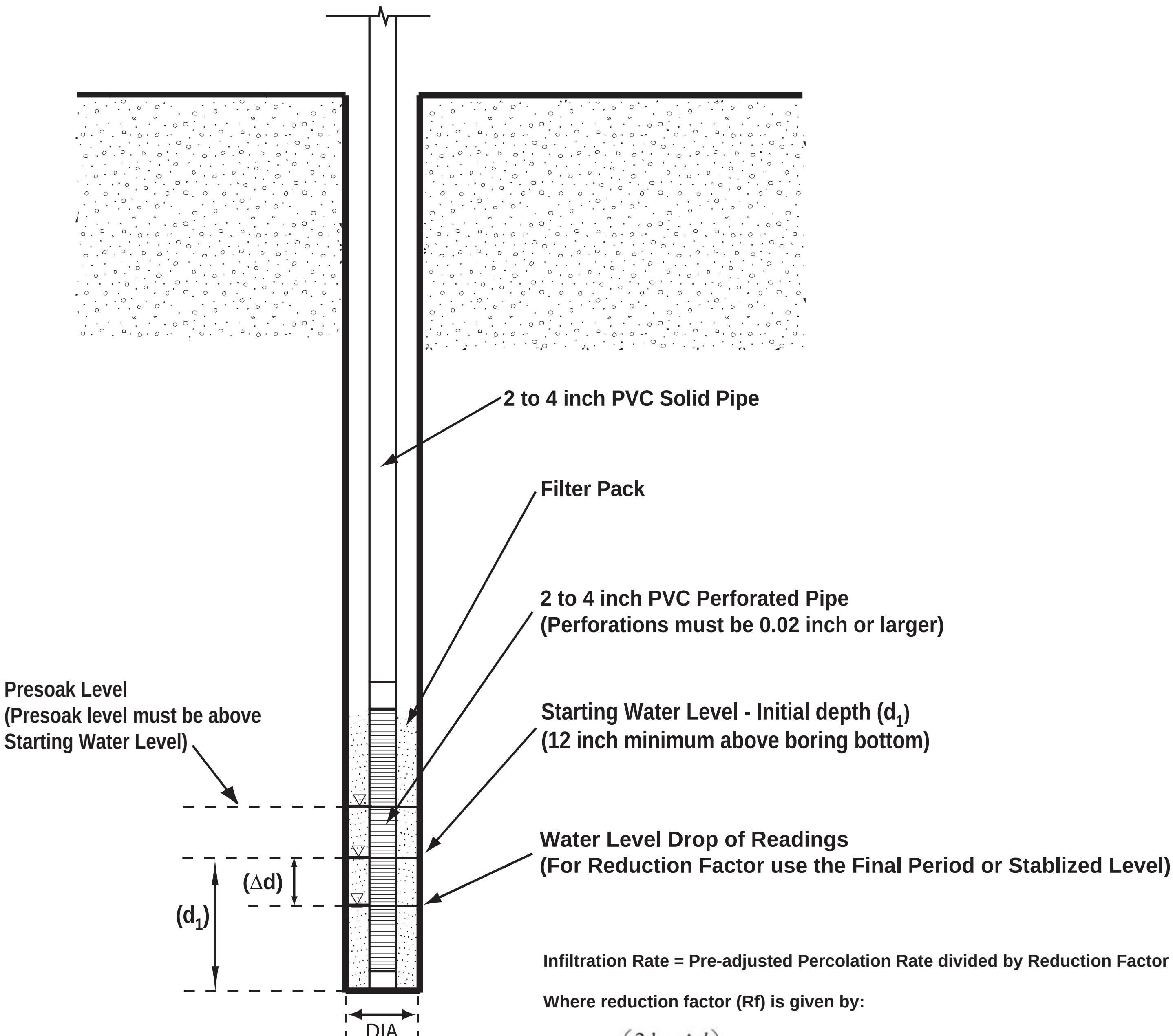
The following table provides guidance for the range of values used for each factor. The geotechnical consultant shall determine site-specific correction factors and provide substantiating data and analyses to justify the selection. All correction factors will be subject to review and approval by the County.

Correction Factors Applied to Measured Infiltration Rates	
Double-ring infiltrometer	$CF_t = 1$
Well permeameter	$= 1$
Boring percolation	See test procedures = R_f
Excavation percolation	See test procedures = R_f
High flow-rate percolation	$= 2$
Policy for new percolation basins	$= 2$
Site variability, number of tests, and thoroughness of subsurface investigation	$CF_v = 1$ to 3
Long-term siltation, plugging and maintenance	$CF_s = 1$ to 3

Total Correction Factor, $CF = CF_t \times CF_v \times CF_s$

Design Infiltration Rate = Measured Percolation Rate/CF

County of Los Angeles Administrative Manual
Low Impact Development - Best Management Practice GS200.1
Infiltration Testing Procedures
Boring Percolation Testing Method



Infiltration Rate = Pre-adjusted Percolation Rate divided by Reduction Factor

Where reduction factor (Rf) is given by:

$$R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$$

With:
d1 = Initial Water Depth (in.)
Δd = Water Level Drop of Final Period or Stablized Level (in.)
DIA = Diameter of the boring (in.)

Appendix 7 – Limitations

LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

3. Water level readings have been made in drill holes at times and under conditions stated on the boring logs and in the report. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors occurring since the time measurements were made.

Limited Environmental Testing

4. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by Client.

5. Observations were made of site soils as indicated within the report. Where access to portions of the site was unavailable or limited, GeoDesign renders no opinion as to the presence of hazardous material or oil, or to the presence of indirect evidence relating to hazardous material or oil, in that portion of the site.

6. Unless otherwise specified in the report, GeoDesign did not perform testing or analyses to determine the presence or concentration of asbestos or polychlorinated biphenyls (PCB's) at the site or in the environment at the site.

7. In part, the purpose of this report was to preliminarily assess the physical characteristics of site soils with respect to the presence in the environment of hazardous material or oil. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

8. The conclusions and recommendations contained in this report are based in part upon the data obtained from a limited number of soil and/or groundwater samples obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and

recommendations of this report.

9. Except as noted within the text of the report, no quantitative laboratory testing was performed as part of our scope of work. Where such analyses have been conducted by an outside laboratory, GeoDesign has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these data.

10. Except as noted within the text of the report, no quantitative laboratory testing was performed as part of our scope of work. Where such analyses have been conducted by an outside laboratory, GeoDesign has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these data.

11. The conclusions and recommendations contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. As indicated within the report, some of these data are preliminary "screening" level data, and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by GeoDesign, and the conclusions and recommendations presented herein modified accordingly.

12. Chemical analyses have been performed for specific parameters during the course of this study, as described in the text. However, it should be noted that additional chemical constituents not searched for during the current study may be present in soil and/or groundwater at the site.

Review

13. In the event that any changes in the nature, design or location of the proposed CCSU Kaiser Hall Addition, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by Geo**Design**. It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

14. It is recommended that GeoDesign be retained to provide further engineering services during construction and/or implementation of any remedial measures recommended in this report. This is to allow GeoDesign to observe compliance with the concepts and recommendations contained herein, and to allow the development of design changes in the event that subsurface conditions differ from those anticipated.

Use of Report

15. This report has been prepared for the exclusive use of Sasaki Associates and their design consultants for specific application to the proposed CCSU Kaiser Hall Addition Project in New Britain, Connecticut, in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

APPENDIX B

Appendix B - TRC Solutions
Limited Soil Assessment, Kaiser Hall at CCSU
New Britain, Connecticut TRC
Project No. 260041
Dated October 28, 2016
117 Pages

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Windsor, CT 06095

860.298.9692 PHONE
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www.TRCsolutions.com

October 28, 2016

Mr. Peter Simmons, P.E.
Project Manager
Division of Construction Services
165 Capital Avenue, Room 460
Hartford, CT 06106

RE: Limited Soil Assessment
Kaiser Hall at CCSU
New Britain, Connecticut
TRC Project No. 260041

Dear Mr. Simmons,

This report provides the results of our Limited Soil Assessment Program and associated environmental recommendations for the Proposed Central Connecticut State University (CCSU) Kaiser Hall Addition in New Britain, Connecticut. This work was completed in accordance with our proposal dated July 22, 2016.

Background

This investigation was designed to determine the disposition of soils broadly across the proposed Kaiser Hall building footprint vicinity and the area of the drainage structure to be installed to the north of the proposed building. Note that GeoDesign, Inc. (GeoDesign) conducted a geotechnical investigation within the project area in February 2016. The complete results of that investigation were presented in a report entitled "Geotechnical Engineering and Preliminary Environmental Characterization Report" dated March 17, 2016. Thirteen soil borings, identified on Figure 1 as B-1 through B-12 and B-10A, were completed as part of that investigation. GeoDesign collected soil samples from two of the borings (identified as B-1 and B-10) for laboratory analysis. The relevant analytical results from those two samples are included in this report for completeness.

Existing Conditions

The project area is surrounded by Ella Grasso Boulevard to the north, Kaiser Drive to the east and the existing Kaiser Hall building to the south. The student center parking garage and mid-campus residence hall are located to the west of the project area. The project area is currently occupied by a large air-supported structure (the Kaiser Hall Annex), three tennis courts and two basketball courts. Kaiser Hall is connected to the Kaiser Hall Annex via a narrow, covered hallway. Current conditions are shown on Figure 1.

Proposed Construction

Based on information provided to TRC, the existing air-supported structure will be demolished as part of this project and replaced by an approximately 70,000 square foot recreation center. The proposed building will be two stories, primarily slab-on-grade, with a small mechanical room basement. In addition, a new drainage basin will be installed to the north of the proposed building.

Based on the information provided to TRC, excavations performed in support of the proposed construction project will range from four to sixteen feet below existing grade in the areas immediately surrounding the current building and the location of the new drainage basin. The proposed building footprint and approximate excavation depths as provided by the project design team are shown on Figure 1.

Environmental Review

To obtain information on the environmental setting for the project area, TRC obtained an environmental database report, historic aerial photographs and historic topographic maps from Environmental Data Resources (EDR) of Shelton, Connecticut. No development is visible within the project area on aerial photographs from 1934, 1942, 1957, 1962 and 1965. Nine tennis courts are visible within the project area on aerial photographs from 1970 through 1986. The present day air-supported structure becomes visible on the 1992 aerial photograph and remains unchanged from the present day layout in aerial photographs through 2012. Six tennis courts are visible to the north of the air-supported structure on aerial photographs from 1992 through 2006. The current configuration of three tennis courts and two basketball courts is visible on the aerial photographs from 2008 through 2012. No additional information regarding the development history of the project area could be gleaned from the historic topographic maps reviewed by TRC.

A total of 39 database records related to the CCSU campus were identified in the EDR database report. None of the records presented in the database report could be specifically linked to the project area.

Regulatory Setting

Although the project site is not subject to the Transfer Act, the Voluntary Cleanup Program, nor the requirements of a Consent Order, the soil analytical results were compared to the Connecticut Remediation Standard Regulations (RSRs) to evaluate the levels of any detected contaminants within the investigated areas. This allows for management of any contaminated media encountered during the impending construction activities in a manner consistent with applicable regulations.

The reported concentrations for soils were compared to the Residential Direct Exposure Criteria (RES DEC), the Industrial/Commercial Direct Exposure Criteria (I/C DEC) and the GA Pollutant Mobility Criteria (GA PMC) under the RSRs. In addition, the Toxicity Characteristic Leaching Procedure (TCLP) metals results were compared to the toxicity characteristic threshold values presented in 40 CFR 261.24.

The reported sample results were also compared to the unlined and lined landfill reuse criteria presented in the documented entitled “Reuse and Disposal of Contaminated Soil at Massachusetts Landfills, Department of Environmental Protection Policy # COMM-97-001”.

Preliminary Activities

Prior to beginning the investigation, TRC marked the proposed boring locations at the site with white paint on the pavement. “Call Before You Dig” (CBYD) was contacted by Glacier Drilling, Inc. (Glacier) of Durham, Connecticut to mark the locations of buried utilities in the proposed work zones. In addition, TRC contracted Underground Surveying, LLC of Brookfield, Connecticut, a private utility mark-out service, to conduct a more detailed on-site mark-out given the presence of several utilities within the work areas. Photographs from the underground utility survey are included in Attachment A.

Preliminary activities also included the preparation of a Health and Safety Plan (HASP) to address the field work to be completed as part of this investigation.

Soil Boring Program

A total of 12 soil borings were advanced on August 5, 2016 by Glacier under the direct supervision of TRC personnel. The borings were advanced utilizing a track-mounted GeoProbe™ direct-push drill rig. Soil cores were collected continuously from the ground surface to depths up to 16 feet below grade (ftbg).

Each four-foot soil core, collected in an acetate Macro-Core® liner, was logged with respect to soil characteristics (i.e., grain size, moisture content and any other physical characteristics) and indications of potential impacts (e.g., stains and odors). In addition, each core was field-screened using a photoionization detector (PID) prior to the collection of soil samples for analysis. Soil boring logs are presented in Attachment B. The soil boring/sampling locations (identified as SB-1 through SB-12) are shown on Figure 1.

No staining, odors or elevated PID readings were noted in any of the soil cores collected as part of this investigation. In general, soils encountered during this investigation were comprised of reddish-brown fine-to-medium sand, with varying amounts of coarse-grained sand and gravel. Groundwater was not encountered in any of the soil borings drilled as part of this investigation. Note that groundwater was encountered at depths between 15 and 17 feet below grade in three of the soil borings advanced as part of the previous geotechnical investigation.

One soil sample was collected from each of the soil borings. Soil samples were collected as a composite along the entire drilled depth at each location. Note that the volatile organic compound (VOC) aliquot was collected from a discrete location within each boring. Soil samples submitted to the laboratory for VOC analysis were collected in accordance with EPA Method 5035. This method outlines the collection of soil samples, without homogenization and with minimal disturbance, into extraction solvents. Soils collected for the remaining constituents were homogenized in dedicated stainless steel bowls utilizing dedicated stainless steel spoons. The soils were placed in properly labeled laboratory provided glassware and packed in a cooler with ice for sample preservation. Utilizing proper chain- of-custody procedures, the samples were submitted to Phoenix

Environmental Laboratories of Manchester, CT. All samples collected were submitted to Phoenix for the following analysis list that was developed considering disposal parameters and potential hazardous materials:

- Volatile Organic Compounds (VOCs)(EPA Methods 5035 and 8260),
- Semi-Volatile Organic Compounds (SVOCs)(EPA Method 8270),
- Total and TCLP Resource Conservation and Recovery Act (RCRA) 8 Metals (EPA Methods 6010B and 7471A),
- Extractable Total Petroleum Hydrocarbons (ETPH) (Connecticut Department of Environmental Protection Extractable Total Petroleum Hydrocarbons Method),
- Polychlorinated Biphenyls (PCBs) (EPA Method 8082),
- Cyanide by EPA Method 9010, Reactive Sulfide, conductivity, flashpoint and pH.

The laboratory analytical report for the samples collected by TRC is provided in Attachment C. As previously mentioned, two soil samples were also collected by GeoDesign during their investigation from borings B-1 and B-10. These two samples were submitted by GeoDesign to Phoenix for the same analyses as those listed above. The analytical results from both investigations are summarized in Table 1.

None of the soils represented by the samples collected as part of this investigation or those by GeoDesign are considered to be characteristically hazardous waste as defined in RCRA based on the results of the ignitability, pH, reactivity and TCLP metals analyses.

All of the total metals concentrations reported for samples collected by TRC and GeoDesign were below the RES DEC. Given the very consistent nature of the metals concentrations noted in all of the soil samples, the reported metals concentrations are likely representative of naturally occurring or background conditions. Note that while none of the TCLP metals results exceed the hazardous waste thresholds, the TCLP lead concentrations reported in the GeoDesign soil sample B-1 and TRC soil sample SB-7 do exceed the GA PMC. None of the other reported TCLP metals concentrations exceed the GA PMC.

ETPH was not reported above analytical detection limits in any of the soil samples collected by TRC. ETPH was reported above the analytical detection limit in the GeoDesign soil sample B-10 at a concentration of 70 parts per million (ppm).

PCBs were not reported above analytical detection limits in any of the soil samples collected by TRC or GeoDesign.

VOCs were reported above analytical detection limits in soil sample B-10 collected as part of GeoDesign's earlier effort. The reported concentration of naphthalene (10 ppm) exceeds the GA PMC. The reported total concentration of VOCs (14.88 ppm) in that sample also exceeded the criteria for acceptance at a Massachusetts unlined or lined landfill. VOCs were not reported above detection limits in any of the other samples collected as part of either investigation.

SVOCs were reported at concentrations above analytical detection limits in the soil samples SB-2, SB-4, SB-6, SB-7, SB-10, SB-11 and in GeoDesigns's sample B-10. None of the reported concentrations of SVOCs exceeded the RES DEC or GA PMC.

Soil Management

Based on the results of the soil sampling, soils generated as part of the future construction project fall into one of three categories as defined below and should be managed as designated in the sections that follow.

Soil Categories

Clean Soil: Soils within this category contain only naturally occurring concentrations of metals. Based on the consistent metals concentrations noted in each of the soil samples collected at the site, these metals concentrations are considered representative of background conditions. There were no detectable concentrations ETPH, PCBs, VOCs or SVOCs in any of the soils represented by the samples collected from soil boring locations SB-1, SB-3, SB-5, SB-8, SB-9 and SB-12. Soils within this category include those that do not fall within one of the red, blue or purple outlined areas shown on Figure 1.

Polluted Soil: Soils within this category are polluted with SVOCs at concentrations below the RES DEC and GA PMC. These soils are represented by the samples collected from borings SB-4, SB-6, SB-10 and SB-11. Soils in this category fall within the blue outlined areas shown on Figure 1.

Contaminated Soil: Soils within this category contain concentrations of constituents in excess of RSR criteria. Specifically, the reported concentrations of TCLP lead exceed the GA PMC at the SB-7 and B-1 locations. The naphthalene concentration in the sample collected from the GeoDesign boring location B-10 (which is located adjacent to the TRC boring location SB-2) exceeded the GA PMC. Note that due to the close proximity of SB-2 to B-10, soils at the SB-2 location are considered contaminated. Soils within this category fall within the red or purple outlined areas shown on Figure 1.

Soil Management Options

On-site Reuse: Soils identified as clean or polluted (see Figure 1) may be reused on-site. As it is DCS's policy not to re-use polluted soils at any off-site location, any excess polluted soils from the construction project will need to be disposed of. As indicated in Table 1, all soils identified as being polluted meet the Massachusetts COMM-97 policy limits for lined or unlined landfills.

Note that the contaminated soil identified within the red outlined area on Figure 1 may be considered for reuse on-site, however, it's potential use should be limited to the area beneath the proposed building footprint. As the soils in the area around B-1/SB-7 are impacted with leachable lead, their reuse under the building would render them isolated. Therefore, the intent of the regulations is met.

Should soils determined to be "contaminated" or "polluted" be reused on-site, an Operations and Maintenance Plan (O&M Plan) should be developed at the completion of construction. The O&M

Plan will serve as a permanent record of how and where contaminated or polluted soils were used. The O&M Plan would serve as a useful tool in aiding future construction activities, responding to potential CTDEEP audits, securing project financing and aiding in potential transfers of the property to other parties.

Off-site Disposal: As indicated above, any excess polluted soils derived from this project meet the Massachusetts COMM-97 policy limited for both lined and unlined landfills and should be disposed of (reused) in one such place. If it is determined that the contaminated soils identified on Figure 1 within the red outlined area are not or cannot (based on physical characteristics) be used underneath the proposed building footprint, it too qualifies for disposal at a Massachusetts landfill. Based on the total VOC concentrations in soils outlined in purple on Figure 1, they do not qualify for on-site reuse or disposal at a Massachusetts landfill. Rather, these soils qualify for "disposal" at an asphalt batching plant.

Table 2 summarizes the various soil management requirements for this project, along with estimated excess soil allowances. Note that the quantities listed in Table 2 are approximate and include soils displaced by the new building, soils generated from excavations for the new foundation and soils potentially excavated in support of the new drainage structure. The actual quantities of excess soil for which there is no on-site reuse option will depend on the actual volumes of soil excavated from the areas outlined on Figure 1. The quantities of excess soils which have an on-site reuse option can be reduced considerably if such soils are reused onsite. Therefore, all quantities listed in Table 2 should be considered allowances for preliminary pricing purposes only.

Contractor excavation activities should be monitored to ensure that regulated materials are handled appropriately. This would include maintaining appropriate shipping paperwork for soils transported to off-site facilities and ensure that soils reused on-site are placed appropriately.

Permits

If excavated soils are direct-loaded onto trucks for disposal at approved off-site facilities, a CTDEEP General Permit for Contaminated Soil and or Sediment Management (Staging and Transfer) will not be required. The ultimate need for this permit should be reevaluated once a Contractor is selected and the construction sequence and logistics are determined.

It does not appear that groundwater will be encountered during construction activities. Therefore, groundwater management and associated permitting will not be needed.

Additional Chemical Testing

The analytical data presented in this report was obtained from the soil borings discussed in this report which were advanced within the limits of the proposed construction area as it is currently understood. Additional soil sampling may be warranted depending on future changes in the location, nature and design of the proposed structures and the contractor's approach to the work.

In addition, the disposal facilities that are ultimately chosen by the contractor may require additional sampling at a frequency higher than that performed as part of this program. Such additional sampling would typically be conducted once the disposal facilities have been identified, typically either just before or soon after construction begins.

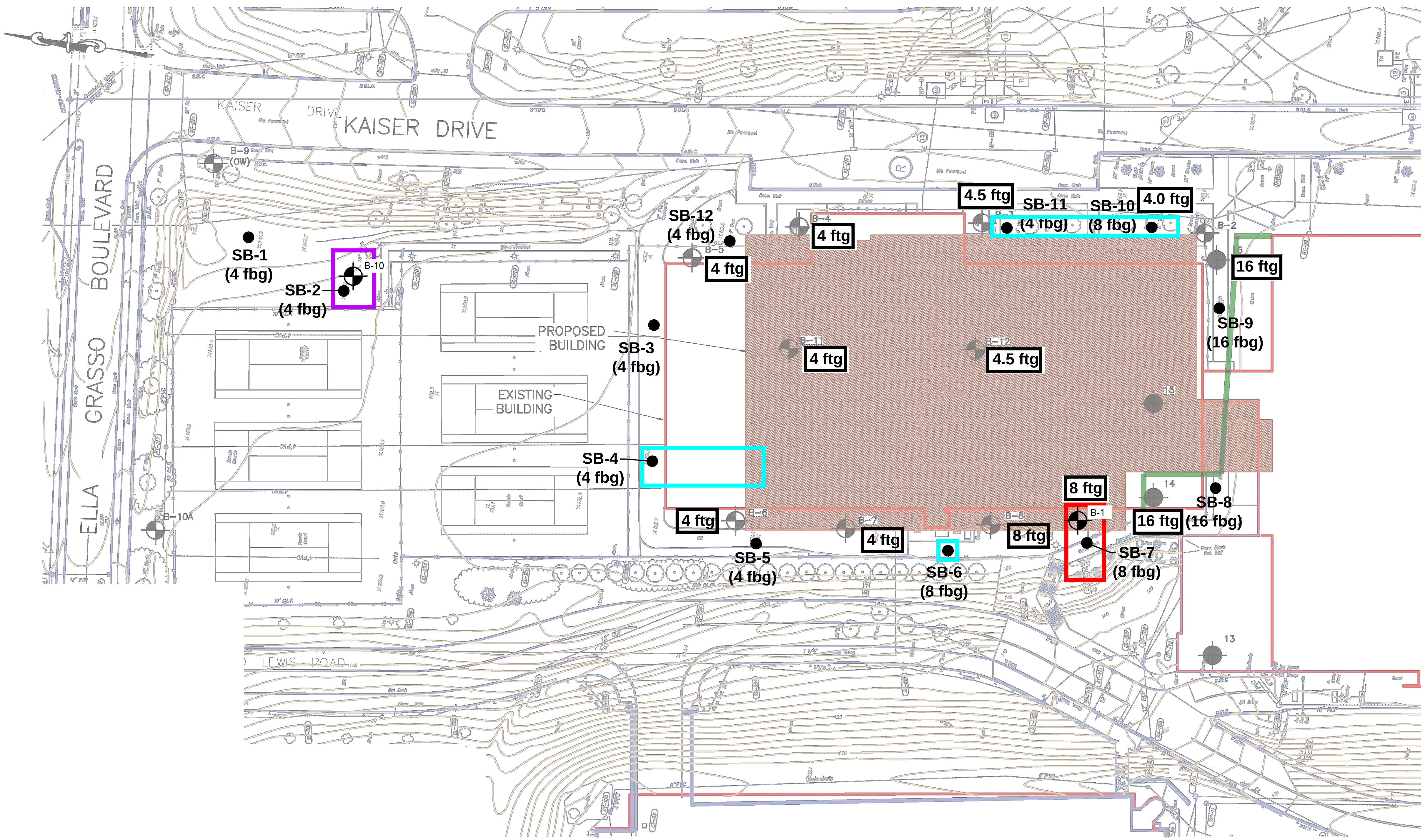
If you have any questions, please contact me at (860) 298-6226.

Sincerely,

TRC ENVIRONMENTAL CORPORATION

Marya B Mahoney

Marya Mahoney, LEP
Senior Project Manager
Attachments



LEGEND

- ● TRC SOIL BORING LOCATION
- (4 fbg) SOIL BORING DEPTH IN FEET BELOW GRADE (fbg)
- B-1 GEODESIGN BORING LOCATION
- POLLUTED SOIL (ON-SITE REUSE AND/OR OFF-SITE DISPOSAL)
- CONTAMINATED SOIL: (ON-SITE REUSE AND/OR OFF-SITE DISPOSAL)
- CONTAMINATED SOIL (OFF-SITE DISPOSAL ONLY, SOIL MEETS CRITERIA FOR ASPHALT BATCHING)
- ANTICIPATED DEPTH OF CONSTRUCTION EXCAVATION

NOTE:
BASE INFORMATION TAKEN FROM DRAWING BY GEODESIGN CORP. PROJECT: CCSU KAISER HALL, NEW BRITAIN, CT , TITLE: EXPLORATION LOCATION PLAN, PROJECT NO. 0182-049.00, SCALE: 1"=50', DATE: 02/04/2016, FIGURE 2, DESIGN: ULF, DRAWN: VAM, CHECK BY: ULF, APPROVED BY: ULF.

0 60' 120'
GRAPHIC SCALE

PROJECT:	CENTRAL CONNECTICUT STATE UNIVERSITY KAISER HALL KAISER DRIVE, CONNECTICUT
TITLE:	SOIL BORING LOCATION PLAN
DRAWN BY:	REA
CHECKED BY:	CL
APPROVED BY:	ST
DATE:	10/28/16
PROJ NO.:	260041.000000.000001
	FIGURE 1
	TRC
FILE NO.:	Plate-1.dwg

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: J:\CAD\New Britain\CCSU KAISER HALL- 260041\000001 Plate-1.dwg --- PLOT DATE: October 28, 2016 - 10:27AM --- LAYOUT: Figure-1

Central Connecticut State University
1615 Stanley Street
New Britain, Connecticut 06053
Kaiser Annex
TRC Project Number: 260041.000001
Table 1
Project Id : CCSU-KAISER ANNEX

Sample Depth (feet below grade)
Collection Date
Client Id
Soil Category

Parameter	Units	CT RSRs GA PMC	CT RSRs RES DEC	CT RSRs I/C DEC	Federal Regs 40 CFR 261.24	Massachusetts Landfill Criteria Lined	Massachusetts Landfill Criteria Unlined
Miscellaneous/Inorganics							
Conductivity - Soil Matrix	umhos/cm					8000	4000
Corrosivity	Pos/Neg						
Flash Point	Degree F						
Ignitability	degree F						
pH - Soil	pH Units						
Reactivity Cyanide	mg/Kg						
Reactivity Sulfide	mg/Kg						
Reactivity	Pos/Neg						
Metals, Total							
Arsenic	mg/Kg		10	10		40	40
Barium	mg/Kg		4700	140000			
Cadmium	mg/Kg		34	1000		80	30
Chromium	mg/Kg		NE	NE		1000	1000
Lead	mg/Kg		400	1000		2000	1000
Mercury	mg/Kg		20	610		10	10
Selenium	mg/Kg		340	10000			
Silver	mg/Kg		340	10000			
Metals, TCLP							
TCLP Arsenic	mg/L	0.05			5		
TCLP Barium	mg/L	1			100		
TCLP Cadmium	mg/L	0.005			1		
TCLP Chromium	mg/L	0.05			5		
TCLP Lead	mg/L	0.015			5		
TCLP Mercury	mg/L	0.002			0.2		
TCLP Selenium	mg/L	0.05			1		
TCLP Silver	mg/L	0.036			5		
TPH By CTETPH 8015D							
Ext. Petroleum HC	mg/Kg	500	500	2,500		5000	2500
PCBs By SW8082A							
All PCBs < Reporting Limit							
Volatiles By SW8260C							
Ethylbenzene	mg/Kg	10.1	500	1000			
m&p-Xylene	mg/Kg						
Naphthalene	mg/Kg	5.6	1000	2500			
n-Butylbenzene	mg/Kg						
o-Xylene	mg/Kg						
Total Xylenes	mg/Kg	19.5	500	1000			
Total VOCs	mg/Kg					10	4
Semivolatiles By SW8270D							
Benz(a)anthracene	mg/Kg	1	1	7.8			
Benzo(a)pyrene	mg/Kg	1	1	1			
Benzo(b)fluoranthene	mg/Kg	1	1	7.8			
Benzo(ghi)perylene	mg/Kg	NE	NE	NE			
Benzo(k)fluoranthene	mg/Kg	1	8.4	78			
Bis(2-ethylhexyl)phthalate	mg/Kg	1	44	0.41			
Chrysene	mg/Kg	NE	NE	NE			
Fluoranthene	mg/Kg	5.6	1000	2500			
Indeno(1,2,3-cd)pyrene	mg/Kg	NE	NE	NE			
Phenanthrene	mg/Kg	4	1000	2500			
Pyrene	mg/Kg	4	1000	2500			
Total SVOCs	mg/Kg			2500		100	100

Parameter	4 8/5/2016 SB-1 Clean		4 8/5/2016 SB-2 Contamintated*		4 8/5/2016 SB-3 Clean		4 8/5/2016 SB-4 Polluted		4 8/5/2016 SB-5 Clean		8 8/5/2016 SB-6 Polluted		8 8/5/2016 SB-7 Contaminated	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Miscellaneous/Inorganics														
Conductivity - Soil Matrix	9	5	31	5	53	5	28	5	26	5	37	5	42	5
Corrosivity	Negative		Negative		Negative		Negative		Negative		Negative		Negative	
Flash Point	>200	200	>200	200	>200	200	>200	200	>200	200	>200	200	>200	200
Ignitability	Passed	140	Passed	140	Passed	140	Passed	140	Passed	140	Passed	140	Passed	140
pH - Soil	7.19	0.10	7.22	0.10	8.41	0.10	8.27	0.10	8.18	0.10	7.56	0.10	7.55	0.10
Reactivity Cyanide	< 5.6	5.6	< 5.3	5.3	< 5.3	5.3	< 5.5	5.5	< 5.4	5.4	< 5.6	5.6	< 5.7	5.7
Reactivity Sulfide	< 20	20	< 20	20	< 20	20	< 20	20	< 20	20	< 20	20	< 20	20
Reactivity	Negative		Negative		Negative		Negative		Negative		Negative		Negative	
Metals, Total														
Arsenic	3.6	0.73	4.5	0.66	3.77	0.72	3.51	0.73	3.27	0.74	4.11	0.79	3.67	0.81
Barium	72.4	0.37	81.9	0.33	73.9	0.36	72	0.37	52	0.37	71.3	0.39	64.2	0.40
Cadmium	< 0.37	0.37	< 0.33	0.33	< 0.36	0.36	< 0.37	0.37	< 0.37	0.37	< 0.39	0.39	< 0.40	0.40
Chromium	20.5	0.37	18.4	0.33	20.6	0.36	20.4	0.37	16.9	0.37	22.5	0.39	18.5	0.40
Lead	12.3	0.37	21.7	0.33	10.1	0.36	9.07	0.37	7.69	0.37	10.8	0.39	10.2	0.40
Mercury	< 0.03	0.03	0.09	0.03	< 0.03	0.03	< 0.03	0.03	< 0.03	0.03	< 0.03	0.03	< 0.03	0.03
Selenium	< 1.5	1.5	< 1.3	1.3	< 1.4	1.4	< 1.5	1.5	< 1.5	1.5	< 1.6	1.6	< 1.6	1.6
Silver	< 0.37	0.37	< 0.33	0.33	< 0.36	0.36	< 0.37	0.37	< 0.37	0.37	< 0.39	0.39	< 0.40	0.40
Metals, TCLP														
TCLP Arsenic	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01
TCLP Barium	0.51	0.01	0.6	0.01	0.64	0.01	0.49	0.01	0.38	0.01	0.53	0.01	0.59	0.01
TCLP Cadmium	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005
TCLP Chromium	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010
TCLP Lead	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	0.024	0.010
TCLP Mercury	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002	0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002
TCLP Selenium	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01
TCLP Silver	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010
TPH By CTETPH 8015D														
Ext. Petroleum HC	< 54	54	< 55	55	< 54	54	< 54	54	< 54	54	< 56	56	< 56	56
PCBs By SW8082A														
All PCBs < Reporting Limit	< 0.37	0.37	< 0.36	0.36	< 0.36	0.36	< 0.37	0.37	< 0.37	0.37	< 0.38	0.38	< 0.38	0.38
Volatiles By SW8260C														
Ethylbenzene	< 0.0058	0.0058	< 0.0045	0.0045	< 0.0045	0.0045	< 0.0043	0.0043	< 0.0046	0.0046	< 0.0045	0.0045	< 0.0042	0.0042
m&p-Xylene	< 0.0058	0.0058	< 0.0045	0.0045	< 0.0045	0.0045	< 0.0043	0.0043	< 0.0046	0.0046	< 0.0045	0.0045	< 0.0042	0.0042
Naphthalene	< 0.0058	0.0058	< 0.0045	0.0045	< 0.0045	0.0045	< 0.0043	0.0043	< 0.0046	0.0046	< 0.0045	0.0045	< 0.0042	0.0042
n-Butylbenzene	< 0.0058	0.0058	< 0.0045	0.0045	< 0.0045	0.0045	< 0.0043	0.0043	< 0.0046	0.0046	< 0.0045	0.0045	< 0.0042	0.0042
o-Xylene	< 0.0058	0.0058	< 0.0045	0.0045	< 0.0045	0.0045	< 0.0043	0.0043	< 0.0046	0.0046	< 0.0045	0.0045	< 0.0042	0.0042
Total Xylenes	< 0.0058	0.0058	< 0.0045	0.0045	< 0.0045	0.0045	< 0.0043	0.0043	< 0.0046	0.0046	< 0.0045	0.0045	< 0.0042	0.0042
Total VOCs														
Semivolatiles By SW8270D														
Benz(a)anthracene	< 0.25	0.25	0.62	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Benzo(a)pyrene	< 0.25	0.25	0.67	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Benzo(b)fluoranthene	< 0.25	0.25	0.59	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Benzo(ghi)perylene	< 0.25	0.25	0.44	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	0.42	0.26
Benzo(k)fluoranthene	< 0.25	0.25	0.47	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Bis(2-ethylhexyl)phthalate	< 0.25	0.25	< 0.25	0.25	< 0.25	0.25	0.3	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Chrysene	< 0.25	0.25	0.68	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Fluoranthene	< 0.25	0.25	1.1	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	0.55	0.26	< 0.26	0.26
Indeno(1,2,3-cd)pyrene	< 0.25	0.25	0.45	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	< 0.26	0.26	< 0.26	0.26
Phenanthrene	< 0.25	0.25	0.34	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	0.32	0.26	< 0.26	0.26
Pyrene	< 0.25	0.25	1.1	0.25	< 0.25	0.25	< 0.26	0.26	< 0.25	0.25	0.48	0.26	< 0.26	0.26
Total SVOCs			6.46				0.3				1.35		0.42	

Parameter	16 8/5/2016 SB-8 Clean		16 8/5/2016 SB-9 Clean		8 8/5/2016 SB-10 Polluted		4 8/5/2016 SB-11 Polluted		4 8/5/2016 SB-12 Clean		4 2/2/2016 B-1** Polluted		4 2/2/2016 B-10** Contaminated	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Miscellaneous/Inorganics														
Conductivity - Soil Matrix	110	5	290	5	73	5	49	5	21	5	100		26	
Corrosivity	Negative		Negative		Negative		Negative		Negative		Negative		Negative	
Flash Point	>200	200	>200	200	>200	200	>200	200	>200	200	>200	200	>200	200
Ignitability	Passed	140	Passed	140	Passed	140	Passed	140	Passed	140	Passed	140	Passed	140
pH - Soil	6.95	0.10	9.58	0.10	8.24	0.10	7.94	0.10	7.53	0.10	7.66	0.10	6.82	0.10
Reactivity Cyanide	< 5.4	5.4	< 5.3	5.3	< 5.0	5.0	< 4.9	4.9	< 5.2	5.2	< 5.7	4.9	<6.1	5.2
Reactivity Sulfide	< 20	20	< 20	20	< 20	20	< 20	20	< 20	20	< 20	20	< 20	20
Reactivity	Negative		Negative		Negative		Negative		Negative		Negative		Negative	
Metals, Total														
Arsenic	3.54	0.74	3.9	0.68	3.67	0.66	3.64	0.75	3.11	0.76	5.3		6.7	
Barium	64.3	0.37	89.2	0.34	82.3	0.33	73	0.37	57.3	0.38	81.2		114	
Cadmium	< 0.37	0.37	< 0.34	0.34	< 0.33	0.33	< 0.37	0.37	< 0.38	0.38	< 0.38		< 0.36	
Chromium	22	0.37	25.7	0.34	23.1	0.33	21.1	0.37	15.6	0.38	25.4		27.5	
Lead	9.89	0.37	10.9	0.34	10.9	0.33	13.6	0.37	11.1	0.38	17.8		51	
Mercury	< 0.03	0.03	< 0.03	0.03	< 0.03	0.03	0.03	0.03	0.03	0.03	<0.03		0.07	
Selenium	< 1.5	1.5	< 1.4	1.4	< 1.3	1.3	< 1.5	1.5	< 1.5	1.5	< 1.5		< 1.4	
Silver	< 0.37	0.37	< 0.34	0.34	< 0.33	0.33	< 0.37	0.37	< 0.38	0.38	< 0.38		< 0.36	
Metals, TCLP														
TCLP Arsenic	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01		< 0.01	
TCLP Barium	0.42	0.01	0.9	0.01	0.68	0.01	0.53	0.01	0.4	0.01	0.86		0.74	
TCLP Cadmium	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005	0.005	< 0.005		< 0.005	
TCLP Chromium	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010		< 0.010	
TCLP Lead	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	0.111		0.01	
TCLP Mercury	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002		< 0.0002	
TCLP Selenium	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01		< 0.01	
TCLP Silver	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010	0.010	< 0.010		< 0.010	
TPH By CTETPH 8015D														
Ext. Petroleum HC	< 55	55	< 52	52	< 52	52	< 52	52	< 52	52	< 58		70	
PCBs By SW8082A														
All PCBs < Reporting Limit	< 0.37	0.37	< 0.35	0.35	< 0.34	0.34	< 0.35	0.35	< 0.35	0.35	< 0.39		< 0.40	
Volatiles By SW8260C														
Ethylbenzene	< 0.0046	0.0046	< 0.0044	0.0044	< 0.0044	0.0044	< 0.0046	0.0046	< 0.0032	0.0032	< 0.0046		.25	
m&p-Xylene	< 0.0046	0.0046	< 0.0044	0.0044	< 0.0044	0.0044	< 0.0046	0.0046	< 0.0032	0.0032	< 0.0046		1.5	
Naphthalene	< 0.0046	0.0046	< 0.0044	0.0044	< 0.0044	0.0044	< 0.0046	0.0046	< 0.0032	0.0032	< 0.0046		10	
n-Butylbenzene	< 0.0046	0.0046	< 0.0044	0.0044	< 0.0044	0.0044	< 0.0046	0.0046	< 0.0032	0.0032	< 0.0046		.29	
o-Xylene	< 0.0046	0.0046	< 0.0044	0.0044	< 0.0044	0.0044	< 0.0046	0.0046	< 0.0032	0.0032	< 0.0046		.67	
Total Xylenes	< 0.0046	0.0046	< 0.0044	0.0044	< 0.0044	0.0044	< 0.0046	0.0046	< 0.0032	0.0032	< 0.0046		2.17	
Total VOCs													14.88	
Semivolatiles By SW8270D														
Benz(a)anthracene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.76	0.24	< 0.25	0.25	<0.27		0.59	
Benzo(a)pyrene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.79	0.24	< 0.25	0.25	<0.27		0.6	
Benzo(b)fluoranthene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.78	0.24	< 0.25	0.25	<0.27		0.49	
Benzo(ghi)perylene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.44	0.24	< 0.25	0.25	<0.27		0.38	
Benzo(k)fluoranthene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.61	0.24	< 0.25	0.25	<0.27		0.47	
Bis(2-ethylhexyl)phthalate	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	< 0.24	0.24	< 0.25	0.25	<0.27			
Chrysene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.92	0.24	< 0.25	0.25	<0.27		0.66	
Fluoranthene	< 0.26	0.26	< 0.25	0.25	0.27	0.24	1.6	0.24	< 0.25	0.25	<0.27		1	
Indeno(1,2,3-cd)pyrene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.51	0.24	< 0.25	0.25	<0.27		0.38	
Phenanthrene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	0.62	0.24	< 0.25	0.25	<0.27		0.46	
Pyrene	< 0.26	0.26	< 0.25	0.25	< 0.24	0.24	1.4	0.24	< 0.25	0.25	<0.27		0.99	
Total SVOCs					0.27		8.43						6.02	

NOTES:
CT RSRs - State of Connecticut Remediation Standard Regulations (CT RSRs) per RCSA 22a-133k-1 through 22a-133k-3, adopted June 27, 2013.
NE - Not Established
Result Detected
Result Exceeds Criteria
Clean Soil: Soils within this category contain only naturally occurring concentrations of metals.
Polluted Soil: Soils within this category are polluted with SVOCs at concentrations below the RES DEC and GA PMC
Contaminated Soil: Soils within this category contain concentrations of constituents in excess of RSR criteria
* Due to its close proximity to B-10, soils at SB-2 are also considered contaminated.
** Denotes GeoDesign Boring Location. Results presented in this table were obtained from the summary tables presented in the March 2016 GeoDesign Report.

Table 2 – Summary of Soil Management Recommendations
Kaiser Hall at CCSU
New Britain, Connecticut

				Excess Excavated Soil Allowances	
Location (Note 1)	**Soil Category**	**On-Site Reuse Option**	**Off-site "Disposal" Option**	**Cubic Yards**	**Tons**
B-10, SB-2	Contaminated	None	Asphalt Batch Plant (Note 2)	90	135
B-1, SB-7	Contaminated	Only on-site option is to use under proposed building footprint.	MA Unlined Landfill (Notes 3, 5)	240	360
SB-4, SB-6, SB-10, SB-11	Polluted	Restricted (Notes 7, 8)	MA Unlined Landfill (Notes 4, 5)	375	562
SB-1, SB-3, SB-5, SB-8, SB-9, SB-10, SB-11, SB-12	Clean Soil	Unrestricted (note 8)	Unrestricted (note 6)	21,000 (Note 9)	31,500 (Note 10)

Notes:
1. Soil Management areas are shown on Figure 1
2. For off-site disposal, these soils should be reused at an approved asphalt batch facility as the samples were determined to be contaminated and exceed the Massachusetts Landfill acceptance criteria (lined or unlined).
3. These soils were determined to be contaminated (i.e., exceeded the GA PMC) and if not used under the building footprint, qualify for disposal at a MA landfill.
4. For off-site disposal, these soils should be assumed to require reuse at a Massachusetts unlined landfill considering the samples in this area were determined to be "polluted".
5. Massachusetts unlined landfills are often limited in availability such that reuse at Massachusetts lined landfills at a premium cost may be required.
6. Clean soils may be reused off-site at the contractor’s discretion.
7. Polluted soils may be reused onsite, provided they are not placed below the water table and are not subject to erosion.
8. On-site reuse addresses environmental considerations only (i.e., this is not a determination of physical suitability for uses).
9. Calculated volume assumes an average excavation depth of 8 feet over the entire proposed building footprint. This estimate is based on design information provided to TRC by others and may be subject to significant changes based on any changes to the design, etc. The actual volume of excess soils generated in this category can likely be reduced significantly if soils are reused on-site.
10. This tonnage calculation is based on a conversion of 1.5 tons per cubic yard.

Utility Mark-out Site Photographs
Kaiser Annex at CCSU, New Britain, Connecticut

Photo 1: Underground Surveying performing underground utility mark-out near proposed locations for SB-3 and SB-4. Note the sanitary sewer line just south of the proposed borings.

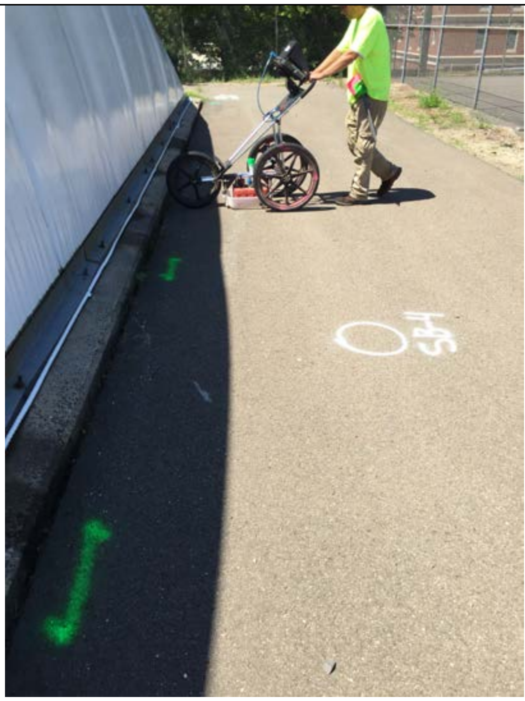


Photo 2: Underground Surveying performing underground utility mark-out near proposed location for SB-4. Note the sanitary sewer line just south of the proposed borings.

Utility Mark-out Site Photographs
Kaiser Annex at CCSU, New Britain, Connecticut

Photo 3: Underground Surveying performing underground utility mark-out near proposed location for SB-5. Note the sanitary sewer line and gas line east of the proposed borings.

Photo 4: Communication and sanitary sewer lines located east of the proposed location for SB-6.

Photo 5: Underground Surveying performing underground utility mark-out near proposed location for SB-7. A communication line is located just west and a sanitary sewer line is located east of the proposed boring.

Photo 6: Underground Surveying performing underground utility mark-out near proposed location for SB-8. Sanitary sewer line located just north of the proposed boring

Photo 7: Underground Surveying performing underground utility mark-out near proposed location for SB-2. An electrical line is located just west of the proposed boring.

Photo 8: Sanitary sewer line located east of the proposed location for SB-1.

Utility Mark-out Site Photographs
Kaiser Annex at CCSU, New Britain, Connecticut

Photo 9: Electrical line located west of the proposed location for SB-1.

Photo 10: Electrical line running north to south on the west side of the proposed location for SB-12.

Utility Mark-out Site Photographs
Kaiser Annex at CCSU, New Britain, Connecticut

Photo 11: Sanitary sewer and water lines running north to south on the east side of the proposed location for SB-12.

TRC
Results you can rely on

PROJECT INFORMATION		BORING INFORMATION			
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**4**	Hole Diameter (in):	**2"**
Project Location:	**New Britain, Connecticut**	Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Project Number:	**260041.000001**	Coordinate System:			
Client:	**Connecticut Division of Construction Services**	North:	**Not Surveyed**	East:	**Not Surveyed**
TRC Eng./Geol:	**Ben Ayres**	Vertical Datum:		Ground Elevation:	**0**
Checked By:	**Chris Lindahl**	Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS

MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 1' Dark reddish brown, fine SAND, trace fine gravel, dry, no odor, no staining.	
						1'- 3.2' Dark reddish brown, fine to coarse SAND, little coarse sand, trace fine gravel, dry, no odor, no staining.	
	MAC		4.0	3.2			
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-1 at 0825 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 2-2.5'.

Results you can rely on

BORING NUMBER: **SB-2**

PROJECT INFORMATION	
Project Name:	**Central Connecticut State University - Kaiser Hall**
Project Location:	**New Britain, Connecticut**
Project Number:	**260041.000001**
Client:	**Connecticut Division of Construction Services**
TRC Eng./Geol:	**Ben Ayres**
Checked By:	**Chris Lindahl**

BORING INFORMATION			
Boring Depth (ft):	**4**	Hole Diameter (in):	**2"**
Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Coordinate System:			
North:	**Not Surveyed**	East:	**Not Surveyed**
Vertical Datum:		Ground Elevation:	**0**
Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS

MEASUREMENT	▽ At Time of Drilling	▼ At End of Drilling	▼ After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 0.5' Dark reddish brown, medium SAND, some fine gravel, trace organics, dry, no odor, no staining.	
						0.5'- 2.2' Dark reddish brown, medium SAND, trace fine sand, dry, no odor, no staining.	
	MAC		4.0	3.2			
						2.2'- 3.2' Dark reddish brown, fine SAND & GRAVEL, dry, no odor, no staining.	
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-2 at 0840 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 1.5-2'.

SOIL BORING/WELL COMPLETION WITH NOTES - TRC-STD US.GDT - 9/16/16
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BORING NUMBER: **SB-3**

PROJECT INFORMATION		BORING INFORMATION			
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**4**	Hole Diameter (in):	**2"**
Project Location:	**New Britain, Connecticut**	Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Project Number:	**260041.000001**	Coordinate System:			
Client:	**Connecticut Division of Construction Services**	North:	**Not Surveyed**	East:	**Not Surveyed**
TRC Eng./Geol:	**Ben Ayres**	Vertical Datum:		Ground Elevation:	**0**
Checked By:	**Chris Lindahl**	Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS

MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 0.9' Dark reddish brown, medium to coarse SAND, some fine gravel, dry, no odor, no staining.	
						0.9'- 1.3' Dark reddish brown, fine SAND AND SILT, dry, no odor, no staining.	
						1.3'- 2' Dark reddish brown, medium to coarse SAND, dry, no odor, no staining.	
	MAC		4.0	2.0			
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-3 at 1130 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 1-1.5'.

BORING NUMBER: **SB-4**

TRC Results you can rely on

PROJECT INFORMATION	
Project Name:	**Central Connecticut State University - Kaiser Hall**
Project Location:	**New Britain, Connecticut**
Project Number:	**260041.000001**
Client:	**Connecticut Division of Construction Services**
TRC Eng./Geol:	**Ben Ayres**
Checked By:	**Chris Lindahl**

BORING INFORMATION			
Boring Depth (ft):	**4**	Hole Diameter (in):	**2"**
Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Coordinate System:			
North:	**Not Surveyed**	East:	**Not Surveyed**
Vertical Datum:		Ground Elevation:	**0**
Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS			
MEASUREMENT	▽ At Time of Drilling	▼ At End of Drilling	▼ After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 0.5' Dark reddish brown, medium to coarse SAND, some fine gravel, dry, no odor, no staining.	
						0.5'- 0.9' Dark reddish brown, fine SAND AND SILT, moist, no odor, no staining.	
						0.9'- 1.4' Dark reddish brown, fine SAND AND SILT, little fine gravel, moist, no odor, no staining.	
						1.4'- 2' Dark reddish brown, medium to coarse SAND, trace fine gravel, moist, no odor, no staining.	
	MAC		4.0	2.0			
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-4 at 1115 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 1.5-2'.

BORING NUMBER: **SB-5**

PROJECT INFORMATION	
Project Name:	**Central Connecticut State University - Kaiser Hall**
Project Location:	**New Britain, Connecticut**
Project Number:	**260041.000001**
Client:	**Connecticut Division of Construction Services**
TRC Eng./Geol:	**Ben Ayres**
Checked By:	**Chris Lindahl**

BORING INFORMATION			
Boring Depth (ft):	**4**	Hole Diameter (in):	**2"**
Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Coordinate System:			
North:	**Not Surveyed**	East:	**Not Surveyed**
Vertical Datum:		Ground Elevation:	**0**
Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS			
MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 0.5' Dark reddish brown, medium SAND, some fine gravel, dry, no odor, no staining.	
						0.5'- 1' Dark reddish brown, fine to medium SAND, little fine gravel, dry, no odor, no staining.	
						1'- 2' Dark reddish brown, fine SAND, dry, no odor, no staining.	
	MAC		4.0	2.3		2'- 2.3' Dark reddish brown, medium to coarse SAND, dry, no odor, no staining.	
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-5 at 1055 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 1-1.5'.

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Results you can rely on

BORING NUMBER: **SB-6**

PROJECT INFORMATION		BORING INFORMATION			
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**8**	Hole Diameter (in):	**2"**
Project Location:	**New Britain, Connecticut**	Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Project Number:	**260041.000001**	Coordinate System:			
Client:	**Connecticut Division of Construction Services**	North:	**Not Surveyed**	East:	**Not Surveyed**
TRC Eng./Geol:	**Ben Ayres**	Vertical Datum:		Ground Elevation:	**0**
Checked By:	**Chris Lindahl**	Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION		GROUND WATER OBSERVATIONS			
Drilling Contractor:	**Glacier Drilling LLC**	MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
Driller(s):	**Auggie and Dale**	DATE			
Drilling Method:	**Direct Push**	DEPTH (ft.bgs.)			
Equipment/Model:	**Geoprobe**	REFERENCE			
Sampler:	**48-inch Macrocore**	STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
	MAC		4.0	3.2		0'- 1.1' Dark reddish brown, medium to coarse SAND, some fine gravel, dry, no odor, no staining.	
						1.1'- 2.2' Dark reddish brown, fine to medium SAND, little silt, dry, no odor, no staining.	
						2.2'- 3.2' Dark reddish brown, fine SAND AND SILT, trace fine gravel, moist, no odor, no staining.	
	MAC		4.0	4.0		4'- 4.3' Dark reddish brown, fine SAND AND SILT, moist, no odor, no staining.	
5						4.3'- 5.1' Dark reddish brown, fine to medium SAND, little fine gravel, dry, no odor, no staining.	
						5.1'- 8' Dark reddish brown, fine to medium SAND, little silt, trace fine gravel, dry, no odor, no staining.	
						Bottom of borehole at 8.0 feet.	
10							

Notes: Composite sample collected for SB-6 at 1025 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 6-6.5'.

SOIL BORING/WELL COMPLETION WITH NOTES - TRC-STD US.GDT - 9/16/16
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BORING NUMBER: **SB-7**

PROJECT INFORMATION	
Project Name:	**Central Connecticut State University - Kaiser Hall**
Project Location:	**New Britain, Connecticut**
Project Number:	**260041.000001**
Client:	**Connecticut Division of Construction Services**
TRC Eng./Geol:	**Ben Ayres**
Checked By:	**Chris Lindahl**

BORING INFORMATION			
Boring Depth (ft):	**8**	Hole Diameter (in):	**2"**
Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Coordinate System:			
North:	**Not Surveyed**	East:	**Not Surveyed**
Vertical Datum:		Ground Elevation:	**0**
Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS			
MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 1.3' Dark reddish brown, medium SAND, some fine gravel, little silt, dry, no odor, no staining.	
						1.3'- 2.2' Dark reddish brown, fine to medium SAND, little silt, trace fine gravel, dry, no odor, no staining.	
	MAC		4.0	2.2			
						4'- 4.3' Dark reddish brown, fine to medium SAND, little silt, trace fine gravel, dry, no odor, no staining.	
						4.3'- 7' Dark reddish brown, medium CLAY, with fine sand, moist, no odor, no staining.	
5							
	MAC		4.0	3.0			
						Bottom of borehole at 8.0 feet.	
10							

Notes: Composite sample collected for SB-7 at 1000 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 5-5.5'.

BORING NUMBER: **SB-8**

PROJECT INFORMATION		BORING INFORMATION			
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**16**	Hole Diameter (in):	**2"**
Project Location:	**New Britain, Connecticut**	Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Project Number:	**260041.000001**	Coordinate System:			
Client:	**Connecticut Division of Construction Services**	North:	**Not Surveyed**	East:	**Not Surveyed**
TRC Eng./Geol:	**Ben Ayres**	Vertical Datum:		Ground Elevation:	**0**
Checked By:	**Chris Lindahl**	Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS

MEASUREMENT	▽ At Time of Drilling	▼ At End of Drilling	▼ After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
0–4	MAC		4.0	4.0		0'- 1.1' Dark reddish brown, medium to coarse SAND, some fine gravel, dry, no odor, no staining. 1.1'- 1.9' Dark reddish brown, medium SAND, trace fine gravel, dry, no odor, no staining. 1.9'- 4' Dark reddish brown, fine SAND, some silt, little fine gravel, dry, no odor, no staining.	
4–8 (5)	MAC		4.0	3.4		4'- 6' Dark reddish brown, fine SAND, some silt, trace fine gravel, dry, no odor, no staining. 6'- 7.4' Dark reddish brown, medium SAND, dry, no odor, no staining.	
8–12 (10)	MAC		4.0	3.6		8'- 11' Dark reddish brown, medium SAND, dry, no odor, no staining. 11'- 11.6' Dark reddish brown, medium to coarse SAND, trace fine gravel, dry, no odor, no staining.	
12–16 (15)	MAC		4.0	3.5		12'- 12.9' Dark reddish brown, medium SAND, little silt, trace fine gravel, dry, no odor, no staining. 12.9'- 15.5' Dark reddish brown, medium to coarse SAND, dry, no odor, no staining.	
20						Bottom of borehole at 16.0 feet.	

Notes: Composite sample collected for SB-8 at 0925 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 2.5-3'.

BORING NUMBER: **SB-9**

PROJECT INFORMATION		BORING INFORMATION			
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**16**	Hole Diameter (in):	**2"**
Project Location:	**New Britain, Connecticut**	Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Project Number:	**260041.000001**	Coordinate System:			
Client:	**Connecticut Division of Construction Services**	North:	**Not Surveyed**	East:	**Not Surveyed**
TRC Eng./Geol:	**Ben Ayres**	Vertical Datum:		Ground Elevation:	**0**
Checked By:	**Chris Lindahl**	Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION		GROUND WATER OBSERVATIONS			
Drilling Contractor:	**Glacier Drilling LLC**	MEASUREMENT	▽ At Time of Drilling	▼ At End of Drilling	▽ After Drilling
Driller(s):	**Auggie and Dale**	DATE			
Drilling Method:	**Direct Push**	DEPTH (ft.bgs.)			
Equipment/Model:	**Geoprobe**	REFERENCE			
Sampler:	**48-inch Macrocore**	STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
0–4	MAC		4.0	2.0		0'- 0.5' Dark reddish brown, fine to medium SAND, dry, no odor, no staining. 0.5'- 2' Dark reddish brown, medium SAND AND SILT, moist, no odor, no staining.	
5	MAC		4.0	4.0		4'- 6' Dark reddish brown, medium SAND, some silt, moist, no odor, no staining. 6'- 8' Dark reddish brown, medium to coarse SAND, some fine gravel, trace silt, dry, no odor, no staining.	
10	MAC		4.0	2.6		8'- 9.4' Dark reddish brown, coarse SAND & GRAVEL, moist, no odor, no staining. 9.4'- 10.6' Dark reddish brown, medium SAND & GRAVEL, trace fine sand, dry, no odor, no staining.	
15	MAC		4.0	2.7		12'- 12.8' Dark reddish brown, no odor, no staining. 12.8'- 13.7' Dark reddish brown, medium to coarse SAND, little fine sand, dry, no odor, no staining. 13.7'- 14.1' Dark reddish brown, medium to coarse SAND, some fine gravel, dry, no odor, no staining. 14.1'- 14.7' Dark reddish brown, fine SILT, little fine sand, trace clay, moist, no odor, no staining.	
20						Bottom of borehole at 16.0 feet.	

Notes: Composite sample collected for SB-9 at 1250 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 2-2.5'.

BORING NUMBER: **SB-10**

PROJECT INFORMATION	
Project Name:	Central Connecticut State University - Kaiser Hall
Project Location:	New Britain, Connecticut
Project Number:	260041.000001
Client:	Connecticut Division of Construction Services
TRC Eng./Geol:	Ben Ayres
Checked By:	Chris Lindahl

BORING INFORMATION			
Boring Depth (ft):	8	Hole Diameter (in):	2"
Date Started:	8/5/16	Date Completed:	8/5/16
Coordinate System:			
North:	Not Surveyed	East:	Not Surveyed
Vertical Datum:		Ground Elevation:	0
Well Elevation (Top of Casing)	Not Surveyed		

DRILLING INFORMATION	
Drilling Contractor:	Glacier Drilling LLC
Driller(s):	Auggie and Dale
Drilling Method:	Direct Push
Equipment/Model:	Geoprobe
Sampler:	48-inch Macrocore

GROUND WATER OBSERVATIONS

MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 0.7' Dark reddish brown, medium to coarse SAND, trace organics, dry, no odor, no staining.	
						0.7'- 2.3' Dark reddish brown, fine to medium SAND, trace silt, dry, no odor, no staining.	
	MAC		4.0	3.5			
						2.3'- 3.5' Dark reddish brown, fine SAND AND SILT, dry, no odor, no staining.	
						4'- 4.9' Dark reddish brown, fine SAND AND SILT, dry, no odor, no staining.	
5						4.9'- 7.2' Dark reddish brown, medium to coarse SAND, little fine sand, trace fine gravel, dry, no odor, no staining.	
	MAC		4.0	3.2			
						Bottom of borehole at 8.0 feet.	
10							

Notes: Composite sample collected for SB-10 at 1320 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 2-2.5'.

TRC Results you can rely on

BORING NUMBER: **SB-11**

PROJECT INFORMATION		BORING INFORMATION	
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**4**
Project Location:	**New Britain, Connecticut**	Hole Diameter (in):	**2"**
Project Number:	**260041.000001**	Date Started:	**8/5/16**
Client:	**Connecticut Division of Construction Services**	Date Completed:	**8/5/16**
TRC Eng./Geol:	**Ben Ayres**	Coordinate System:	
Checked By:	**Chris Lindahl**	North:	**Not Surveyed**
		East:	**Not Surveyed**
		Vertical Datum:	
		Ground Elevation:	**0**
		Well Elevation (Top of Casing)	**Not Surveyed**

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS

MEASUREMENT	At Time of Drilling	At End of Drilling	After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 0.4' Dark reddish brown, fine to medium SAND, some organics, dry, no odor, no staining.	
						0.4'- 1.6' Dark reddish brown, fine SAND, trace fine gravel, dry, no odor, no staining.	
						1.6'- 2' Dark reddish brown, fine to medium SAND, some fine gravel, trace silt, dry, no odor, no staining.	
	MAC		4.0	3.7		2'- 3.7' Dark reddish brown, fine SAND AND SILT, trace fine gravel, dry, no odor, no staining.	
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-11 at 1400 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 2.5-3'.

TRC
Results you can rely on

BORING NUMBER: **SB-12**

PROJECT INFORMATION		BORING INFORMATION			
Project Name:	**Central Connecticut State University - Kaiser Hall**	Boring Depth (ft):	**4**	Hole Diameter (in):	**2"**
Project Location:	**New Britain, Connecticut**	Date Started:	**8/5/16**	Date Completed:	**8/5/16**
Project Number:	**260041.000001**	Coordinate System:			
Client:	**Connecticut Division of Construction Services**	North:	**Not Surveyed**	East:	**Not Surveyed**
TRC Eng./Geol:	**Ben Ayres**	Vertical Datum:		Ground Elevation:	**0**
Checked By:	**Chris Lindahl**	Well Elevation (Top of Casing)	**Not Surveyed**		

DRILLING INFORMATION	
Drilling Contractor:	**Glacier Drilling LLC**
Driller(s):	**Auggie and Dale**
Drilling Method:	**Direct Push**
Equipment/Model:	**Geoprobe**
Sampler:	**48-inch Macrocore**

GROUND WATER OBSERVATIONS

MEASUREMENT	▽ At Time of Drilling	▼ At End of Drilling	▼ After Drilling
DATE			
DEPTH (ft.bgs.)			
REFERENCE			
STABILIZATION			

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE TYPE	PENETRATION (FT.)	RECOVERY (FT.)	LITHOLOGY	MATERIAL DESCRIPTION	◆VOC SCREENING RESULTS (ppm) 20 40 60 80
						0'- 1' Dark reddish brown, fine to medium SAND, some fine gravel, dry, no odor, no staining.	
						1'- 3.6' Dark reddish brown, fine SAND, dry, no odor, no staining.	
	MAC		4.0	3.6			
						Bottom of borehole at 4.0 feet.	
5							

Notes: Composite sample collected for SB-12 at 0900 for SVOCs, ETPH, PCBs, total and TCLP RCRA 8 metals, reactive sulfide, cyanide, conductivity, flashpoint and pH. VOCs collected at 2.5-3'.

Thursday, August 11, 2016

Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Project ID: CCSU-Kaiser Annex
Sample ID#s: BN87810 - BN87821

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

Enclosed are revised Analysis Report pages. Please replace and discard the original pages. If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	8:25
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87810

Project ID: CCSU-Kaiser Annex
Client ID: SB-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.60	0.73	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	72.4	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	20.5	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	12.3	0.37	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.5	1.5	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.51	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	90		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	9	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	7.19	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.6	5.6	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	54	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	83		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	90		%	10	08/08/16	AW	30 - 150 %
% TCMX	81		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0035	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C

Project ID: CCSU-Kaiser Annex
Client ID: SB-1

Phoenix I.D.: BN87810

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.029	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.029	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.29	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0035	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.035	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.012	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.012	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.012	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.012	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0058	mg/Kg	1	08/06/16	JLI	SW8260C

Project ID: CCSU-Kaiser Annex
Client ID: SB-1

Phoenix I.D.: BN87810

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	92		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	99		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.58	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.72	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	88		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	67		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	60		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	64		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	70		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	75		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	8:40
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87811

Project ID: CCSU-Kaiser Annex
Client ID: SB-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.33	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	4.50	0.66	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	81.9	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.33	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	18.4	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	0.09	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	21.7	0.33	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.3	1.3	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.60	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	91		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	31	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	7.22	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.3	5.3	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	55	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	65		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	96		%	10	08/08/16	AW	30 - 150 %
% TCMX	80		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0027	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.22	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0027	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.027	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	90		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	101		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	98		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.57	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	0.62	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	0.67	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	0.59	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	0.44	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	0.47	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.72	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	0.68	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	1.1	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	0.45	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	0.34	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	1.1	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	78		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	63		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	51		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	54		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	53		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	73		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	9:00
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87812

Project ID: CCSU-Kaiser Annex
Client ID: SB-12

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.38	0.38	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.11	0.76	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	57.3	0.38	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.38	0.38	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	15.6	0.38	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	11.1	0.38	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.5	1.5	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.40	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	94		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	21	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	7.53	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.2	5.2	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex
Client ID: SB-12

Phoenix I.D.: BN87812

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	52	mg/Kg	1	08/08/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/08/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	71		%	1	08/08/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1221	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1232	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1242	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1248	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1254	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1260	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1262	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1268	ND	0.35	mg/Kg	10	08/09/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	85		%	10	08/09/16	AW	30 - 150 %
% TCMX	69		%	10	08/09/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0019	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.016	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.016	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.16	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0019	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.019	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0064	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0064	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0064	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0064	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0032	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	93		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	103		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	99		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.56	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.7	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D

Project ID: CCSU-Kaiser Annex

Client ID: SB-12

Phoenix I.D.: BN87812

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	82		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	64		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	59		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	56		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	60		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	68		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	9:25
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87813

Project ID: CCSU-Kaiser Annex
Client ID: SB-8

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.54	0.74	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	64.3	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	22.0	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	9.89	0.37	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.5	1.5	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.42	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	89		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	110	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	6.95	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.4	5.4	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	55	mg/Kg	1	08/08/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/08/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	62		%	1	08/08/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1221	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1232	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1242	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1248	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1254	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1260	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1262	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
PCB-1268	ND	0.37	mg/Kg	10	08/09/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	110		%	10	08/09/16	AW	30 - 150 %
% TCMX	94		%	10	08/09/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0028	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C

Project ID: CCSU-Kaiser Annex
Client ID: SB-8

Phoenix I.D.: BN87813

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.023	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.023	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.23	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0028	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.028	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	94		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	101		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	99		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.58	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.73	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	84		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	70		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	67		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	70		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	71		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	78		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	10:00
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87814

Project ID: CCSU-Kaiser Annex
Client ID: SB-7

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.40	0.40	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.67	0.81	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	64.2	0.40	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.40	0.40	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	18.5	0.40	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	10.2	0.40	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.6	1.6	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.59	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	0.024	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	87		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	42	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	7.55	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.7	5.7	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex
Client ID: SB-7

Phoenix I.D.: BN87814

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	56	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	63		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	68		%	10	08/08/16	AW	30 - 150 %
% TCMX	56		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0025	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.021	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.021	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.21	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0025	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.025	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0084	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0084	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0084	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0084	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0042	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	92		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	97		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	100		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.6	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	0.42	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.75	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	81		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	55		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	53		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	49		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	50		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	66		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

PHOENIX

Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	10:25
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87815

Project ID: CCSU-Kaiser Annex
Client ID: SB-6

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.39	0.39	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	4.11	0.79	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	71.3	0.39	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.39	0.39	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	22.5	0.39	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	10.8	0.39	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.6	1.6	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.53	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	88		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	37	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	7.56	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.6	5.6	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex

Client ID: SB-6

Phoenix I.D.: BN87815

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	56	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	57		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.38	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	91		%	10	08/08/16	AW	30 - 150 %
% TCMX	78		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0027	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C

Project ID: CCSU-Kaiser Annex
Client ID: SB-6

Phoenix I.D.: BN87815

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.22	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0027	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.027	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.009	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.009	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.009	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.009	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	104		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	99		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.61	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.76	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	0.55	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	0.32	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	0.48	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.38	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	89		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	73		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	72		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	71		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	72		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	73		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected   BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	10:55
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87816

Project ID: CCSU-Kaiser Annex
Client ID: SB-5

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.27	0.74	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	52.0	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	16.9	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	7.69	0.37	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.5	1.5	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.38	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	90		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	26	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	8.18	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.4	5.4	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	54	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	58		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	89		%	10	08/08/16	AW	30 - 150 %
% TCMX	65		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0028	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.023	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.023	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.23	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0028	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.028	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C

Project ID: CCSU-Kaiser Annex
Client ID: SB-5

Phoenix I.D.: BN87816

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	108		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	95		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	99		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	98		%	1	08/06/16	JLI	70 - 130 %

Semivolatiles

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,4,5-Tetrachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.58	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.72	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D

Project ID: CCSU-Kaiser Annex

Client ID: SB-5

Phoenix I.D.: BN87816

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	85		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	62		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	61		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	60		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	64		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	69		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	11:15
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87817

Project ID: CCSU-Kaiser Annex
Client ID: SB-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.51	0.73	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	72.0	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	20.4	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	9.07	0.37	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.5	1.5	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.49	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	90		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	28	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	8.27	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.5	5.5	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex
Client ID: SB-4

Phoenix I.D.: BN87817

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	54	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	70		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.37	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	66		%	10	08/08/16	AW	30 - 150 %
% TCMX	54		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0026	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C

Project ID: CCSU-Kaiser Annex
Client ID: SB-4

Phoenix I.D.: BN87817

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.22	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0026	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.026	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0043	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	104		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	92		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	108		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	100		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.59	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.74	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D

Project ID: CCSU-Kaiser Annex

Client ID: SB-4

Phoenix I.D.: BN87817

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	0.3	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.26	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.37	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	97		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	69		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	63		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	62		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	67		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	77		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	11:30
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87818

Project ID: CCSU-Kaiser Annex
Client ID: SB-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.36	0.36	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.77	0.72	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	73.9	0.36	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.36	0.36	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	20.6	0.36	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	10.1	0.36	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.4	1.4	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.64	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	91		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	53	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	8.41	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.3	5.3	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex
Client ID: SB-3

Phoenix I.D.: BN87818

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	54	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	60		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.36	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	82		%	10	08/08/16	AW	30 - 150 %
% TCMX	63		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0027	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.22	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0027	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.027	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0089	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0045	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	104		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	91		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	98		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.58	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.72	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.36	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	75		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	61		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	58		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	63		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	62		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	64		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	12:50
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87819

Project ID: CCSU-Kaiser Annex
Client ID: SB-9

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.34	0.34	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.90	0.68	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	89.2	0.34	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.34	0.34	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	25.7	0.34	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	10.9	0.34	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.4	1.4	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.90	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	93		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	290	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	9.58	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.3	5.3	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex | Phoenix I.D.: BN87819
Client ID: SB-9

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A

TPH by GC (Extractable Products)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Ext. Petroleum HC	ND	52	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	55		%	1	08/09/16	JRB	50 - 150 %

Polychlorinated Biphenyls

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1016	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	121		%	10	08/08/16	AW	30 - 150 %
% TCMX	95		%	10	08/08/16	AW	30 - 150 %

Volatiles

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1,1,2-Tetrachloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0026	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.22	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0026	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.026	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	94		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	104		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	98		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.56	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.7	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D

Project ID: CCSU-Kaiser Annex
Client ID: SB-9

Phoenix I.D.: BN87819

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.25	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	89		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	56		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	52		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	55		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	52		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	65		%	1	08/06/16	DD	30 - 130 %

Project ID: CCSU-Kaiser Annex
Client ID: SB-9

Phoenix I.D.: BN87819

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	13:20
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87820

Project ID: CCSU-Kaiser Annex
Client ID: SB-10

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.33	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.67	0.66	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	82.3	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.33	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	23.1	0.33	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	< 0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	10.9	0.33	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.3	1.3	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.68	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/08/16	RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	94		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	73	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	8.24	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 5.0	5.0	mg/Kg	1	08/08/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/06/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/06/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Project ID: CCSU-Kaiser Annex
Client ID: SB-10

Phoenix I.D.: BN87820

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A
TPH by GC (Extractable Products)							
Ext. Petroleum HC	ND	52	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	80		%	1	08/09/16	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.34	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	101		%	10	08/08/16	AW	30 - 150 %
% TCMX	80		%	10	08/08/16	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0026	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.022	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.22	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0026	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.026	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0087	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0044	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	92		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	104		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	99		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.55	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.69	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	0.27	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	86		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	64		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	51		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	52		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	57		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	71		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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Analysis Report

August 11, 2016

FOR: Attn: Marya Mahoney
TRC Environmental Corp.
21 Griffin Rd North
Windsor, CT 06095

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:	BA	08/05/16	14:00
Location Code:	TRC-DAS	Received by:	SW	08/05/16	16:48
Rush Request:	48 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBN87810
Phoenix ID: BN87821

Project ID: CCSU-Kaiser Annex
Client ID: SB-11

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Arsenic	3.64	0.75	mg/Kg	1	08/07/16	LK	SW6010C	
Barium	73.0	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Cadmium	< 0.37	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Chromium	21.1	0.37	mg/Kg	1	08/07/16	LK	SW6010C	
Mercury	0.03	0.03	mg/Kg	1	08/08/16	RS	SW7471B	
Lead	13.6	0.37	mg/Kg	1	08/07/16	LK	SW6010C	B
Selenium	< 1.5	1.5	mg/Kg	1	08/07/16	LK	SW6010C	
TCLP Silver	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Arsenic	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Barium	0.53	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Cadmium	< 0.005	0.005	mg/L	1	08/09/16	LK	SW6010C	
TCLP Chromium	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Mercury	< 0.0002	0.0002	mg/L	1	08/09/16	MA/RS	SW7470A	
TCLP Lead	< 0.010	0.010	mg/L	1	08/09/16	LK	SW6010C	
TCLP Selenium	< 0.01	0.01	mg/L	1	08/09/16	LK	SW6010C	
TCLP Metals Digestion	Completed				08/08/16	W/W	SW3005A	
Percent Solid	93		%		08/05/16	W	SW846-%Solid	
Conductivity - Soil Matrix	49	5	umhos/cm	1	08/08/16	TC	SM2510B-97	
Corrosivity	Negative		Pos/Neg	1	08/05/16	DH/KDB	SW846-Corr	
Flash Point	>200	200	Degree F	1	08/08/16	Y	SW1010A	
Ignitability	Passed	140	degree F	1	08/08/16	Y	SW846-Ignit	
pH - Soil	7.94	0.10	pH Units	1	08/05/16 21:00	DH/KDB	SW9045	
Reactivity Cyanide	< 4.9	4.9	mg/Kg	1	08/09/16	BS/GD	SW846-ReactCyn	
Reactivity Sulfide	< 20	20	mg/Kg	1	08/08/16	BS/GD	SW-7.3	
Reactivity	Negative		Pos/Neg	1	08/08/16	BS/GD	SW846-React	
Soil Extraction for PCB	Completed				08/05/16	JC/V	SW3545A	
Soil Extraction for SVOA	Completed				08/05/16	JJ/CKV	SW3545A	

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction of CT ETPH	Completed				08/05/16	CC/CKV	SW3545A
Mercury Digestion	Completed				08/08/16	W/W	SW7471B
TCLP Digestion Mercury	Completed				08/08/16	W/W	SW7470A
TCLP Extraction for Metals	Completed				08/05/16	W	SW1311
Total Metals Digest	Completed				08/05/16	X/AG	SW3050B
Field Extraction	Completed				08/05/16		SW5035A

TPH by GC (Extractable Products)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Ext. Petroleum HC	ND	52	mg/Kg	1	08/09/16	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	08/09/16	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	79		%	1	08/09/16	JRB	50 - 150 %

Polychlorinated Biphenyls

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1016	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1221	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1232	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1242	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1248	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1254	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1260	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1262	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
PCB-1268	ND	0.35	mg/Kg	10	08/08/16	AW	SW8082A
QA/QC Surrogates							
% DCBP	104		%	10	08/08/16	AW	30 - 150 %
% TCMX	82		%	10	08/08/16	AW	30 - 150 %

Volatiles

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1,1,2-Tetrachloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,1-Trichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.0028	mg/Kg	1	08/06/16	JLI	SW8260C
1,1,2-Trichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,1-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,3-Trichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dibromoethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,2-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,3-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
1,4-Dichlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
2,2-Dichloropropane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
2-Chlorotoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Hexanone	ND	0.023	mg/Kg	1	08/06/16	JLI	SW8260C
2-Isopropyltoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
4-Chlorotoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
4-Methyl-2-pentanone	ND	0.023	mg/Kg	1	08/06/16	JLI	SW8260C
Acetone	ND	0.23	mg/Kg	1	08/06/16	JLI	SW8260C
Acrylonitrile	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Benzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromochloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromodichloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromoform	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Bromomethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon Disulfide	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Carbon tetrachloride	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chlorobenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloroform	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Chloromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,2-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
cis-1,3-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromochloromethane	ND	0.0028	mg/Kg	1	08/06/16	JLI	SW8260C
Dibromomethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Dichlorodifluoromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Ethylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Hexachlorobutadiene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Isopropylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
m&p-Xylene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl Ethyl Ketone	ND	0.028	mg/Kg	1	08/06/16	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Methylene chloride	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Naphthalene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
n-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
n-Propylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
o-Xylene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
p-Isopropyltoluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
sec-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Styrene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
tert-Butylbenzene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrachloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Tetrahydrofuran (THF)	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Toluene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Total Xylenes	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,2-Dichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,3-Dichloropropene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	0.0092	mg/Kg	1	08/06/16	JLI	SW8260C
Trichloroethene	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorofluoromethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Trichlorotrifluoroethane	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C
Vinyl chloride	ND	0.0046	mg/Kg	1	08/06/16	JLI	SW8260C

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	107		%	1	08/06/16	JLI	70 - 130 %
% Bromofluorobenzene	91		%	1	08/06/16	JLI	70 - 130 %
% Dibromofluoromethane	107		%	1	08/06/16	JLI	70 - 130 %
% Toluene-d8	96		%	1	08/06/16	JLI	70 - 130 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,2,4-Trichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Dichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,2-Diphenylhydrazine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
1,3-Dichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
1,4-Dichlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4,5-Trichlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4,6-Trichlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dichlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dimethylphenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2,4-Dinitrotoluene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2,6-Dinitrotoluene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Chloronaphthalene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Chlorophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylnaphthalene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Methylphenol (o-cresol)	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
2-Nitrophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
3,3'-Dichlorobenzidine	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
3-Nitroaniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Bromophenyl phenyl ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloro-3-methylphenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
4-Chloroaniline	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitroaniline	ND	0.56	mg/Kg	1	08/06/16	DD	SW8270D
4-Nitrophenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Acenaphthylene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Acetophenone	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Aniline	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Anthracene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benz(a)anthracene	0.76	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzidine	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(a)pyrene	0.79	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(b)fluoranthene	0.78	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(ghi)perylene	0.44	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzo(k)fluoranthene	0.61	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Benzoic acid	ND	0.7	mg/Kg	1	08/06/16	DD	SW8270D
Benzyl butyl phthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroethyl)ether	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Carbazole	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Chrysene	0.92	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Dibenz(a,h)anthracene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Dibenzofuran	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Diethyl phthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Dimethylphthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-butylphthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Di-n-octylphthalate	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Fluoranthene	1.6	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Fluorene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorobutadiene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachlorocyclopentadiene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Hexachloroethane	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Indeno(1,2,3-cd)pyrene	0.51	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Isophorone	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Naphthalene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Nitrobenzene	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodimethylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
N-Nitrosodiphenylamine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachloronitrobenzene	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Pentachlorophenol	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
Phenanthrene	0.62	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Phenol	ND	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Pyrene	1.4	0.24	mg/Kg	1	08/06/16	DD	SW8270D
Pyridine	ND	0.35	mg/Kg	1	08/06/16	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	80		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorobiphenyl	61		%	1	08/06/16	DD	30 - 130 %
% 2-Fluorophenol	53		%	1	08/06/16	DD	30 - 130 %
% Nitrobenzene-d5	56		%	1	08/06/16	DD	30 - 130 %
% Phenol-d5	58		%	1	08/06/16	DD	30 - 130 %
% Terphenyl-d14	72		%	1	08/06/16	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
August 11, 2016
Reviewed and Released by: Sarah Bell, Project Manager

![PHOENIX logo]

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QA/QC Report

August 11, 2016

QA/QC Data

SDG I.D.: GBN87810

QA/QC Batch 354920 (mg/kg), QC Sample No: BN86102 (BN87820, BN87821)

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Mercury - Soil	BRL	0.03	0.14	0.13	NC	95.4	97.3	2.0	70.2			70 - 130	30	m

Comment:

Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

QA/QC Batch 354922 (mg/L), QC Sample No: BN86935 (BN87821)

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Mercury - Water	BRL	0.0002	<0.0002	0.0002	NC	99.3			91.0			70 - 130	20

Comment:

Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

QA/QC Batch 354925 (mg/L), QC Sample No: BN87235 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)

ICP Metals - TCLP Extraction

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Arsenic	BRL	0.01	<0.01	<0.01	NC	112			111			75 - 125	20
Barium	BRL	0.01	1.73	1.73	0	99.9			116			75 - 125	20
Cadmium	BRL	0.005	0.019	0.019	NC	100			99.7			75 - 125	20
Chromium	BRL	0.010	<0.010	<0.010	NC	102			102			75 - 125	20
Lead	BRL	0.010	1.57	1.56	0.60	102			99.4			75 - 125	20
Selenium	BRL	0.01	<0.01	<0.01	NC	116			115			75 - 125	20
Silver	BRL	0.010	<0.010	<0.010	NC	109			110			75 - 125	20

QA/QC Batch 354919 (mg/kg), QC Sample No: BN87314 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819)

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Mercury - Soil	BRL	0.03	0.12	0.13	NC	98.9	99.0	0.1	121			70 - 130	30

Comment:

Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

QA/QC Batch 354846 (mg/kg), QC Sample No: BN87810 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)

ICP Metals - Soil

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Arsenic	BRL	0.66	3.60	3.49	NC	94.8			83.6			75 - 125	30
Barium	BRL	0.33	72.4	74.3	2.60	108			98.1			75 - 125	30
Cadmium	BRL	0.33	<0.37	<0.33	NC	96.9			87.2			75 - 125	30
Chromium	BRL	0.33	20.5	20.9	1.90	106			98.5			75 - 125	30
Lead	0.38	0.33	12.3	12.5	1.60	95.8			88.5			75 - 125	30
Selenium	BRL	1.3	<1.5	<1.3	NC	77.3			98.5			75 - 125	30
Silver	BRL	0.33	<0.37	<0.33	NC	102			93.2			75 - 125	30

QA/QC Batch 354921 (mg/L), QC Sample No: BN87810 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820)

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	94.5			100			70 - 130	20

Comment:

Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

m = This parameter is outside laboratory MS/MSD specified recovery limits.

PHOENIX

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QA/QC Report

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QA/QC Data

SDG I.D.: GBN87810

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 354884 (mg/Kg), QC Sample No: BN86601 4.95X (BN87810, BN87811, BN87812)													
Reactivity Cyanide	BRL	0.05	<5.1	<5.2	NC	91.2						85 - 115	30
QA/QC Batch 354961 (Degree F), QC Sample No: BN86619 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)													
Flash Point			>200	>200	NC	100						85 - 115	30
QA/QC Batch 355043 (mg/Kg), QC Sample No: BN86983 4.81X (BN87821)													
Reactivity Cyanide	BRL	0.05	<5.6	<5.5	NC	92.4						85 - 115	30
QA/QC Batch 354892 (PH), QC Sample No: BN87738 (BN87810, BN87811)													
pH - Soil			9.99	9.98	0.10	100						85 - 115	20
QA/QC Batch 354893 (PH), QC Sample No: BN87812 (BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)													
pH - Soil			7.53	7.70	2.20	100						85 - 115	20
QA/QC Batch 354885 (mg/Kg), QC Sample No: BN87813 5X (BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820)													
Reactivity Cyanide	BRL	0.05	<5.4	<5.6	NC	90.8						85 - 115	30
QA/QC Batch 355030 (umhos/cm), QC Sample No: BN87972 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)													
Conductivity - Soil Matrix	BRL	1	190	200	5.10	104						85 - 115	30

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SDG I.D.: GBN87810

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 354960 (mg/Kg), QC Sample No: BN86624 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)										
Volatiles - Solid										
1,1,1,2-Tetrachloroethane	ND	0.005	108	120	10.5	116	115	0.9	70 - 130	30
1,1,1-Trichloroethane	ND	0.005	101	107	5.8	108	104	3.8	70 - 130	30
1,1,2,2-Tetrachloroethane	ND	0.003	102	111	8.5	106	105	0.9	70 - 130	30
1,1,2-Trichloroethane	ND	0.005	95	102	7.1	99	98	1.0	70 - 130	30
1,1-Dichloroethane	ND	0.005	96	103	7.0	100	99	1.0	70 - 130	30
1,1-Dichloroethene	ND	0.005	103	107	3.8	105	104	1.0	70 - 130	30
1,1-Dichloropropene	ND	0.005	100	107	6.8	102	102	0.0	70 - 130	30
1,2,3-Trichlorobenzene	ND	0.005	103	112	8.4	88	88	0.0	70 - 130	30
1,2,3-Trichloropropane	ND	0.005	100	108	7.7	111	109	1.8	70 - 130	30
1,2,4-Trichlorobenzene	ND	0.005	105	113	7.3	81	81	0.0	70 - 130	30
1,2,4-Trimethylbenzene	ND	0.001	104	112	7.4	102	101	1.0	70 - 130	30
1,2-Dibromo-3-chloropropane	ND	0.005	105	115	9.1	109	107	1.9	70 - 130	30
1,2-Dibromoethane	ND	0.005	102	112	9.3	108	106	1.9	70 - 130	30
1,2-Dichlorobenzene	ND	0.005	102	110	7.5	97	96	1.0	70 - 130	30
1,2-Dichloroethane	ND	0.005	99	106	6.8	106	105	0.9	70 - 130	30
1,2-Dichloropropane	ND	0.005	94	102	8.2	98	97	1.0	70 - 130	30
1,3,5-Trimethylbenzene	ND	0.001	105	114	8.2	104	103	1.0	70 - 130	30
1,3-Dichlorobenzene	ND	0.005	103	112	8.4	92	93	1.1	70 - 130	30
1,3-Dichloropropane	ND	0.005	100	109	8.6	106	105	0.9	70 - 130	30
1,4-Dichlorobenzene	ND	0.005	102	109	6.6	89	92	3.3	70 - 130	30
2,2-Dichloropropane	ND	0.005	102	110	7.5	105	102	2.9	70 - 130	30
2-Chlorotoluene	ND	0.005	102	110	7.5	101	99	2.0	70 - 130	30
2-Hexanone	ND	0.025	91	99	8.4	83	85	2.4	70 - 130	30
2-Isopropyltoluene	ND	0.005	106	115	8.1	109	107	1.9	70 - 130	30
4-Chlorotoluene	ND	0.005	100	108	7.7	93	93	0.0	70 - 130	30
4-Methyl-2-pentanone	ND	0.025	92	98	6.3	93	95	2.1	70 - 130	30
Acetone	ND	0.01	87	89	2.3	97	96	1.0	70 - 130	30
Acrylonitrile	ND	0.005	92	96	4.3	93	92	1.1	70 - 130	30
Benzene	ND	0.001	97	104	7.0	100	99	1.0	70 - 130	30
Bromobenzene	ND	0.005	102	109	6.6	100	99	1.0	70 - 130	30
Bromochloromethane	ND	0.005	99	106	6.8	103	101	2.0	70 - 130	30
Bromodichloromethane	ND	0.005	104	112	7.4	109	109	0.0	70 - 130	30
Bromoform	ND	0.005	114	126	10.0	119	119	0.0	70 - 130	30
Bromomethane	ND	0.005	96	106	9.9	105	101	3.9	70 - 130	30
Carbon Disulfide	ND	0.005	114	121	6.0	113	112	0.9	70 - 130	30
Carbon tetrachloride	ND	0.005	106	114	7.3	115	112	2.6	70 - 130	30
Chlorobenzene	ND	0.005	100	110	9.5	103	100	3.0	70 - 130	30
Chloroethane	ND	0.005	93	99	6.3	100	98	2.0	70 - 130	30
Chloroform	ND	0.005	97	104	7.0	103	100	3.0	70 - 130	30
Chloromethane	ND	0.005	79	84	6.1	79	79	0.0	70 - 130	30
cis-1,2-Dichloroethene	ND	0.005	96	103	7.0	99	97	2.0	70 - 130	30
cis-1,3-Dichloropropene	ND	0.005	99	106	6.8	96	97	1.0	70 - 130	30
Dibromochloromethane	ND	0.003	117	128	9.0	122	122	0.0	70 - 130	30
Dibromomethane	ND	0.005	96	104	8.0	102	101	1.0	70 - 130	30
Dichlorodifluoromethane	ND	0.005	86	90	4.5	87	86	1.2	70 - 130	30
Ethylbenzene	ND	0.001	102	112	9.3	106	104	1.9	70 - 130	30

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Hexachlorobutadiene	ND	0.005	106	115	8.1	101	98	3.0	70 - 130	30	
Isopropylbenzene	ND	0.001	101	110	8.5	103	103	0.0	70 - 130	30	
m&p-Xylene	ND	0.002	102	112	9.3	104	104	0.0	70 - 130	30	
Methyl ethyl ketone	ND	0.005	88	94	6.6	88	85	3.5	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	0.001	89	95	6.5	96	93	3.2	70 - 130	30	
Methylene chloride	ND	0.005	94	100	6.2	104	102	1.9	70 - 130	30	
Naphthalene	ND	0.005	105	116	10.0	99	98	1.0	70 - 130	30	
n-Butylbenzene	ND	0.001	106	114	7.3	94	96	2.1	70 - 130	30	
n-Propylbenzene	ND	0.001	101	109	7.6	98	98	0.0	70 - 130	30	
o-Xylene	ND	0.002	101	110	8.5	106	105	0.9	70 - 130	30	
p-Isopropyltoluene	ND	0.001	108	116	7.1	104	104	0.0	70 - 130	30	
sec-Butylbenzene	ND	0.001	108	116	7.1	108	107	0.9	70 - 130	30	
Styrene	ND	0.005	105	115	9.1	105	105	0.0	70 - 130	30	
tert-Butylbenzene	ND	0.001	104	112	7.4	106	105	0.9	70 - 130	30	
Tetrachloroethene	ND	0.005	100	107	6.8	98	99	1.0	70 - 130	30	
Tetrahydrofuran (THF)	ND	0.005	90	95	5.4	93	92	1.1	70 - 130	30	
Toluene	ND	0.001	96	104	8.0	98	98	0.0	70 - 130	30	
trans-1,2-Dichloroethene	ND	0.005	102	107	4.8	105	101	3.9	70 - 130	30	
trans-1,3-Dichloropropene	ND	0.005	101	110	8.5	101	101	0.0	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	0.005	113	123	8.5	105	104	1.0	70 - 130	30	
Trichloroethene	ND	0.005	98	105	6.9	102	101	1.0	70 - 130	30	
Trichlorofluoromethane	ND	0.005	94	100	6.2	102	100	2.0	70 - 130	30	
Trichlorotrifluoroethane	ND	0.005	98	104	5.9	101	100	1.0	70 - 130	30	
Vinyl chloride	ND	0.005	90	96	6.5	93	91	2.2	70 - 130	30	
% 1,2-dichlorobenzene-d4	103	%	103	101	2.0	102	101	1.0	70 - 130	30	
% Bromofluorobenzene	93	%	102	102	0.0	102	103	1.0	70 - 130	30	
% Dibromofluoromethane	102	%	104	100	3.9	101	101	0.0	70 - 130	30	
% Toluene-d8	99	%	101	100	1.0	100	101	1.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 354835 (mg/Kg), QC Sample No: BN87214 (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)

TPH by GC (Extractable Products) - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Ext. Petroleum H.C.	ND	50	63	55	13.6	57	80	33.6	60 - 120	30	l,r
% n-Pentacosane	63	%	71	60	16.8	63	89	34.2	50 - 150	30	r

Comment:

Additional criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%.

QA/QC Batch 354843 (mg/Kg), QC Sample No: BN87810 2X (BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)

Polychlorinated Biphenyls - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
PCB-1016	ND	0.033	64	73	13.1	76	69	9.7	40 - 140	30
PCB-1221	ND	0.033							40 - 140	30
PCB-1232	ND	0.033							40 - 140	30
PCB-1242	ND	0.033							40 - 140	30
PCB-1248	ND	0.033							40 - 140	30
PCB-1254	ND	0.033							40 - 140	30
PCB-1260	ND	0.033	75	84	11.3	81	76	6.4	40 - 140	30
PCB-1262	ND	0.033							40 - 140	30
PCB-1268	ND	0.033							40 - 140	30
% DCBP (Surrogate Rec)	89	%	85	94	10.1	87	81	7.1	30 - 150	30
% TCMX (Surrogate Rec)	84	%	70	82	15.8	85	77	9.9	30 - 150	30

QA/QC Batch 354841 (mg/Kg), QC Sample No: BN87821 (BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821)

Semivolatiles - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
1,2,4,5-Tetrachlorobenzene	ND	0.23	67	71	5.8	61	73	17.9	30 - 130	30
1,2,4-Trichlorobenzene	ND	0.23	64	66	3.1	61	67	9.4	30 - 130	30
1,2-Dichlorobenzene	ND	0.18	54	56	3.6	49	55	11.5	30 - 130	30

QA/QC Data

SDG I.D.: GBN87810

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,2-Diphenylhydrazine	ND	0.23	79	85	7.3	69	80	14.8	30 - 130	30	
1,3-Dichlorobenzene	ND	0.23	53	57	7.3	50	54	7.7	30 - 130	30	
1,4-Dichlorobenzene	ND	0.23	53	54	1.9	48	52	8.0	30 - 130	30	
2,4,5-Trichlorophenol	ND	0.23	70	79	12.1	61	73	17.9	30 - 130	30	
2,4,6-Trichlorophenol	ND	0.13	66	72	8.7	60	67	11.0	30 - 130	30	
2,4-Dichlorophenol	ND	0.13	68	66	3.0	61	71	15.2	30 - 130	30	
2,4-Dimethylphenol	ND	0.23	62	68	9.2	50	62	21.4	30 - 130	30	
2,4-Dinitrophenol	ND	0.23	16	18	11.8	37	44	17.3	30 - 130	30	l
2,4-Dinitrotoluene	ND	0.13	75	75	0.0	68	78	13.7	30 - 130	30	
2,6-Dinitrotoluene	ND	0.13	75	74	1.3	67	79	16.4	30 - 130	30	
2-Chloronaphthalene	ND	0.23	67	68	1.5	59	72	19.8	30 - 130	30	
2-Chlorophenol	ND	0.23	59	60	1.7	55	61	10.3	30 - 130	30	
2-Methylnaphthalene	ND	0.23	66	72	8.7	66	75	12.8	30 - 130	30	
2-Methylphenol (o-cresol)	ND	0.23	55	56	1.8	47	59	22.6	30 - 130	30	
2-Nitroaniline	ND	0.33	75	76	1.3	65	75	14.3	30 - 130	30	
2-Nitrophenol	ND	0.23	64	59	8.1	59	59	0.0	30 - 130	30	
3&4-Methylphenol (m&p-cresol)	ND	0.23	65	62	4.7	60	63	4.9	30 - 130	30	
3,3'-Dichlorobenzidine	ND	0.13	68	71	4.3	56	64	13.3	30 - 130	30	
3-Nitroaniline	ND	0.33	69	70	1.4	62	68	9.2	30 - 130	30	
4,6-Dinitro-2-methylphenol	ND	0.23	48	53	9.9	59	61	3.3	30 - 130	30	
4-Bromophenyl phenyl ether	ND	0.23	68	67	1.5	65	69	6.0	30 - 130	30	
4-Chloro-3-methylphenol	ND	0.23	71	73	2.8	67	78	15.2	30 - 130	30	
4-Chloroaniline	ND	0.23	63	68	7.6	64	66	3.1	30 - 130	30	
4-Chlorophenyl phenyl ether	ND	0.23	72	76	5.4	62	76	20.3	30 - 130	30	
4-Nitroaniline	ND	0.23	75	77	2.6	66	79	17.9	30 - 130	30	
4-Nitrophenol	ND	0.23	69	77	11.0	66	75	12.8	30 - 130	30	
Acenaphthene	ND	0.23	74	70	5.6	66	73	10.1	30 - 130	30	
Acenaphthylene	ND	0.13	66	65	1.5	59	70	17.1	30 - 130	30	
Acetophenone	ND	0.23	56	55	1.8	56	60	6.9	30 - 130	30	
Aniline	ND	0.33	50	50	0.0	37	42	12.7	30 - 130	30	
Anthracene	ND	0.23	69	74	7.0	62	74	17.6	30 - 130	30	
Benz(a)anthracene	ND	0.23	68	73	7.1	54	58	7.1	30 - 130	30	
Benzidine	ND	0.33	28	31	10.2	<10	<10	NC	30 - 130	30	l,m
Benzo(a)pyrene	ND	0.13	67	70	4.4	52	58	10.9	30 - 130	30	
Benzo(b)fluoranthene	ND	0.16	72	71	1.4	55	61	10.3	30 - 130	30	
Benzo(ghi)perylene	ND	0.23	70	70	0.0	61	65	6.3	30 - 130	30	
Benzo(k)fluoranthene	ND	0.23	68	71	4.3	59	63	6.6	30 - 130	30	
Benzoic Acid	ND	0.33	19	13	37.5	24	27	11.8	30 - 130	30	l,m,r
Benzyl butyl phthalate	ND	0.23	71	72	1.4	67	76	12.6	30 - 130	30	
Bis(2-chloroethoxy)methane	ND	0.23	69	73	5.6	61	69	12.3	30 - 130	30	
Bis(2-chloroethyl)ether	ND	0.13	51	47	8.2	46	51	10.3	30 - 130	30	
Bis(2-chloroisopropyl)ether	ND	0.23	46	47	2.2	43	51	17.0	30 - 130	30	
Bis(2-ethylhexyl)phthalate	ND	0.23	66	71	7.3	68	75	9.8	30 - 130	30	
Carbazole	ND	0.23	73	71	2.8	66	77	15.4	30 - 130	30	
Chrysene	ND	0.23	74	77	4.0	56	57	1.8	30 - 130	30	
Dibenz(a,h)anthracene	ND	0.13	70	68	2.9	63	73	14.7	30 - 130	30	
Dibenzofuran	ND	0.23	72	73	1.4	65	73	11.6	30 - 130	30	
Diethyl phthalate	ND	0.23	75	75	0.0	66	78	16.7	30 - 130	30	
Dimethylphthalate	ND	0.23	74	75	1.3	63	74	16.1	30 - 130	30	
Di-n-butylphthalate	ND	0.23	74	78	5.3	67	78	15.2	30 - 130	30	
Di-n-octylphthalate	ND	0.23	71	74	4.1	68	74	8.5	30 - 130	30	
Fluoranthene	ND	0.23	71	74	4.1	38	40	5.1	30 - 130	30	
Fluorene	ND	0.23	72	78	8.0	65	79	19.4	30 - 130	30	
Hexachlorobenzene	ND	0.13	72	72	0.0	67	85	23.7	30 - 130	30	
Hexachlorobutadiene	ND	0.23	64	72	11.8	64	70	9.0	30 - 130	30	
Hexachlorocyclopentadiene	ND	0.23	59	66	11.2	54	63	15.4	30 - 130	30	
Hexachloroethane	ND	0.13	47	57	19.2	49	54	9.7	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	0.23	69	69	0.0	59	63	6.6	30 - 130	30	
Isophorone	ND	0.13	65	66	1.5	59	69	15.6	30 - 130	30	

QA/QC Data

SDG I.D.: GBN87810

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Naphthalene	ND	0.23	63	68	7.6	61	69	12.3	30 - 130	30	
Nitrobenzene	ND	0.13	60	57	5.1	54	63	15.4	30 - 130	30	
N-Nitrosodimethylamine	ND	0.23	54	55	1.8	48	52	8.0	30 - 130	30	
N-Nitrosodi-n-propylamine	ND	0.13	60	60	0.0	59	62	5.0	30 - 130	30	
N-Nitrosodiphenylamine	ND	0.13	77	79	2.6	69	82	17.2	30 - 130	30	
Pentachloronitrobenzene	ND	0.23	68	71	4.3	76	81	6.4	30 - 130	30	
Pentachlorophenol	ND	0.23	50	53	5.8	47	55	15.7	30 - 130	30	
Phenanthrene	ND	0.13	70	74	5.6	57	63	10.0	30 - 130	30	
Phenol	ND	0.23	62	61	1.6	58	64	9.8	30 - 130	30	
Pyrene	ND	0.23	74	76	2.7	48	51	6.1	30 - 130	30	
Pyridine	ND	0.23	44	54	20.4	35	42	18.2	30 - 130	30	
% 2,4,6-Tribromophenol	82	%	84	86	2.4	75	88	16.0	30 - 130	30	
% 2-Fluorobiphenyl	60	%	64	62	3.2	55	64	15.1	30 - 130	30	
% 2-Fluorophenol	56	%	60	59	1.7	53	57	7.3	30 - 130	30	
% Nitrobenzene-d5	52	%	60	57	5.1	54	58	7.1	30 - 130	30	
% Phenol-d5	58	%	61	54	12.2	56	64	13.3	30 - 130	30	
% Terphenyl-d14	70	%	67	71	5.8	65	78	18.2	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 354851 (mg/Kg), QC Sample No: BN87920 (BN87810, BN87811, BN87812, BN87813)

Semivolatiles - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,2,4,5-Tetrachlorobenzene	ND	0.23	53	61	14.0	70	56	22.2	30 - 130	30	
1,2,4-Trichlorobenzene	ND	0.23	52	60	14.3	68	56	19.4	30 - 130	30	
1,2-Dichlorobenzene	ND	0.18	47	54	13.9	60	49	20.2	30 - 130	30	
1,2-Diphenylhydrazine	ND	0.23	58	68	15.9	74	64	14.5	30 - 130	30	
1,3-Dichlorobenzene	ND	0.23	44	51	14.7	57	46	21.4	30 - 130	30	
1,4-Dichlorobenzene	ND	0.23	45	53	16.3	59	48	20.6	30 - 130	30	
2,4,5-Trichlorophenol	ND	0.23	58	66	12.9	72	62	14.9	30 - 130	30	
2,4,6-Trichlorophenol	ND	0.13	59	68	14.2	74	62	17.6	30 - 130	30	
2,4-Dichlorophenol	ND	0.13	55	64	15.1	73	60	19.5	30 - 130	30	
2,4-Dimethylphenol	ND	0.23	54	64	16.9	72	57	23.3	30 - 130	30	
2,4-Dinitrophenol	ND	0.23	13	15	14.3	59	45	26.9	30 - 130	30	l
2,4-Dinitrotoluene	ND	0.13	61	70	13.7	75	65	14.3	30 - 130	30	
2,6-Dinitrotoluene	ND	0.13	60	70	15.4	74	63	16.1	30 - 130	30	
2-Chloronaphthalene	ND	0.23	56	65	14.9	73	61	17.9	30 - 130	30	
2-Chlorophenol	ND	0.23	52	61	15.9	68	56	19.4	30 - 130	30	
2-Methylnaphthalene	ND	0.23	57	65	13.1	75	61	20.6	30 - 130	30	
2-Methylphenol (o-cresol)	ND	0.23	54	63	15.4	70	58	18.8	30 - 130	30	
2-Nitroaniline	ND	0.33	59	72	19.8	73	65	11.6	30 - 130	30	
2-Nitrophenol	ND	0.23	54	63	15.4	71	60	16.8	30 - 130	30	
3&4-Methylphenol (m&p-cresol)	ND	0.23	55	66	18.2	73	60	19.5	30 - 130	30	
3,3'-Dichlorobenzidine	ND	0.13	51	62	19.5	61	53	14.0	30 - 130	30	
3-Nitroaniline	ND	0.33	57	66	14.6	69	60	14.0	30 - 130	30	
4,6-Dinitro-2-methylphenol	ND	0.23	30	32	6.5	68	57	17.6	30 - 130	30	
4-Bromophenyl phenyl ether	ND	0.23	60	69	14.0	74	62	17.6	30 - 130	30	
4-Chloro-3-methylphenol	ND	0.23	60	68	12.5	76	63	18.7	30 - 130	30	
4-Chloroaniline	ND	0.23	59	69	15.6	73	59	21.2	30 - 130	30	
4-Chlorophenyl phenyl ether	ND	0.23	57	66	14.6	71	61	15.2	30 - 130	30	
4-Nitroaniline	ND	0.23	62	71	13.5	78	67	15.2	30 - 130	30	
4-Nitrophenol	ND	0.23	53	64	18.8	79	67	16.4	30 - 130	30	
Acenaphthene	ND	0.23	59	68	14.2	75	62	19.0	30 - 130	30	
Acenaphthylene	ND	0.13	56	65	14.9	71	60	16.8	30 - 130	30	
Acetophenone	ND	0.23	52	61	15.9	66	56	16.4	30 - 130	30	
Aniline	ND	0.33	50	58	14.8	58	48	18.9	30 - 130	30	
Anthracene	ND	0.23	61	70	13.7	75	65	14.3	30 - 130	30	
Benz(a)anthracene	ND	0.23	60	69	14.0	77	65	16.9	30 - 130	30	
Benzidine	ND	0.33	21	30	35.3	<10	<10	NC	30 - 130	30	l,m,r

QA/QC Data

SDG I.D.: GBN87810

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Benzo(a)pyrene	ND	0.13	57	67	16.1	72	61	16.5	30 - 130	30	
Benzo(b)fluoranthene	ND	0.16	58	72	21.5	76	69	9.7	30 - 130	30	
Benzo(ghi)perylene	ND	0.23	60	70	15.4	69	64	7.5	30 - 130	30	
Benzo(k)fluoranthene	ND	0.23	60	67	11.0	74	59	22.6	30 - 130	30	
Benzoic Acid	ND	0.33	<10	<10	NC	40	39	2.5	30 - 130	30	l
Benzyl butyl phthalate	ND	0.23	60	70	15.4	77	66	15.4	30 - 130	30	
Bis(2-chloroethoxy)methane	ND	0.23	57	68	17.6	74	62	17.6	30 - 130	30	
Bis(2-chloroethyl)ether	ND	0.13	48	56	15.4	62	51	19.5	30 - 130	30	
Bis(2-chloroisopropyl)ether	ND	0.23	45	54	18.2	59	49	18.5	30 - 130	30	
Bis(2-ethylhexyl)phthalate	ND	0.23	59	69	15.6	77	65	16.9	30 - 130	30	
Carbazole	ND	0.23	59	68	14.2	75	63	17.4	30 - 130	30	
Chrysene	ND	0.23	66	75	12.8	81	70	14.6	30 - 130	30	
Dibenz(a,h)anthracene	ND	0.13	58	69	17.3	68	64	6.1	30 - 130	30	
Dibenzofuran	ND	0.23	58	66	12.9	72	61	16.5	30 - 130	30	
Diethyl phthalate	ND	0.23	62	71	13.5	77	65	16.9	30 - 130	30	
Dimethylphthalate	ND	0.23	60	70	15.4	74	63	16.1	30 - 130	30	
Di-n-butylphthalate	ND	0.23	63	74	16.1	77	66	15.4	30 - 130	30	
Di-n-octylphthalate	ND	0.23	60	71	16.8	80	68	16.2	30 - 130	30	
Fluoranthene	ND	0.23	60	70	15.4	71	60	16.8	30 - 130	30	
Fluorene	ND	0.23	60	69	14.0	75	63	17.4	30 - 130	30	
Hexachlorobenzene	ND	0.13	60	69	14.0	75	63	17.4	30 - 130	30	
Hexachlorobutadiene	ND	0.23	50	57	13.1	67	53	23.3	30 - 130	30	
Hexachlorocyclopentadiene	ND	0.23	52	63	19.1	66	55	18.2	30 - 130	30	
Hexachloroethane	ND	0.13	44	52	16.7	57	47	19.2	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	0.23	57	66	14.6	68	62	9.2	30 - 130	30	
Isophorone	ND	0.13	51	61	17.9	68	55	21.1	30 - 130	30	
Naphthalene	ND	0.23	53	62	15.7	70	57	20.5	30 - 130	30	
Nitrobenzene	ND	0.13	52	61	15.9	68	57	17.6	30 - 130	30	
N-Nitrosodimethylamine	ND	0.23	44	52	16.7	59	45	26.9	30 - 130	30	
N-Nitrosodi-n-propylamine	ND	0.13	55	65	16.7	73	60	19.5	30 - 130	30	
N-Nitrosodiphenylamine	ND	0.13	63	73	14.7	79	68	15.0	30 - 130	30	
Pentachloronitrobenzene	ND	0.23	61	69	12.3	75	63	17.4	30 - 130	30	
Pentachlorophenol	ND	0.23	57	66	14.6	83	69	18.4	30 - 130	30	
Phenanthrene	ND	0.13	60	69	14.0	69	56	20.8	30 - 130	30	
Phenol	ND	0.23	56	66	16.4	72	59	19.8	30 - 130	30	
Pyrene	ND	0.23	63	71	11.9	73	62	16.3	30 - 130	30	
Pyridine	ND	0.23	32	34	6.1	36	28	25.0	30 - 130	30	m
% 2,4,6-Tribromophenol	65	%	63	73	14.7	81	71	13.2	30 - 130	30	
% 2-Fluorobiphenyl	55	%	54	62	13.8	68	58	15.9	30 - 130	30	
% 2-Fluorophenol	56	%	54	64	16.9	70	57	20.5	30 - 130	30	
% Nitrobenzene-d5	51	%	49	59	18.5	64	54	16.9	30 - 130	30	
% Phenol-d5	58	%	55	66	18.2	72	60	18.2	30 - 130	30	
% Terphenyl-d14	64	%	60	68	12.5	72	62	14.9	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
August 11, 2016

Sample Criteria Exceedences Report

Criteria: None

GBN87810 - TRC-DAS

State: CT

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** TRC Environmental Corp.

Project Location: CCSU-KELSER ANNEX ***Project Number:***

Laboratory Sample ID(s): BN87810-BN87821 ***Sampling Date(s):*** 8/5/2016

List RCP Methods Used (e.g., 8260, 8270, et cetera) 1311/1312, 6010, 7470/7471, 8082, 8260, 8270, ETPH

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Sections: ETPH Narration, ICP Narration, SVOA Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?**	☐ Yes ☑ No
	b) Were these reporting limits met?	☑ Yes ☐ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☐ Yes ☑ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee **Position:** Project Manager

Printed Name: Ethan Lee **Date:** Thursday, August 11, 2016

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

August 11, 2016

SDG I.D.: GBN87810

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 RCP list. Only the RCRA 8 Metals are reported as requested on the chain of custody.

Cyanide Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

LACHAT 08/08/16-1 Dustin Harrison, Greg Danielewski, Chemist 08/08/16

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

LACHAT 08/09/16-1 Brian Sheriden, Greg Danielewski, Chemist 08/09/16

BN87821

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

QC (Batch Specific):

Batch 354884 (BN86601)

BN87810, BN87811, BN87812

All LCS recoveries were within 80 - 120 with the following exceptions: None.

Batch 354885 (BN87813)

BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820

All LCS recoveries were within 80 - 120 with the following exceptions: None.

Batch 355043 (BN86983)

BN87821

All LCS recoveries were within 80 - 120 with the following exceptions: None.

ETPH Narration

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NY # 11301

RCP Certification Report

August 11, 2016

SDG I.D.: GBN87810

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 354835 (Samples: BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821): -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Ext. Petroleum H.C.)

Instrument:

AUFID-D1 08/08/16-2 Jeff Bucko, Chemist 08/08/16

BN87810, BN87811, BN87818, BN87820, BN87821

The initial calibration (ETPH720I) RSD for the compound list was less than 30% except for the following compounds: None.
As per section 7.2.3, a discrimination check standard was run and contained the following outliers: C36 74.9%L (20%)
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-XL1 08/08/16-2 Jeff Bucko, Chemist 08/08/16

BN87812, BN87813, BN87814, BN87815, BN87816

The initial calibration (ETPH720I) RSD for the compound list was less than 30% except for the following compounds: None.
As per section 7.2.3, a discrimination check standard was run and contained the following outliers: C36 60.7%L (20%)
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-XL2 08/09/16-1 Jeff Bucko, Chemist 08/09/16

BN87817, BN87819

The initial calibration (ETPH808I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

QC (Batch Specific):

Batch 354835 (BN87214)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: Ext. Petroleum H.C.(55%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 08/08/16 08:03 Mike Arsenault, Rick Schweitzer, Rick Schweitzer, Chemist 0

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

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Certification Report

August 11, 2016

SDG I.D.: GBN87810

Mercury Narration

MERLIN 08/09/16 08:10 Mike Arsenault, Rick Schweitzer, Rick Schweitzer, Chemist 0

BN87821

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 354919 (BN87314)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

Batch 354920 (BN86102)

BN87820, BN87821

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

Batch 354921 (BN87810)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820

All LCS recoveries were within 70 - 130 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

Batch 354922 (BN86935)

BN87821

All LCS recoveries were within 70 - 130 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? No.

QC Batch 354846 (Samples: BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821): -----

A trace amount of an analyte was found in blank. Due to the concentration in the blank relative to the samples, no bias is suspected. (Soil- Lead(BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821))

Instrument:

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NY # 11301

Certification Report

August 11, 2016

SDG I.D.: GBN87810

ICP Metals Narration

ARCOS 08/07/16 19:06 Laura Kinnin, Chemist 08/07/16

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

ARCOS 08/09/16 05:44 Laura Kinnin, Chemist 08/09/16

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 354846 (BN87810)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

All LCS recoveries were within 75 - 125 with the following exceptions: None.

Batch 354925 (BN87235)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

All LCS recoveries were within 75 - 125 with the following exceptions: None.

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD5 08/08/16-1 Adam Werner, Chemist 08/08/16

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

The initial calibration (PC0729AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC0729BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 354843 (BN87810)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

SVOA Narration

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

August 11, 2016

SDG I.D.: GBN87810

SVOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 354841 (Samples: BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (2,4-Dinitrophenol)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Benzoic Acid)

The QC recoveries for one or more analytes is below the method criteria. A slight low bias is likely. (Benzidine, Benzoic Acid)

QC Batch 354851 (Samples: BN87810, BN87811, BN87812, BN87813): -----

The QC recoveries for one or more analytes are below method criteria. A low bias is possible. (Benzidine)

One or more analytes is below the method criteria. A low bias for these analytes is possible. (2,4-Dinitrophenol, Benzoic Acid)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Benzidine)

Instrument:

CHEM06 08/05/16-2 Damien Drobinski, Chemist 08/05/16

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

The DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.

Initial Calibration Verification (CHEM06/SV_0727):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: 2,4-Dimethylphenol 23% (20%), 2-Nitrophenol 21% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM06/0805_32A-SV_0727):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 354841 (BN87821)

BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

All LCS recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(16%), Benzidine(28%), Benzoic Acid(19%)
All LCSD recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(18%), Benzoic Acid(13%)

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

August 11, 2016

SDG I.D.: GBN87810

SVOA Narration

All LCS/LCSD RPDs were less than 30% with the following exceptions: Benzoic Acid(37.5%)

Batch 354851 (BN87920)

BN87810, BN87811, BN87812, BN87813

All LCS recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(13%), Benzidine(21%), Benzoic Acid(<10%)
All LCSD recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(15%), Benzoic Acid(<10%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: Benzidine(35.3%)

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

CHEM03 08/05/16-2 Jane Li, Chemist 08/05/16

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

Initial Calibration Verification (CHEM03/VT-L0801):
99% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromoform 24% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM03/0805L34-VT-L0801):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 354960 (BN86624)

BN87810, BN87811, BN87812, BN87813, BN87814, BN87815, BN87816, BN87817, BN87818, BN87819, BN87820, BN87821

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Temperature Narration

The samples were received at 2C with cooling initiated.
(Note acceptance criteria is above freezing up to 6°C)

Cooler: Yes ☑ No ☐
Coolant: IPK ☐ ICE ☑ No ☐
Temp 0 °C Pg of

PHOENIX Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery:
☐ Fax #:
☑ Email: bayres@TRCSolutions.com / MMahoney@TRCSolutions.com

Customer: TRC Solutions Inc.
Address: 21 Griffin Rd. N
Windsor CT 06095

Project: CCSU - Kaiser Annex
Report to: Marya Mahoney
Invoice to: Chris Lindahl
Phone #: 860-298-9692
Fax #:

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 8/5/16

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe
OIL=Oil B=Bulk L=Liquid

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	VOCs Method 8260	SVOCs Method 8270	ETPH CT Method	PCBs Method 8082	Total and TCLP RCRA 8's	Reactive Sulfide	Cyanide	Conductivity	Flashpoint	pH			Soil VOA Vials [1] methanol (2) H2O	GL Soil container (8) oz (4) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ]250ml [ ]500ml [ ]1000ml	PL H2SO4 [ ]250ml [ ]500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria (as is)	Bacteria (w/thio)
87810	SB-1	S	8-5-16	0825	X	X	X	X	X	X	X	X	X	X			3	3								
87811	SB-2			0840	X	X	X	X	X	X	X	X	X	X			3	3								
87812	SB-12			0900	X	X	X	X	X	X	X	X	X	X			3	3								
87813	SB-8			0925	X	X	X	X	X	X	X	X	X	X			3	3								
87814	SB-7			1000	X	X	X	X	X	X	X	X	X	X			3	3								
87815	SB-6			1025	X	X	X	X	X	X	X	X	X	X			3	3								
87816	SB-5			1055	X	X	X	X	X	X	X	X	X	X			3	3								
87817	SB-4			1115	X	X	X	X	X	X	X	X	X	X			3	3								
87818	SB-3			1130	X	X	X	X	X	X	X	X	X	X			3	3								
87819	SB-9			1250	X	X	X	X	X	X	X	X	X	X			3	3								
87820	SB-10			1320	X	X	X	X	X	X	X	X	X	X			3	3								
87821	SB-11			1400	X	X	X	X	X	X	X	X	X	X			3	3								

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	8/5/16	16:48

RI
☐ Direct Exposure (Residential)
☐ GW
☐ Other

CT
☒ RCP Cert
☐ GW Protection
☐ SW Protection
☐ GA Mobility
☐ GB Mobility
☐ Residential DEC
☐ I/C DEC
☐ Other

MA
☐ MCP Certification
☐ GW-1
☐ GW-2
☐ GW-3
☐ S-1
☐ S-2
☐ S-3
☐ MWRA eSMART
☐ Other

Data Format
☒ Excel
☒ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist
☐ Full Data Package*
☒ Phoenix Std Report
☐ Other

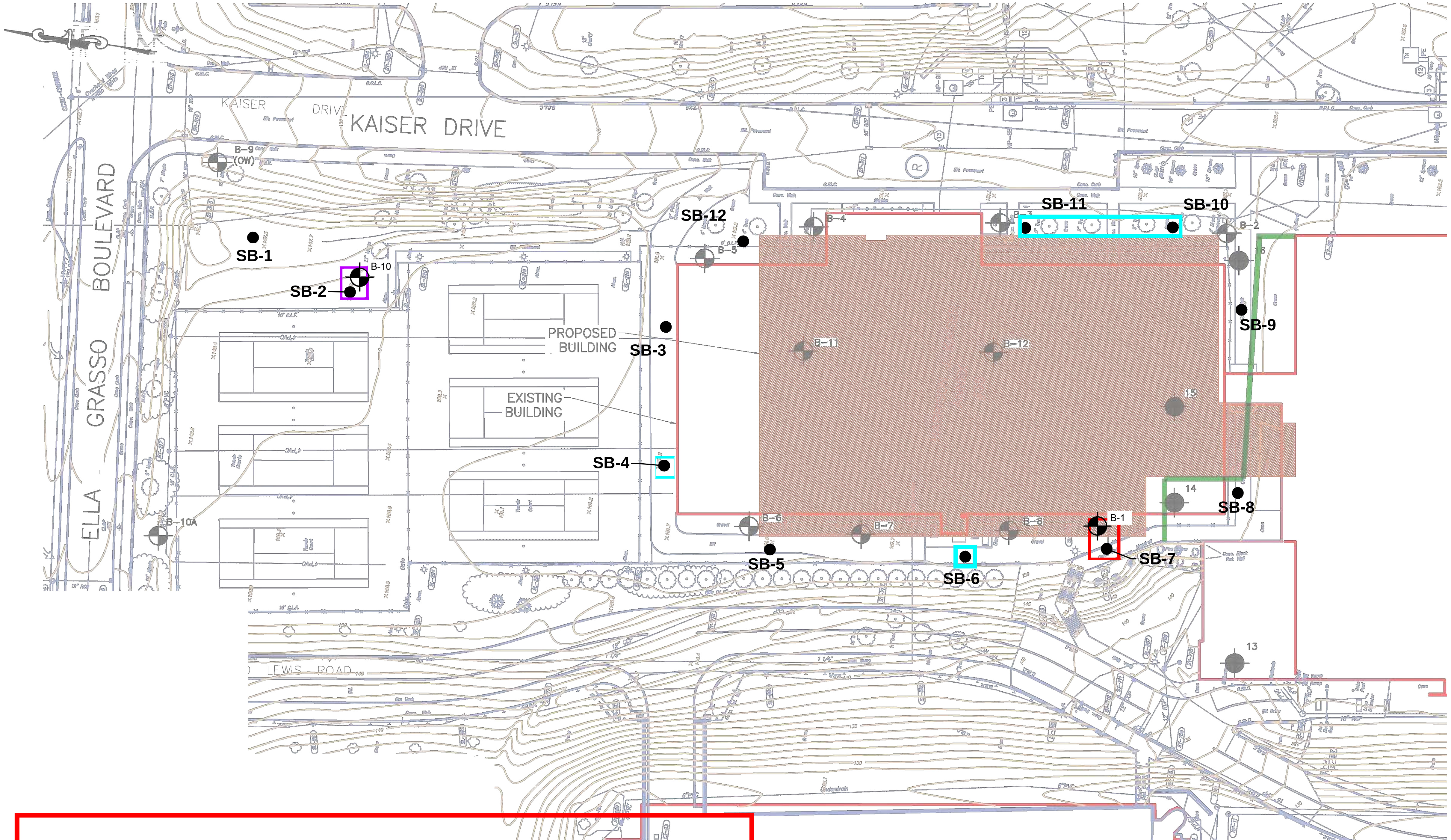
* SURCHARGE APPLIES

Comments, Special Requirements or Regulations:
- Pricing Per DAS Contract with State of CT
- All Samples Collected from this site

Turnaround:
☐ 1 Day*
☒ 2 Days*
☐ 3 Days*
☐ Standard
☐ Other

* SURCHARGE APPLIES

State where samples were collected: CT



LEGEND

●	TRC SOIL BORING LOCATION
B-1 ⌖	GEODESIGN BORING LOCATION
Purple box	CLASS I-1 CONTAMINATED SOIL (SOIL MEETS CRITERIA FOR THERMAL TREATMENT OR RECYCLING AT A TREATMENT OR RECYCLE FACILITY)
Red box	CLASS I-2 CONTAMINATED SOIL (OFF-SITE DISPOSAL AT A MASSACHUSETTS PERMITTED LINED OR UNLINED LANDFILL)
Cyan box	CLASS II CONDITIONAL FILL (OFF-SITE DISPOSAL AS FILL OR GRADING MATERIAL)
NO BOX	CLASS III CLEAN FILL (ALL OTHER SITE SOILS: OFF-SITE DISPOSAL)

Excavation Details for Contaminated Soil and Polluted Fill Removal:

- SB-2: Approx. 90 cubic yards: 24 ft (width) x 25 ft (length) x 4 ft (depth);
- SB-7: Approx. 240 cubic yards: 27 ft (width) x 30 ft (length) x 8 ft (depth);
- SB-6: Approx. 30 cubic yards: 10 ft (width) x 10 ft (length) x 8 ft (depth);
- SB-11/SB-10: Approx. 330 cubic yards: 15 ft (width) x 75 ft (length) x 8 ft (depth);
- SB-4: Approx. 15 cubic yards: 10 ft (width) x 10 ft (length) x 4 ft (depth); .

NOTE:
BASE INFORMATION TAKEN FROM DRAWING BY GEODESIGN CORP. PROJECT: CCSU KAISER HALL, NEW BRITAIN, CT , TITLE: EXPLORATION LOCATION PLAN, PROJECT NO. 0182-049.00, SCALE: 1"=50', DATE: 02/04/2016, FIGURE 2, DESIGN: ULF, DRAWN: VAM, CHECK BY: ULF, APPROVED BY: ULF.

0 60' 120'
GRAPHIC SCALE

PROJECT: CENTRAL CONNECTICUT STATE UNIVERSITY KAISER HALL KAISER DRIVE, CONNECTICUT

TITLE: LIMITS OF CONTAMINATED SOIL AND CONDITIONAL FILL

DRAWN BY:
CHECKED BY:
APPROVED BY:
DATE:
PROJ NO.:

Drawing EV-1.00

DRAWING TO BE USED ONLY FOR DEFINING THE LIMITS OF THE CONTAMINATED SOIL AND CONDITIONAL FILL REMOVAL

FILE NO.:

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: J:\CAD\New Britain\CCSU KAISER HALL- 260041\000001 Plate-1.dwg --- PLOT DATE: October 28, 2016 - 10:27AM --- LAYOUT: Figure-1

Addendum 4 September 1, 2017

APPENDIX C

Appendix C - TRC
Pre-Renovation Investigative Survey for Asbestos-Containing Materials
Central Connecticut State University – Kaiser Hall
New Britain, Connecticut
Project No. RC-12-10, DPW No. 39744
Dated September 5, 2012
23 pages

REPORT

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL NEW BRITAIN, CONNECTICUT

Project No. RC-12-10
DPW No. 39744

Prepared for

State of Connecticut
Department of Construction Services
Hartford, Connecticut

Prepared by

TRC
Windsor, Connecticut

September 5, 2012

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL NEW BRITAIN, CONNECTICUT

Project No. RC-12-10
DPW No. 39744

Prepared for
State of Connecticut
Department of Construction Services
Hartford, Connecticut

Prepared by
TRC
Windsor, Connecticut

Donald LePage

Donald LePage
Project Manager

TRC Project No. 164560-5330-0001
September 5, 2012

TRC
21 Griffin Road North
Windsor, Connecticut 06095
Telephone (860) 298-9692
Facsimile (860) 298-6399

TABLE OF CONTENTS

EXECUTIVE SUMMARY

On August 23, 2012 TRC of Windsor, Connecticut conducted an inspection for suspect asbestos-containing materials (ACM) at Central Connecticut State University – Kaiser Hall in New Britain, Connecticut. The inspection was initiated prior to planned renovation activities in accordance with USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAPS) requirements.

The scope of the inspection was limited to the fire door areas at the subject buildings. A Connecticut licensed asbestos inspector from TRC conducted the inspection in accordance with USEPA AHERA protocols and ASTM Standard E2356-04. Bulk samples of suspect materials were collected and analyzed via polarized light microscopy (PLM) method at a CTDPH/NVLAP accredited laboratory. No ACM was identified in the subject area. ACM to be impacted by renovation activities must be removed prior to disturbance in accordance with OSHA, USEPA, CTDPH, and CTDEP standards for asbestos abatement/disposal. Detailed results of the asbestos survey can be found in Tables 1-3 and Appendices A through D.

PROJECT OUTLINE

Project Address:	Central Connecticut State University Kaiser Hall New Britain, CT
DCS Contract No.	08PSX0202
DCS Project Manager:	Michael Sanders
DCS Project No.:	RC-12-10
DCS Building No:	39744
TRC Project No.:	164560-5330-0001
TRC Project Manager:	Don LePage
Asbestos Inspector:	Christopher Gaines (LIC #000689)
Date of Inspection:	6/23/12
Asbestos Identified:	No

Additional Notes:

The site investigation was limited to the collection and analysis of suspect asbestos-containing fire door materials from within Kaiser Hall.

TABLES

TABLE 1 BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL NEW BRITAIN, CONNECTICUT			
Sample No.	**Sample Location**	**Homogeneous Material**	**% and Type Asbestos**
1	Kaiser Hall – Room 029 door	White fire door insulation (FD1)	ND<1%
2	Kaiser Hall – Room 029 door	White fire door insulation (FD1)	ND<1%
3	Kaiser Hall – Room 0135 door	Metal fire door insulation – black tar over fiberglass (FD2)	ND<1%
4	Kaiser Hall – Room 0135 door	Metal fire door insulation – black tar over fiberglass (FD2)	ND<1%

NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM
NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
ND<1% Non-detected, less than 1%
NAD No asbestos detected
+ Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
1 NOB material; result confirmed by TEM analyses
* Quantified by PLM Point Counting techniques

TABLE 2 IDENTIFIED ASBESTOS CONTAINING MATERIALS (>1%) CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL NEW BRITAIN, CONNECTICUT					
Material	**Sampled-Assumed (mo/yr)**	**General Location**	**NESHAP Category**	**AHERA Category**	**Estimated Quantity**
NO ASBESTOS CONTAINING MATERIALS WERE IDENTIFIED IN THE SUBJECT AREA					

AHERA Categories = thermal system insulation (TSI), surfacing material or miscellaneous
NESHAP Categories = friable, category I non-friable or category II non-friable
Friable = crumbled, pulverized or reduced to powder by hand pressure when dry
Category I Non-friable = packings, gaskets, resilient floor covering and asphalt roofing
Category II Non-friable = all non-friable that is not Category I

TABLE 3
CONFIRMED NON-ASBESTOS CONTAINING MATERIALS
CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL
NEW BRITAIN, CONNECTICUT

Material	General Location
White fire door insulation (FD1)	Kaiser Hall – Room 029 door
Metal fire door insulation – black tar over fiberglass (FD2)	Kaiser Hall – Room 0135 door

APPENDIX A

SITE NOTES

SHEET NO. ______ OF ______
PROJECT NO. 164560. 5330. 0001
DATE 8/23/12
BY Chris Graves

TRC

SUBJECT CCSU - Kaiser Hall & Barnard Hall Fire Door inspection
CHK'D ______

FD1 - Wood door with window that has metal casing
FD2 - Metal Door w/ insulation

Kaiser

Rooms — insulation (if any)

40 South - wood
037 - wood
029 - FD1 - wood door w/ window
026 - wood
031 - wood
032 - wood
030 - wood (weight room)
033 - wood
034 - wood
035 - wood
036 - wood
016 - wood
012 - wood
123 - wood
124 - wood
135 - Metal Door FD2 (outside main entrance)

Barnard

Rooms — insulation (if any)

101 - New Door
102 - New Door
117 - FD4 - wood door w/ window
118 - Metal Door w/ fiber glass
119 - Solid wood door w/ white ~~[illegible]~~ insulation FD3
222 - wood
336 - New
20201 - wood
20202 - wood
33701 - New
33702 - New
33703 - New
123 A - New
014 - New solid wood door FD5

A

H.B.

101	Office	RFP	Get from Locknetics	New
102	Office	RFP	Get from Locknetics	New
117	Office	RFP	Get from Locknetics	- FD4 wood door w/ window
~~118~~	Classroom	RFP	Get from Locknetics	- Metal w/ F.G.
119	banner room	RFP	Get from Locknetics	- FD 3 solid wood w/ white
222	Meeting Room	RFP	Get from Locknetics	- Wood
336	Classroom	RFP	Banner load -	New
20201	Conference	RFP	Get from Locknetics	Wood
20202	Office	RFP	Get from Locknetics	
33701	Office	RFP	Ethan Einen -	New
33702	Office	RFP	Susan Sieder -	
33703	Office	RFP	Sheldon watson -	
123A	Office	RFP	Get from Locknetics	
014	office/custodian			FD5 - solid wood

APPENDIX B

LABORATORY AND INSPECTOR ACCREDITATIONS

State of Connecticut

Lookup Detail View

Name

Name
CHRISTOPHER A GAINES

License Information
lookup

License Type	License Number	Expiration Date	Granted Date	License Name	License Status	Licensure Actions or Pending Charges
Asbestos Consultant-Inspector	689	06/30/2013	11/14/2007	Christopher A. Gaines	ACTIVE	None

Generated on: 8/30/2012 9:57:29 AM

CERTIFICATE OF ACHIEVEMENT

This certifies that

Chris Gaines

has successfully completed the

Asbestos Site Inspector Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763

conducted by

ATC Associates Inc.
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Gregory J. Morach

Principal Instructor

September 22, 2011

Date of Course

September 22, 2012

Expiration Date

Gregory J. Morach

Regional Manager

SIAR – 3941

Certificate Number

September 22, 2011

Examination Date

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

TRC ENVIRONMENTAL CORPORATION

LOCATED AT 21 Griffin Road North IN Windsor, CT 06095

AND REGISTERED IN THE NAME OF Erik Plimpton

THIS CERTIFICATE IS ISSUED IN THE NAME OF Kathleen Williamson WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

ASBESTOS

AIR-FIBER COUNTING - PCM

BULK IDENTIFICATION - PLM

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES December 31, 2013 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 14th DAY OF December 2011

Registration No.

PH- 0426

SUZANNE BLANCAFLOR, MS

CHIEF, ENVIRONMENTAL HEALTH SECTION

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101424-0

TRC Environmental Corporation
Windsor, CT

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

2012-07-01 through 2013-06-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TRC Environmental Corporation
21 Griffin Road North
Windsor, CT 06095
Ms. Kathleen Williamson
Phone: 860-298-6392 Fax: 860-298-6214
E-Mail: kwilliamson@trcsolutions.com
URL: http://www.trcsolutions.com

BULK ASBESTOS FIBER ANALYSIS (PLM) **NVLAP LAB CODE 101424-0**

NVLAP Code	*Designation / Description*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

2012-07-01 through 2013-06-30

Effective dates

For the National Institute of Standards and Technology

NVLAP-01S (REV. 2005-05-19)

APPENDIX C

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORMS

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: October 2009
Supersede Previous Edition

LAB ID #. 41240

PROJECT NUMBER 164560.5330.0001

PROJECT NAME CCSU - Kaiser Hall / Barnard Hall

SIGNATURE Chris Gaines

INSPECTOR Chris Gaines

TURNAROUND TIME

PLM:	8hr	24hr X	48hr	3day
TEM:	24hr	48hr	3day	5day

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	8/23/12	0930		X	Kaiser Hall - Room 029	✓					White FD insulation (FD1)
02		0930			" Door "	✓					" "
03		1010			Kaiser Hall - Room 0135	✓					Metal FD insulation - black tar over fiberglass (FD2)
04		1010			" Door "	✓					
05		1035			Barnard Hall Room 119	✓					White fluffy FD insulation (FD3)
06		1035			" Door "	✓					
07		10:40			Barnard Hall Room 117	✓					White powdery FD insulation
08		1040			" Door "	✓					" (FD4) "
09		1045			Barnard Hall Room 014	✓					White powdery FD insulation (FD5)
10		1045		X	" Door "	✓					

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
Chris Gaines	8/23/12	8/23/12			
(Printed) Chris Gaines	Time: 14:30	(Printed) 1602 K Williamson	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples: OK
Acceptable: Yes ____ No ____
Comments:

APPENDIX D

PLM LABORATORY ANALYSIS DATA

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Construction Services

Site: CCSU, Barnard Hall & Kaiser Hall, New Britain, CT
Lab Log #: 41240
Project #: 164560.5330.0001
Date Received: 08/23/12
Date Analyzed: 08/24/12

RESULTS

Sample No.	Color	Homogeneous	Multi-Layered	Layer No.	Other Matrix Mat'ls	Asbestos %	Asbestos Type
01	White	Yes	No	--	30% cellulose	ND<1%	None
02	White	Yes	No	--	30% cellulose	ND<1%	None
03	Black	Yes	No	--	10% fiberglass	ND<1%	None
04	Black	Yes	No	--	10% fiberglass	ND<1%	None
05	White/Yellow	Yes	No	--	80% cellulose	5%	Chrysotile
06	--	--	--	--	--	NA/PS	--
07	Light Grey	Yes	No	--	60% cellulose	ND<1%	None
08	Light Grey	Yes	No	--	60% cellulose	ND<1%	None
09	Grey/Tan	Yes	No	--	30% cellulose	ND<1%	None
10	Grey/Tan	Yes	No	--	30% cellulose	ND<1%	None

NA/PS- Not Analyzed/Positive Stop

Reporting limit- asbestos present at 1%
ND<1% - asbestos was not detected
Trace- asbestos was observed at level of less than 1%

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, negative results must be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation (1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey which utilizes polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2013. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through October 1, 2012. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

TRC LABORATORY ASBESTOS ANALYTICAL ACCREDITATIONS

NVLAP Lab Code 101424-0 AIHA #100122 CT #PH-0426 ME LA-0075, LB-0071 MA #AA000052 NY #10980 WV# LT000356
RI #AAL-007C3 TX #300354 VT #AL014538 VA #3333 000283 AZ #A20944 HI #L-09-004 NJ #CT004 CA #10275CA

Analyzed by
Kathleen Williamson, Laboratory Manager

Reviewed by Helen Rimsa
Kathleen Williamson, Laboratory Manager
or other approved signatory

Date Issued: 8/27/12

APPENDIX D

Appendix D - TRC
Letter of Asbestos Bulk Sampling
Central Connecticut State University – Kaiser Hall
New Britain, Connecticut
DPW Project No. RC-10-09, DPW Building No. 39744, TRC Project No. 164560-1990-0001
Dated August 18, 2010
9 pages

TRC
21 Griffin Road North
Windsor, CT 06095-1512

860.298.9692 PHONE
860.298.6380 FAX

www.TRCsolutions.com

August 18, 2010

Mr. Robert LeBaron
Central Connecticut State University
1615 Stanley Street
New Britain, CT 06050

Subject: Letter of Asbestos Bulk Sampling
Central Connecticut State University – Kaiser Hall, New Britain, Connecticut
DPW Project No. RC-10-09
DPW Building No. 39744
TRC Project No. 164560-1990-0001

Dear Mr. LeBaron:

On July 1, 2010, bulk samples of suspected asbestos containing materials (ACM) in the form of glue daubs were taken from Room 127 at Kaiser Hall by a State of Connecticut licensed asbestos inspector from TRC. The samples were analyzed by Polarized Light Microscopy (PLM) gravimetric analysis in TRC's laboratory and were found to be negative, containing trace (<1%) amounts of chrysotile asbestos.

Enclosed please find the results of this bulk sampling and as well as associated TRC/laboratory certifications.

If you have any questions, please call TRC at (860) 298-9692.

Very Truly Yours,

TRC

Donald LePage

Donald LePage
Project Manager

TRC

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Public Works

Site: CCSU, Kaiser Hall, New Britain, CT
Lab Log #: 38451
Project #: 164560.1990.0001
Date Received: 07/01/10
Date Analyzed: 07/02/10

RESULTS

Sample No.	Color	Homogeneous	Multi-Layered	Layer No.	Other Matrix Mat'ls	Asbestos %	Asbestos Type
01*	Brown	Yes	No	--	--	Trace	Chrysotile
02*	Brown	Yes	No	--	--	Trace	Chrysotile

* Samples analyzed by EPA/600/R-93/116 with gravimetric reduction

NA/PS- Not Analyzed/Positive Stop

Reporting limit- asbestos present at 1%
ND<1% - asbestos was not detected
Trace- asbestos was observed at level of less than 1%

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, negative results must be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation (1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey which utilizes polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2011. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through August 1, 2010. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

Analyst: Kathleen Williamson

QC Analyst: Kathleen Williamson

Reviewed by: [signature]
Laboratory Analyst

Approved Signatory: KWilliamson
Kathleen Williamson
Laboratory Manager

Date Issued: 7/8/10

TRC
21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

Edition: October 2009
Supersede Previous Edition

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 38451

PROJECT NUMBER	PROJECT NAME	TURNAROUND TIME				
164560.1990.0001	CCSU - Kaiser Hall, New Britain, CT	PLM:	8hr	24hr	48hr X	3day
		TEM:	24hr	48hr	3day	5day

SIGNATURE: [signature]

INSPECTOR: Stephen Arienti

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	7/1/10	0955		X	Rm 127	X					Brown glue daub on wall
02	⊥	0956		X	⊥		X				⊥

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
[signature]	7/1/10	[signature] 7/1/10			
(Printed) Stephen Arienti	Time: 1420	(Printed) K Williams 1005	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples: OK
Acceptable: Yes ✓ No
Comments:

PLM Gravimetric Analysis

						g crucible		decimal	% Asb	% Asb
Date	Analyst	Lab Log #	Sample ID	Crucible ID	g crucible	plus sample	g after 480°	Residue	in residue	total Sample
7/2/2010	KW	38451	2	2	20.8225	20.9156	20.8974	0.805	0.00	0.0

0002604 FP **PRSRT T8 0 0964 06095
STEPHEN R. ARIENTI
21 GRIFFIN ROAD, NORTH
WINDSOR CT 06095

Dear Licensed/Certified Professional,

Attached you will find your validated license/certification for the coming year. Should you have any questions about your license/certificate renewal, please do not hesitate to write or call:

Department of Public Health **(860) 509-7603**
P.O. Box 340308
M.S.#12MQA **http://www.dph.state.ct.us**
Hartford, CT 06134-0308

Sincerely,

J Robert Galvin, MD, MPH, MBA

J. ROBERT GALVIN, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
STEPHEN R. ARIENTI

VALIDATION NO.	LICENSE NO.	CURRENT THROUGH
03-045453	000583	04/30/11

PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE

J Robert Galvin, MD, MPH, MBA
COMMISSIONER

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS LICENSED BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

LICENSE NO.
000583
CURRENT THROUGH
04/30/11
VALIDATION NO.
03-045453

STEPHEN R. ARIENTI

SIGNATURE

J Robert Galvin, MD, MPH, MBA
COMMISSIONER

CERTIFICATE OF ACHIEVEMENT

This certifies that

Stephen Arienti

has successfully completed the

Asbestos Site Inspector Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763

conducted by

ATC Associates Inc.
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Gregory J. Morsch	Gregory J. Morsch
Principal Instructor	*Regional Manager*
January 6, 2010	SIAR-3332
Date of Course	*Certificate Number*
January 6, 2011	January 6, 2010
Expiration Date	*Examination Date*

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

TRC ENVIRONMENTAL CORPORATION

LOCATED AT 21 Griffin Road North IN Windsor, CT 06095

AND REGISTERED IN THE NAME OF Erik Plimpton

THIS CERTIFICATE IS ISSUED IN THE NAME OF Kathleen Williamson WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

ASBESTOS

AIR-FIBER COUNTING - PCM

BULK IDENTIFICATION - PLM

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES December 31, 2011 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 2nd DAY OF December 2009

QUI TRANSTULIT SUSTINET

Registration No.

PH- 0426

SUZANNE BLANCAFLOR, MS

CHIEF, ENVIRONMENTAL HEALTH SECTION

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101424-0

TRC Environmental Corporation

Windsor, CT

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

2009-07-01 through 2010-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology

NVLAP® **National Voluntary Laboratory Accreditation Program**

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TRC Environmental Corporation
21 Griffin Road North
Windsor, CT 06095
Ms. Kathleen Williamson
Phone: 860-298-6392 Fax: 860-298-6214
E-Mail: kwilliamson@trcsolutions.com
URL: http://www.trcsolutions.com

BULK ASBESTOS FIBER ANALYSIS (PLM) **NVLAP LAB CODE 101424-0**

NVLAP Code	*Designation / Description*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

2009-07-01 through 2010-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology

NVLAP-01S (REV. 2005-05-19)

APPENDIX E

Appendix E - TRC
Letter of Asbestos Bulk Sampling
Central Connecticut State University – Kaiser Hall, Room 104
New Britain, Connecticut
DPW Project No. RC-10-06, DPW Building No. 39744, TRC Project No. 164560-1880-0003
Dated June 23, 2010
10 pages

TRC

21 Griffin Road North
Windsor, CT 06095-1512

860.298.9692 PHONE
860.298.6380 FAX

www.TRCsolutions.com

June 23, 2010

Mr. Robert LeBaron
Central Connecticut State University
1615 Stanley Street
New Britain, CT 06050

Subject: Letter of Asbestos Bulk Sampling
Central Connecticut State University – Kaiser Hall, Room 104, New Britain, Connecticut
DPW Project No. RC-10-06
DPW Building No. 39744
TRC Project No. 164560-1880-0003

Dear Mr. LeBaron:

On June 14, 2010, bulk samples of suspected asbestos containing materials (ACM) in the form of ceiling tiles and glue daubs were taken from Room 104 of Kaiser Hall at Central Connecticut State University by a State of Connecticut licensed asbestos inspector from TRC. The samples were analyzed by Polarized Light Microscopy (PLM) in TRC's laboratory. All of the bulk samples were found to be negative via PLM analysis.

Enclosed please find the results of this bulk sampling and as well as associated TRC/laboratory certifications.

If you have any questions, please call TRC at (860) 298-9692.

Very Truly Yours,

TRC

Donald LePage

Donald LePage
Project Manager

TRC
Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Public Works

Site: CCSU, Kaiser Hall, Rm. 104
Lab Log #: 38384
Project #: 164560.1880.0001
Date Received: 06/14/10
Date Analyzed: 06/14/10

RESULTS

Sample No.	Color	Homogeneous	Multi-Layered	Layer No.	Other Matrix Mat'ls	Asbestos %	Asbestos Type
1	White/Brown	Yes	No	--	90% cellulose	ND<1%	None
2	White/Brown	Yes	No	--	90% cellulose	ND<1%	None
3	White/Brown	Yes	No	--	90% cellulose	ND<1%	None
4	Brown/Beige	Yes	No	--	--	ND<1%	None
5	Brown/Beige	Yes	No	--	--	ND<1%	None
6	Brown/Beige	Yes	No	--	--	ND<1%	None

Reporting limit- asbestos present at 1%
ND<1% - asbestos was not detected
Trace- asbestos was observed at level of less than 1%

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, negative results must be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation (1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey which utilizes polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2010. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through August 1, 2010. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

Analyst: Kathleen Williamson

QC Analyst: Kathleen Williamson

Reviewed by: [signature]
Laboratory Analyst

Approved Signatory: [signature]
Kathleen Williamson
Laboratory Manager

Date Issued: 6/15/10

TRC
21 Griffin Road North
Windsor, Connecticut 06095
Telephone 860-298-9692

AIR SAMPLE CHAIN OF CUSTODY

38384

Edition: August 2007
Supersedes Previous Edition

Turn Around Time Requested

☒ <6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

CLIENT: CTDPW - CCSU
SITE: ~~East Hall~~ Kaiser Hall Rm 104
PROJECT NO.: 164560.1880.0001
CONTACT/NAME: Don LePage
PHONE NO.:

SAMPLER PRINT Helen Rimsa
SIGNATURE: Helen Rimsa
ROTOMETER NO.:
DATE OF CALIBRATION:

TYPE OF SAMPLE
1. Background
2. Prep.
3. Work Area
4. Environmental
5. Personal
6. Clearance

Date Sampled	Sample I.D.	Sample Location/Description	Air Sampling Information: Flow (L/min)	Start Time	End Time	Volume Liters	Analyses Requested: PLM (Pos. Stop)						Lab I.D.
6/14/10	1	Ceiling tile					X						
6/14/10	2	Ceiling tile											
6/14/10	3	Ceiling tile											
6/14/10	4	Glue daub (taupe+tan)					X						
6/14/10	5	Glue daub (taupe+tan)											
6/14/10	6	Glue daub (taupe+tan)											

*PLZ Call Don LePage ASAP w/the results.

Relinquished By: Helen Rimsa **Date:** 6/14/10 **Time:** 1500
Received By: [illegible] **Date:** 6/14/10 **Time:** 1530
Condition of Samples: OK **Acceptable:** Yes ✓ No____ **Comments:**

0003648 FP **PRSRT T1 0 0964 06232
HELEN RIMSA
75 SCHOOL RD
ANDOVER CT 06232-1526

Dear Licensed/Certified Professional,
Attached you will find your validated license/certification for the coming year. Should you have any questions about your license/certificate renewal, please do not hesitate to write or call:

Department of Public Health (860) 509-7603
P.O. Box 340308
M.S.#12MQA http://www.dph.state.ct.us
Hartford, CT 06134-0308

Sincerely,

J Robert Galvin, MD, MPH, MBA

J. ROBERT GALVIN, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

INSTRUCTIONS:

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EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
HELEN RIMSA

VALIDATION NO. 03-046497
LICENSE NO. 000764
CURRENT THROUGH 03/31/11
PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

Helen Rimsa
SIGNATURE

J Robert Galvin, MD, MPH, MBA
COMMISSIONER

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS LICENSED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

HELEN RIMSA

LICENSE NO.
000764
CURRENT THROUGH
03/31/11
VALIDATION NO.
03-046497

Helen Rimsa
SIGNATURE

J Robert Galvin, MD, MPH, MBA
COMMISSIONER

CERTIFICATE OF ACHIEVEMENT

This certifies that

Helen Rimsa

has successfully completed the

Asbestos Site Inspector Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763

conducted by

ATC Associates Inc.
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Gregory J. Neorsch
Principal Instructor

March 25, 2010
Date of Course

March 25, 2011
Expiration Date

Gregory J. Neorsch
Regional Manager

SIAR-3431
Certificate Number

March 25, 2010
Examination Date

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

TRC ENVIRONMENTAL CORPORATION

LOCATED AT 21 Griffin Road North IN Windsor, CT 06095

AND REGISTERED IN THE NAME OF Erik Plimpton

THIS CERTIFICATE IS ISSUED IN THE NAME OF Kathleen Williamson WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

ASBESTOS
AIR-FIBER COUNTING - PCM
BULK IDENTIFICATION - PLM

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES December 31, 2011 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 2nd DAY OF December 2009

Registration
No.

PH- 0426

SUZANNE BLANCAFLOR, MS
CHIEF, ENVIRONMENTAL HEALTH SECTION

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101424-0

TRC Environmental Corporation

Windsor, CT

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

2009-07-01 through 2010-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology

NVLAP® **National Voluntary Laboratory Accreditation Program**

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TRC Environmental Corporation
21 Griffin Road North
Windsor, CT 06095
Ms. Kathleen Williamson
Phone: 860-298-6392 Fax: 860-298-6214
E-Mail: kwilliamson@trcsolutions.com
URL: http://www.trcsolutions.com

BULK ASBESTOS FIBER ANALYSIS (PLM) **NVLAP LAB CODE 101424-0**

NVLAP Code	*Designation / Description*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

2009-07-01 through 2010-06-30
Effective dates

Sally S. Bruce
For the National Institute of Standards and Technology

NVLAP-01S (REV. 2005-05-19)

![TRC]

SITE LOG

Page ______

Site / Station CTDPW - CCSU
East Hall

Month / Year JUNE/2010
Project No 164560.1880.0001

Date	Time	Instrument and TRC ID	Comments	Initials
6/14	1100		Don LePage (TRC) phones HRimsa @ CCSU Willard Hall to take a sample of ceiling tile and possible glue daub in East Hall. To meet Neil Palmese of CCSU to show TRC affected area of question.	HR
	1120		HRimsa meets with N Palmese and sample glue daub/ceiling tile in room 104 in the swim team section. There appears to be no access to the above ceiling due to cement decking above. Ceiling tiles are afixed directly to the cement with glue daubs. Samples of both materials were take and will be transported to TRC laboratory later in the day for results 6/15/10.	HR
	1134		HRimsa calls DLePage to relay the information.	HR

TRC
21 Griffin Road North
Windsor, CT 06095-1512
(860) 298-9692
FAX: (860) 298-6399
FEDERAL I.D. #06-0861618

INVOICE

PLEASE REMIT TO:
P.O. BOX 8500-53878
Philadelphia, PA 19178-3878

July 21, 2010
Project No: 164560.1880.0000
Invoice No: 40736
Project Manager Donald Lepage

State of Connecticut
Department of Public Works
Room 275
165 Capitol Ave.
Hartford, CT 06106

Asbestos/Lead Abatement design consultant's on-call contract DPW/DAS Term contract work
DPW Project No: RC-10-06
Building No: 39744

Professional Services from May 29, 2010 to July 9, 2010

Phase 000001 CCSU Kaiser Hall room 104 SRVY

Item #	Units	Rate	Amount
ACM-004	2	$58.50	$117.00
ACM-006	1	$45.00	$45.00
Engineer-in-Charge	1	$135.00	$135.00
PLM-003	6	$19.80	$118.80
		Total this Invoice	**$415.80**

Reference Invoice No. On Your Payment

APPENDIX F

Appendix F - TRC
Pre-Renovation Investigative Survey for Asbestos-Containing Materials and Lead Based Paint
Central Connecticut State University – Harrison J. Kaiser Hall
New Britain, Connecticut,
Project No. RC-08-13, DPW No. 39744
Dated October 1, 2008
35 pages

REPORT

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS AND LEAD BASED PAINT CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT

Project No. RC-08-13
DPW No. 39744

Prepared for

State of Connecticut
Department of Public Works
Hartford, Connecticut

Prepared by

TRC
Windsor, Connecticut

October 1, 2008

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS AND LEAD BASED PAINT CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT

Project No. RC-08-13
DPW No. 39744

Prepared for
State of Connecticut
Department of Public Works
Hartford, Connecticut

Prepared by
TRC
Windsor, Connecticut

Donald LePage

Donald LePage
Project Manager

TRC Project No. 106957-9095-0001
October 1, 2008

TRC
21 Griffin Road North
Windsor, Connecticut 06095
Telephone (860) 298-9692
Facsimile (860) 298-6399

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EXECUTIVE SUMMARY

On September 3, 2008 TRC of Windsor, Connecticut conducted an inspection for suspect asbestos-containing materials (ACM) and lead based paint (LBP) at Central Connecticut State University – Harrison J. Kaiser Hall in New Britain, Connecticut. The inspection was initiated prior to planned window replacement activities in accordance with USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAPS) requirements. This work was part of a large project for window replacement at Sanford Hall, Barnard Hall and Welte Hall as well as Kaiser Hall. The overall project was conducted from August 27 to September 3, 2008.

The scope of the inspection was limited to all exterior windows and all interior/exterior building materials that might be impacted during window replacement activities at the subject building. A Connecticut licensed asbestos inspector from TRC conducted the inspection in accordance with USEPA AHERA protocols and ASTM Standard E2356-04. Bulk samples of suspect materials were collected and analyzed via polarized light microscopy (PLM) and transmission electron microscopy (TEM) methods at CTDPH/NVLAP accredited laboratories. ACM was identified as transite paneling, exterior white window glaze and tan interior window caulk in the subject area. ACM to be impacted by renovation activities must be removed prior to disturbance in accordance with OSHA, USEPA, CTDPH, and CTDEP standards for asbestos abatement/disposal. Detailed results of the asbestos survey can be found in Tables 1-3 and Appendices A through E.

A Connecticut licensed lead inspector from TRC conducted a LBP survey throughout the exterior window areas and interior/exterior areas at Kaiser Hall that might be impacted during window replacement activities and lead paint was identified on various components on the structures that are scheduled for impact. Exposure levels for lead in the construction industry are regulated by OSHA 29 CFR 1926.62. Construction activities disturbing surfaces containing lead paint which are likely to be employed, such as grinding, cutting, and demolishing, has been known to expose workers to airborne levels of lead in excess of the permissible exposure limit (PEL). The Contractor shall conduct demolition work in conformance with the OSHA regulations, utilizing engineering controls and personal protective equipment. In addition, disposal of construction waste containing lead paint is subject to regulation under both the CTDEP Hazardous and Special Waste Management (22a-209-1 through 16; 22a-449(c)-11; 22a-449(c)-13; 22a-449(c)-100 through 110; and 22a-454) and USEPA RCRA Hazardous Waste Management (40 CFR Parts 260 through 274) regulations. Prior to the removal of the window systems a TCLP analysis should be performed to determine if windows can be disposed of as asbestos waste or hazardous waste. However, scrap metal is exempt from regulation under the CTDEP/USEPA Hazardous Waste Regulations provided it is properly recycled. The Contractor shall recycle any lead painted scrap metal at an approved scrap metal recycling facility. Detailed results of the lead survey can be found in Table 4 and Appendix F.

PROJECT OUTLINE

Project Address:	Central Connecticut State University Harrison J. Kaiser Hall New Britain, CT
DAS Contract No.	03PSX0346E
DPW Project Manager	James Sinclair
DPW Project No.:	RC-08-13
DPW Building No:	39744
TRC Project No.:	106957-9095-0001
TRC Project Manager:	Don LePage
Asbestos Inspector:	Gregory Kaczynski (LIC #000550)
Lead Inspector:	Bryce Aston (LIC #001838)
Date of Inspection:	9/3/08
Asbestos Identified:	Yes
Lead Based Paint Identified:	Yes

Additional Notes:

The site investigation was limited to the collection and analysis of suspect asbestos-containing materials and lead based paint from the exterior windows and all interior/exterior building materials that might be impacted during window replacement activities. If the transite panel on the underside of the roof overhang is impacted during window replacement, further investigation is required.

TABLES

TABLE 1 BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT			
Sample No.	**Sample Location**	**Homogeneous Material**	**% and Type Asbestos**
01	Roof overhang – D-side	Transite panel	25% chrysotile
02	Roof overhang – D-side	Transite panel	NA/PS
03	Roof overhang – D-side	Transite panel	NA/PS
04	Roof overhang – D-side	Insulation behind transite panel	ND<1%
05	Roof overhang – D-side	Insulation behind transite panel	ND<1%
06	Roof overhang – D-side	Insulation behind transite panel	ND<1%
07	Room 1130600	Spray-on insulation	ND<1%
08	Room 1270000	Spray-on insulation	ND<1%
09	Room 1270000	Spray-on insulation	ND<1%
10	Exterior-vestibule overhang-building entrance	Grey sheetrock (SHR1)	ND<1%
		Joint compound (JC1)	ND<1%
11	Exterior-vestibule overhang-building entrance	Grey sheetrock (SHR1)	ND<1%
		Joint compound (JC1)	ND<1%
12	Exterior-vestibule overhang-building entrance	Grey sheetrock (SHR1)	ND<1%
		Joint compound (JC1)	ND<1%
13	Room 1130600	Light grey sheetrock (SHR2)	ND<1%
		Joint compound (JC2)	ND<1%
14	Room 1120200	Light grey sheetrock (SHR2)	ND<1%
		Joint compound (JC2)	ND<1%
15	Room 1270000	Light grey sheetrock (SHR2)	ND<1%
		Joint compound (JC2)	ND<1%
16	Exterior-vestibule overhang-building entrance	TC1-textured ceiling coating	ND<1%
17	Exterior-vestibule overhang-building entrance	TC1-textured ceiling coating	ND<1%
18	Exterior-vestibule overhang-building entrance	TC1-textured ceiling coating	ND<1%
19	Room 1100000-Men's bathroom	Yellow grout under ceramic tile (GR1)	ND<1%
		White grout between tiles (GR2)	ND<1%

NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM
NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
ND<1% Non-detected, less than 1%
NAD No asbestos detected
\+ Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
1 NOB material; result confirmed by TEM analyses
* Quantified by PLM Point Counting techniques

TABLE 1 (...continued) BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT			
Sample No.	**Sample Location**	**Homogeneous Material**	**% and Type Asbestos**
20	Room 1100000-Men's bathroom	Yellow grout under ceramic tile (GR1)	ND<1%
		White grout between tiles (GR2)	ND<1%
21	Room 1100000-Men's bathroom	Yellow grout under ceramic tile (GR1)	ND<1%
		White grout between tiles (GR2)	ND<1%
22	Room 1130600	G1-yellow glue under laminate window sill	ND<1%[1]
23	Room 1270000	G1-yellow glue under laminate window sill	ND<1%
24	Room 1130600-Type I window	WG1-grey window glaze	ND<1%[1]
25	Exterior-D-side-Type I window	WG1-grey window glaze	ND<1%
26	Exterior-D-side-bathroom windows	WG2-grey window glaze	ND<1%[1]
27	Exterior-D-side-bathroom windows	WG2-grey window glaze	ND<1%
28	Room 0090000-window	WG3-exterior white window glaze	1.32% anthophyllite[1]
29	Room 0090000-window	WG3-exterior white window glaze	ND<1%
30	Exterior-Type I window-between metal frame and side wall	BC1-grey building caulk	ND<1%[1]
31	Exterior-Type I window-between metal frame and wall	BC1-grey building caulk	ND<1%
32	Exterior-Type I window-on window sill	BC2-grey building caulk	ND<1%[1]
33	Exterior-Type I window-on window sill	BC2-grey building caulk	ND<1%
34	Exterior-Type I window-between the blue metal panels above windows	BC3-grey building caulk	ND<1%[1]
35	Exterior-Type I window-between the blue metal panels above windows	BC3-grey building caulk	ND<1%
36	Exterior-Type I window-on the top and bottom of blue panels above the windows	BC4-grey building caulk	ND<1%[1]
37	Exterior-Type I window-on the top and bottom of blue panels above the windows	BC4-grey building caulk	ND<1%

NA/PVA	Not analyzed/positive via inseparable association with a confirmed positive ACM
NA/PS	Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
ND<1%	Non-detected, less than 1%
NAD	No asbestos detected
+	Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
1	NOB material; result confirmed by TEM analyses
*	Quantified by PLM Point Counting techniques

TABLE 1 (...continued) BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT			
Sample No.	**Sample Location**	**Homogeneous Material**	**% and Type Asbestos**
38	Room 1130600-between window sill and window	BC5-grey building caulk	ND<1%[1]
39	Room 1270000-between window sill and window	BC5-grey building caulk	ND<1%
40	Room 1260000-vertical bead between window and concrete wall	BC6-light grey building caulk	ND<1%[1]
41	Room 1260000-vertical bead between window and concrete wall	BC6-light grey building caulk	ND<1%
42	Room 1110000-vertical bead between window and metal wall panel	BC7-light grey window caulk	ND<1%[1]
43	Room 1260000-vertical bead between window and metal wall panel	BC7-light grey window caulk	ND<1%
44	Room 1100000-window	BC8-tan window caulk	5.21% chrysotile[1]
45	Room 1100000-window	BC8-tan window caulk	ND<1%
46	Exterior-window caulk from room 0090000	BC9-white window caulk	ND<1%[1]
47	Exterior-window caulk from room 0090000	BC9-white window caulk	ND<1%

NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM
NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
ND<1% Non-detected, less than 1%
NAD No asbestos detected
\+ Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
1 NOB material; result confirmed by TEM analyses
* Quantified by PLM Point Counting techniques

TABLE 2 IDENTIFIED ASBESTOS CONTAINING MATERIALS (>1%) CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT					
Material	**Sampled-Assumed (mo/yr)**	**General Location**	**NESHAP Category**	**AHERA Category**	**Estimated Quantity**
Transite panel	Sampled 9/08	Roof overhang	Category II Non-friable	Miscellaneous	800 SF**
WG3-exterior white window glaze	Sampled 9/08	Room 0090000-exterior windows	Category II Non-friable	Miscellaneous	2 EA
BC8-tan interior window caulk	Sampled 9/08	Room 1160100, Room 1100000, Room 1320000, Room 1250100	Category II Non-friable	Miscellaneous	112 LF

**** Roof tars have been completely exempted from OSHA Asbestos regulations and, as a Category I Non-friable material, do not need to be removed from a structure prior to renovation/demolition under EPA Asbestos NESHAP regulations and, so long as the materials are exterior to a structure and will remain Category I Non-friable materials during renovation/demolition, are not covered under the CTDPH Asbestos Abatement standards. In addition, as Category I Non-friable materials, the roof tars do not need to be disposed of as asbestos waste under the EPA Asbestos NESHAP regulations; however, the CTDEP special waste regulations would not allow the material to be disposed of as general construction waste within the State of Connecticut. Disposal of the roof tars as general construction waste (so long as the materials are not rendered into a state which would define them as regulated asbestos-containing materials (RACM), i.e., friable) is, however, allowed in other states such as Massachusetts.***

*** This quantity represents only the square footage of transite above the windows that are going to be replaced. The total quantity of transite panel at the entire building is greater.*

AHERA Categories = thermal system insulation (TSI), surfacing material or miscellaneous
NESHAP Categories = friable, category I non-friable or category II non-friable
Friable = crumbled, pulverized or reduced to powder by hand pressure when dry
Category I Non-friable = packings, gaskets, resilient floor covering and asphalt roofing
Category II Non-friable = all non-friable that is not Category I

TABLE 3
CONFIRMED NON-ASBESTOS CONTAINING MATERIALS
CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL
NEW BRITAIN, CONNECTICUT

Material	General Location
Insulation behind transite panel	Roof overhang
Spray-on insulation	Throughout 1st floor
Grey sheetrock/joint compound (SHR1/JC)	Exterior-vestibule overhang-NE building entrance
Light grey sheetrock/joint compound (SHR2/JC)	Throughout 1st floor
TC1-textured ceiling coating	Exterior-vestibule overhang-NE building entrance
Yellow grout under ceramic tile (GR1)/White grout between tiles (GR2)	1st floor bathrooms
WG1-grey window glaze	Type I windows
WG2-grey window glaze	Exterior bathroom/locker room windows
BC1-grey building caulk	Exterior-Type I windows-between metal frame and wall
BC2-grey building caulk	Exterior-Type I windows-on window sill
BC3-grey building caulk	Exterior-Type I window-between the blue metal panels above windows
BC4-grey building caulk	Exterior-Type I window-on the top and bottom of blue panels above the windows
BC5-interior grey building caulk	Rooms 1130600, 1270000, 1260000, 1280000, - between window sill and window
BC6-interior light grey building caulk	Rooms 1260000, 1120000, 1110000, 1160101, 1310000, 1000400-vertical bead between window and concrete wall
BC7-interior light grey window caulk	Rooms 1110000, 1260000, 1270000, 1280000, 1120000, 1290000, 1120100, 1120200, 1130600-vertical bead between window and metal wall panel
BC9-white window caulk	Interior/exterior window-room 0090000

TABLE 4 SUMMARY OF LEAD PAINT XRF MEASUREMENTS CENTRAL CONNECTICUT STATE UNIVERSITY – HARRISON J. KAISER HALL NEW BRITAIN, CONNECTICUT					
Structure	**No. of Measurements**	**Calibrations**	**Void**	**Lead Detected**	**No Lead Detected**
One-story academic building and basement	18	4	1	4	9

See Lead Paint XRF Measurement Table in Appendix F.

APPENDIX A

SITE SKETCH

APPENDIX B

LABORATORY AND INSPECTOR ACCREDITATIONS

Dear Licensed/Certified Professional,

Attached you will find your validated license/certification for the coming year. Should you have any questions about your license/certificate renewal, please do not hesitate to write or call.

Department of Public Health (860) 509-7603
P.O. Box 340308
M.S. #12MQA http://www.dph.state.ct.us
Hartford, CT 06134-0308

Sincerely,

J. Robert Galvin, MD, MPH, MBA

J. ROBERT GALVIN, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

0002603 FP **PRSRT T8 0 1364 06096
GREGORY A. KACZYNSKI
TRC ENVIRONMENTAL, CORP.
21 GRIFFIN ROAD NORTH
WINDSOR CT 06065

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
GREGORY A. KACZYNSKI

VALIDATION NO.	LICENSE NO.	CURRENT THROUGH
03-713710	000550	07/31/09

PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE COMMISSIONER

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS LICENSED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

LICENSE NO.
000550
CURRENT THROUGH
07/31/09
GREGORY A. KACZYNSKI
VALIDATION NO.
03-713710

SIGNATURE COMMISSIONER

CERTIFICATE OF ACHIEVEMENT

This certifies that

Gregory Kaczynski

has successfully completed the

Asbestos Site Inspector Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763

conducted by

ATC Associates Inc.
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Edward Kolodziej
Principal Instructor

March 20, 2008
Date of Course

March 20, 2009
Expiration Date

Gregory J. Morsch
Regional Manager

SIAR-2717
Certificate Number

March 20, 2008
Examination Date

Dear Licensed/Certified Professional,

Attached you will find your validated license/certification for the coming year. Should you have any questions about your license/certificate renewal, please do not hesitate to write or call:

Department of Public Health **(860) 509-7603**
P.O. Box 340308
M.S.#12MQA **http://www.dph.state.ct.us**
Hartford, CT 06134-0308

Sincerely,

J Robert Galvin, MD, MPH, MBA

J. ROBERT GALVIN, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

0002861 FP **PRSRT H9 0 1564 06238
BRYCE A. ASTON
24 HERBERT DR.
COVENTRY CT 06238

:TRUCTIONS:

:tach and sign each of the cards on this form.
:splay the large card in a prominent place in your office or place of business.
:e wallet card is for you to carry on your person. If you do not wish to carry
:allet card, place it in a secure place.

4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED BY THIS DEPARTMENT AS A

LEAD INSPECTOR RISK ASSESSOR

CERTIFICATION NO.
001838
CURRENT THROUGH
10/31/08
VALIDATION NO.
03-560649

BRYCE A. ASTON

SIGNATURE

J Robert Galvin, MD, MPH, MBA
COMMISSIONER

EMPLOYER'S COPY
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
BRYCE A. ASTON

VALIDATION NO.	CERTIFICATION NO.	CURRENT THROUGH
03-560649	001838	10/31/08

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER

Certificate of Training

Awarded to

BRYCE ASTON

21 GRIFFIN ROAD NORTH, WINDSOR, CT 06095

Has successfully completed a 7 hour, 1 day

Lead Inspector Risk Assessor Refresher

MARCH 18, 2008

This training course was approved and given in accordance with the Department of Health Standards established pursuant to Section 20-477 of the Connecticut General Statutes

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: LRAR16525

Exam Grade: 100

Exam Date: 03/18/2008

Expiration Date: 03/18/2009

Christopher J. Eident, CIH, CSP, RS

George Williamson, Training Director

APPENDIX C

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORMS

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: September 2007
Supersede Previous Edition

LAB ID #. 35928

PROJECT NUMBER	PROJECT NAME	TURNAROUND TIME
106957-9095-0001	DPW-CCSU-Harrison J. Kaiser Hall, New Britain, CT	PLM: 24hr [ ] 48hr [X] 3day [ ] 5day [ ]; TEM: 24hr [ ] 48hr [X] 3day [ ] 5day [ ]
INSPECTOR: (SIGNATURE) [signature]	(PRINTED) Gregory Kaczynski	

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	09/03/08	AM			Roof overhang – D-side	X					Transite panel
02	09/03/08	AM			Roof overhang – D-side	X					Transite panel
03	09/03/08	AM			Roof overhang – D-side	X					Transite panel
04	09/03/08	AM			Roof overhang – D-side	X					Insulation behind transite panel
05	09/03/08	AM			Roof overhang – D-side	X					Insulation behind transite panel
06	09/03/08	AM			Roof overhang – D-side	X					Insulation behind transite panel
07	09/03/08	AM			Room 1130600	X					Spray-on insulation
08	09/03/08	AM			Room 1270000	X					Spray-on insulation
09	09/03/08	AM			Room 1270000	X					Spray-on insulation
10	09/03/08	AM			Exterior-vesibule overhang-building entrance	X		X	X		SHR/JC1-grey sheetrock/associated joint compound

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
[signature]	09/08/08	Helen Rimsa			
(Printed) Gregory Kaczynski	Time: 1615	(Printed) Helen Rimsa	(Printed)	Time:	(Printed)

Remarks: If samples 4- 6 are positive, the material should be resampled. The samples may have been contaminated during collection (due to transite panel).

Condition of Samples: OK
Acceptable: Yes ✓ No ____
Comments:

9/9/08 0800

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

Edition: September 2007
Supersede Previous Edition

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 35928

PROJECT NUMBER: 106957-9095-0001

PROJECT NAME: DPW-CCSU-Harrison J. Kaiser Hall, New Britain, CT

INSPECTOR: (SIGNATURE) [signature] **(PRINTED)** Gregory Kaczynski

TURNAROUND TIME

		24hr		48hr		3day		5day
PLM:		24hr	X	48hr		3day		5day
TEM:		24hr	X	48hr		3day		5day

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
11	09/03/08	AM			Exterior-vesibule overhang-building entrance	X		X	X		SHR/JC1-grey sheetrock/associated joint compound
12	09/03/08	AM			Exterior-vesibule overhang-building entrance	X		X	X		SHR/JC1-grey sheetrock/associated joint compound
13	09/03/08	AM			Room 1130600	X		X	X		SHR/JC2-light grey sheetrock/associated joint compound
14	09/03/08	AM			Room 1120200	X		X	X		SHR/JC2-light grey sheetrock/associated joint compound
15	09/03/08	AM			Room 1270000	X		X	X		SHR/JC2-light grey sheetrock/associated joint compound
16	09/03/08	AM			Exterior-vesibule overhang-building entrance	X			X		TC1-textured ceiling coating
17	09/03/08	AM			Exterior-vesibule overhang-building entrance	X			X		TC1-textured ceiling coating
18	09/03/08	AM			Exterior-vesibule overhang-building entrance	X			X		TC1-textured ceiling coating

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
[signature]	09/08/08	Helen Rimsa			
(Printed) Gregory Kaczynski	Time: 1615	(Printed) Helen Rimsa	(Printed)	Time:	(Printed)

Remarks: If samples 4- 6 are positive, the material should be resampled. The samples may have been contaminated during collection (due to transite panel).

Condition of Samples: ok
Acceptable: Yes ✓ No ______
Comments:

9/9/08 0800

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: September 2007
Supersede Previous Edition

LAB ID #. 35928

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
106957-9095-0001	DPW-CCSU-Harrison J. Kaiser Hall, New Britain, CT		PLM: 24hr / X 48hr / 3day / 5day; TEM: 24hr / X 48hr / 3day / 5day
INSPECTOR: (SIGNATURE) [signature]	(PRINTED) Gregory Kaczynski		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
19	09/03/08	AM			Room 1100000-Men's bathroom	X		X			GR1-yellow grout under ceramic tile GR2-white grout between tiles
20	09/03/08	AM			Room 1100000-Men's bathroom	X		X			GR1-yellow grout under ceramic tile GR2-white grout between tiles
21	09/03/08	AM			Room 1100000-Men's bathroom	X		X			GR1-yellow grout under ceramic tile GR2-white grout between tiles
22	09/03/08	AM			Room 1130600	X				X	G1-yellow glue under laminate window sill
23	09/03/08	AM			Room 1270000	X					G1-yellow glue under laminate window sill
24	09/03/08	AM			Room 1130600-Type I window	X				X	WG1-grey window glaze
25	09/03/08	AM			Exterior-D-side-Type I window	X					WG1-grey window glaze
26	09/03/08	AM			Exterior-D-side-bathroom windows	X				X	WG2-grey window glaze
27	09/03/08	AM			Exterior-D-side-bathroom windows	X					WG2-grey window glaze

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
[signature]	09/08/08	Helen Rimsa			
(Printed) Gregory Kaczynski	Time: 1615	(Printed) Helen Rimsa	(Printed)	Time:	(Printed)

Remarks: If samples 4- 6 are positive, the material should be resampled. The samples may have been contaminated during collection (due to transite panel).

Condition of Samples: OK
Acceptable: Yes ✓ No ____
Comments:

9/9/08 0800

TRC

Edition: September 2007
Supersede Previous Edition

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 35928

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
106957-9095-0001	DPW-CCSU-Harrison J. Kaiser Hall New Britain, CT		PLM: 24hr / X 48hr / 3day / 5day; TEM: 24hr / X 48hr / 3day / 5day
INSPECTOR: (SIGNATURE)	(PRINTED) Gregory Kaczynski		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
28	09/03/08	AM			Room 0090000-window	X				X	WG3-exterior white window glaze
29	09/03/08	AM			Room 0090000-window	X					WG3-exterior white window glaze
30	09/03/08	AM			Exterior-Type I window-between metal frame and side wall	X				X	BC1-grey building caulk
31	09/03/08	AM			Exterior-Type I window-between metal frame and wall	X					BC1-grey building caulk
32	09/03/08	AM			Exterior-Type I window-on window sill	X				X	BC2-grey building caulk
33	09/03/08	AM			Exterior-Type I window-on window sill	X					BC2-grey building caulk
34	09/03/08	AM			Exterior-Type I window-between the blue metal panels above windows	X				X	BC3-grey building caulk

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	09/08/08	Helen Rimsa			
(Printed) Gregory Kaczynski	Time: 1615	(Printed) Helen Rimsa	(Printed)	Time:	(Printed)

Remarks: If samples 4- 6 are positive, the material should be resampled. The samples may have been contaminated during collection (due to transite panel).

Condition of Samples: OK
Acceptable: Yes ✓ No ____
Comments:

9/9/08 0800

TRC
21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 35928

PROJECT NUMBER	PROJECT NAME
106957-9095-0001	DPW-CCSU-Harrison J. Kaiser Hall New Britain, CT
INSPECTOR: (SIGNATURE)	(PRINTED) Gregory Kaczynski

TURNAROUND TIME

		24hr		48hr		3day		5day
PLM:		24hr	X	48hr		3day		5day
TEM:		24hr	X	48hr		3day		5day

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
35	09/03/08	AM			Exterior-Type I window-between the blue metal panels above windows	X					BC3-grey building caulk
36	09/03/08	AM			Exterior-Type I window-on the top and bottom of blue panels above the windows	X				X	BC4-grey building caulk
37	09/03/08	AM			Exterior-Type I window-on the top and bottom of blue panels above the windows	X					BC4-grey building caulk
38	09/03/08	AM			Room 1130600-between window sill and window	X				X	BC5-grey building caulk
39	09/03/08	AM			Room 1270000-between window sill and window	X					BC5-grey building caulk
40	09/03/08	AM			Room 1260000-vertical bead between window and concrete wall	X				X	BC6-light grey building caulk

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	09/08/08	Helen Rimsa			
(Printed) Gregory Kaczynski	Time: 1615	(Printed) Helen Rimsa	(Printed)	Time:	(Printed)

Remarks: If samples 4- 6 are positive, the material should be resampled. The samples may have been contaminated during collection (due to transite panel).

Condition of Samples: OK
Acceptable: Yes ✓ No
Comments:

9/9/08 0800

TRC

Edition: September 2007
Supersede Previous Edition

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 35928

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
106957-9095-0001	DPW-CCSU-Harrison J. Kaiser Hall New Britain, CT		PLM: 24hr [X] 48hr 3day 5day; TEM: 24hr [X] 48hr 3day 5day
INSPECTOR: (SIGNATURE) [signature]	(PRINTED) Gregory Kaczynski		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
41	09/03/08	AM			Room 1260000-vertical bead between window and concrete wall	X					BC6-light grey building caulk
42	09/03/08	AM			Room 1110000-vertical bead between window and metal wall panel	X				X	BC7-light grey window caulk
43	09/03/08	AM			Room 1260000-vertical bead between window and metal wall panel	X					BC7-light grey window caulk
44	09/03/08	AM			Room 1100000-window	X				X	BC8-tan window caulk
45	09/03/08	AM			Room 1100000-window	X					BC8-tan window caulk
46	09/03/08	AM			Exterior-window caulk from room 0090000	X				X	BC9-white window caulk
47	09/03/08	AM			Exterior-window caulk from room 0090000	X					BC9-white window caulk

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
[signature]	09/08/08	Helen Rimsa			
(Printed) Gregory Kaczynski	Time: 1615	(Printed) Helen Rimsa	(Printed)	Time:	(Printed)

Remarks: If samples 4- 6 are positive, the material should be resampled. The samples may have been contaminated during collection (due to transite panel).

Condition of Samples: OK
Acceptable: Yes ✓ No
Comments:

9/9/08 0800

HT 10570

Proscience Analytical Services, Inc.

22 Cummings Park, Woburn, MA 01801 Ph. 781-935-3212 Fax 781-932-4857

TEM Bulk Chain of Custody Record

Date: 09/09/08

Analysis Type: Chatfield **N.O.B N.Y.S** Qualitative

Client: TRC
Client Job#: 106957.9095.0001
Client Job Ref./Loc.: CT DPW- CCSU, Harrison J. Kaiser Hall, New Britain, CT
Relinquished by: H. Rimsa
Received by: Kathy Artone 9-10-08 11:15AM
Report to: D. LePage
Samplers Name: G. Kaczynski

Turn Around Time: <12 Hour <24 Hour **<48 Hour** <3 Day 5 Day Other:

Client ID #	Lab ID#	Description	Location	Acceptable on Receipt	For Lab Use Only Comments
22	35928	Glue			
24	35928	Glaze			
26	35928	Glaze			
28	35928	Glaze			
30	35928	Caulk			
32	35928	Caulk			
34	35928	Caulk			
36	35928	Caulk			
38	35928	Caulk			
40	35928	Caulk			
42	35928	Caulk			
44	35928	Caulk			
46	35928	Caulk			

For Lab Use Only	# Spies	Total	Client #	Batch #	Results Reported	Comments

APPENDIX D

PLM LABORATORY ANALYSIS DATA

TRC

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Public Works

Site: CCSU, Harrison J. Kaiser Hall, New Britain, CT
Lab Log #: 35928
Project #: 106957.9095.0001
Date Received: 09/09/08
Date Analyzed: 09/09/08

RESULTS

Sample No.	Color	Homogeneous	Multi-Layered	Layer No.	Other Matrix Mat'ls	Asbestos %	Asbestos Type
01	Grey	Yes	No	--	--	25%	Chrysotile
02	--	--	--	--	--	NA/PS	--
03	--	--	--	--	--	NA/PS	--
04	White	Yes	No	--	--	ND<1%	None
05	White	Yes	No	--	--	ND<1%	None
06	White	Yes	No	--	--	ND<1%	None
07	White	Yes	No	--	30% mineral wool	ND<1%	None
08	White	Yes	No	--	30% mineral wool	ND<1%	None
09	White	Yes	No	--	30% mineral wool	ND<1%	None
10	White (joint compound)	No	Yes	1	--	ND<1%	None
10	Grey (sheet rock)	No	Yes	2	10% cellulose	ND<1%	None
11	White (joint compound)	No	Yes	1	--	ND<1%	None
11	Grey (sheet rock)	No	Yes	2	10% cellulose	ND<1%	None
12	White (joint compound)	No	Yes	1	--	ND<1%	None
12	Grey (sheet rock)	No	Yes	2	10% cellulose	ND<1%	None
13	White (joint compound)	No	Yes	1	--	ND<1%	None
13	Light Grey (sheet rock)	No	Yes	2	10% cellulose	ND<1%	None
14	White (joint compound)	No	Yes	1	--	ND<1%	None

14	Light Grey (sheet rock)	No	Yes	2	10% cellulose	ND<1%	None
15	White (joint compound)	No	Yes	1	--	ND<1%	None
15	Light Grey (sheet rock)	No	Yes	2	10% cellulose	ND<1%	None
16	White	Yes	No	--	--	ND<1%	None
17	White	Yes	No	--	--	ND<1%	None
18	White	Yes	No	--	--	ND<1%	None
19	Yellow (grout)	No	Yes	1	--	ND<1%	None
19	White (grout)	No	Yes	2	--	ND<1%	None
20	Yellow (grout)	No	Yes	1	--	ND<1%	None
20	White (grout)	No	Yes	2	--	ND<1%	None
21	Yellow (grout)	No	Yes	1	--	ND<1%	None
21	White (grout)	No	Yes	2	--	ND<1%	None
22	Yellow	Yes	No	--	--	ND<1%	None
23	Yellow	Yes	No	--	--	ND<1%	None
24	Grey	Yes	No	--	--	ND<1%	None
25	Grey	Yes	No	--	--	ND<1%	None
26	Grey	Yes	No	--	--	ND<1%	None
27	Grey	Yes	No	--	--	ND<1%	None
28	White	Yes	No	--	--	ND<1%	None
29	White	Yes	No	--	--	ND<1%	None
30	Grey	Yes	No	--	--	ND<1%	None
31	Grey	Yes	No	--	--	ND<1%	None
32	Grey	Yes	No	--	--	ND<1%	None
33	Grey	Yes	No	--	--	ND<1%	None
34	Grey	Yes	No	--	--	ND<1%	None
35	Grey	Yes	No	--	--	ND<1%	None
36	Grey	Yes	No	--	--	ND<1%	None
37	Grey	Yes	No	--	--	ND<1%	None
38	Grey	Yes	No	--	--	ND<1%	None
39	Grey	Yes	No	--	--	ND<1%	None
40	Light Grey	Yes	No	--	--	ND<1%	None
41	Light Grey	Yes	No	--	--	ND<1%	None
42	Light Grey	Yes	No	--	--	ND<1%	None
43	Light Grey	Yes	No	--	--	ND<1%	None

44	Tan	Yes	No	--	--	ND<1%	None
45	Tan	Yes	No	--	--	ND<1%	None
46	White	Yes	No	--	--	ND<1%	None
47	White	Yes	No	--	--	ND<1%	None

NA/PS- Not Analyzed/Positive Stop

Reporting limit- asbestos present at 1%
ND<1% - asbestos was not detected
Trace- asbestos was observed at level of less than 1%

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, negative results must be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation (1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey which utilizes polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2009. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through August 1, 2010. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

Analyst: Helen Rimsa

QC Analyst: Kathleen Williamson

Reviewed by: [signature]
Laboratory Analyst

Approved Signatory: [signature]
Kathleen Williamson
Laboratory Manager

Date Issued: 9/9/08

APPENDIX E

TEM LABORATORY ANALYSIS DATA

ProScience Analytical Services, Inc

22 Cummings Park, Woburn, Massachusetts 01801
781-935-3212 ~ Fax: 781-932-4857 ~ E-Mail general@proscience.net

nt #:	297	Method:	TEM NOB
nt Project:	106957.9095.0001	Batch:	NT 10570
nt Reference:	CT DPW - Harrison J. Kaiser Hall, New Britain, CT	Date Analyzed:	9/12/2008
nt Name:	TRC Environmental Corp. (CT)	Date Received:	9/10/2008
		Date of Report:	9/12/2008

B ID	Field ID	Description:	Color	Initial Sample Weight	% Asbestos Types CHR	AMO	ACT	CRO	ANT	TRE	% Other Non-asb.	% Organic	% Carb.	Total % Asbestos	Analyzed /Charged	Preped/ Charged
047	22	Yellow glue		.0150	.00	.00	.00	.00	.00	.00	.66	66.67	32.67	ND	Yes	No
048	24	Gray window glaze		.1268	.00	.00	.00	.00	.00	.00	27.41	37.91	34.68	ND	Yes	No
049	26	Gray window glaze		.0771	.00	.00	.00	.00	.00	.00	32.04	38.26	29.70	ND	Yes	No
050	28	Exterior white window glaze		.1057	.00	.00	.00	.00	1.32	.00	5.31	7.47	85.90	1.32	Yes	No
051	30	Gray building caulk		.3424	.00	.00	.00	.00	.00	.00	18.16	38.38	43.46	ND	Yes	No
052	32	Gray building caulk		.3197	.00	.00	.00	.00	.00	.00	13.83	45.23	40.94	ND	Yes	No
053	34	Gray building caulk		.2976	.00	.00	.00	.00	.00	.00	10.92	52.35	36.73	ND	Yes	No
054	36	Gray building caulk		.1128	.00	.00	.00	.00	.00	.00	10.99	54.79	34.22	ND	Yes	No
055	38	Gray building caulk		.1181	.00	.00	.00	.00	.00	.00	.84	25.83	73.33	ND	Yes	No
056	40	Light gray building caulk		.1686	.00	.00	.00	.00	.00	.00	18.44	39.98	41.58	ND	Yes	No
057	42	Light gray window caulk		.3342	.00	.00	.00	.00	.00	.00	11.10	57.00	31.90	ND	Yes	No
058	44	Tan window caulk		.1921	5.21	.00	.00	.00	.00	.00	2.81	26.13	65.85	5.21	Yes	No
059	46	White window caulk		.1008	.00	.00	.00	.00	.00	.00	5.85	25.00	69.15	ND	Yes	No

nments:

nd Holacsek, Analyst

tos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

TRC

Lead Based Paint Measurement Summary Table

Device(s): Niton XL-309 X Ray Fluorescence (XRF) Spectrum Analyzer, Serial #U688
Niton 7007 X Ray Fluorescence (XRF) Spectrum Analyzer, Serial #V1044
Site: Central Connecticut State University - Harrison J. Kaiser Hall, New Britain, Connecticut
Project # : 106957-9095-0001
Date(s): 9/3/2008
Inspector: Bryce Aston (State of Connecticut License #001838)
Ranges: (NEG<INC<POS): 0.0<0.05<0.05 (OSHA Compliance)

Number	Room	Side	Structure	Feature	Material	Color	Condition	Result	Reading (mg/cm2)	Precision (mg/cm2)	Depth Index	Duration (sec)	Date/Time
1			Shutter Calibration					***			0	32.3	9/3/2008 7:02
2			3.5 Calibration					***	3.2	0.3	1.1	11.9	9/3/2008 7:04
3			3.5 Calibration					***	3.8	0.3	1.2	14.4	9/3/2008 7:05
4			3.5 Calibration					***	3.5	0.3	1.1	11.9	9/3/2008 7:05
5	Exterior entrance	D	ceiling		sheetrock	white	intact	NEG	0.0	0.0	1	6.2	9/3/2008 7:25
6	Exterior entrance	D	ceiling overhang			grey	intact	**POS**	0.4	0.1	1.3	9.9	9/3/2008 7:25
7				VOID									9/3/2008 8:13
8	Room 1270000		wall		sheetrock	blue	intact	NEG	0.0	0.0	1	4.8	9/3/2008 8:13
9	Room 1270000		column		metal	blue	intact	NEG	0.0	0.0	1	10.2	9/3/2008 8:34
10	Room 1260000		wall		concrete	blue	intact	**POS**	0.1	0.4	3.5	4.9	9/3/2008 8:43
11	Room 1280000		column		metal	lt. brown	intact	NEG	0.0	0.1	1.4	4.8	9/3/2008 8:44
12	Room 1280000		wall		sheetrock	lt. brown	intact	NEG	0.0	0.1	1.5	4.9	9/3/2008 8:44
13	Room 1120000		wall		sheetrock	lt. brown	intact	NEG	0.0	0.1	1.1	10.1	9/3/2008 8:59
14	Room 1120000		column		metal	lt. brown	intact	**POS**	0.5	0.1	2.4	14.1	9/3/2008 9:01
15	Room 1120100		wall		concrete	lt. brown	intact	NEG	0.0	0.1	1	4.9	9/3/2008 9:03
16	Room 1130600		window	divider	metal	metal	intact	**POS**	0.1	0.2	5.9	4.8	9/3/2008 9:07
17	Room 1160101		wall		concrete	lt. brown	intact	NEG	0.0	0.1	1.5	6.3	9/3/2008 9:36
18	Room 1160100		wall		concrete	lt. brown	intact	NEG	0.0	0.1	1	6.2	9/3/2008 9:38

All XRF readings <0.1 mg/cm2 = Below Detectable Levels (BDL)

Side A = Street side; Sides B,C,D follow clockwise

APPENDIX G

Appendix G - TRC Environmental Corporation
Pre-Renovation Investigative Survey for Asbestos-Containing Materials
Central Connecticut State University – Kaiser Hall Annex
New Britain, Connecticut,
Project No. RC-05-05, Building no. 39744
Dated May 11, 2005
83 pages

TRC

Customer-Focused Solutions

REPORT

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX NEW BRITAIN, CONNECTICUT

PROJECT NO. RC-05-05
BUILDING NO. 39744

Prepared for

State of Connecticut
Department of Public Works
Hartford, Connecticut

Prepared by

TRC Environmental Corporation
Windsor, Connecticut

May 11, 2005

TRC
Customer-Focused Solutions

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX NEW BRITAIN, CONNECTICUT

PROJECT NO. RS-05-05
BUILDING NO. 39744

Prepared for
State of Connecticut
Department of Public Works
Hartford, Connecticut

Prepared by
TRC Environmental Corporation
Windsor, Connecticut

Donald LePage
Donald LePage
Project Manager

TRC Project No. 43500-1340-00001
May 11, 2005

TRC Environmental Corporation
5 Waterside Crossing
Windsor, Connecticut 06095
Telephone (860) 298-9692
Facsimile (860) 298-6399

TABLE OF CONTENTS

Executive Summary

EXECUTIVE SUMMARY

On April 14,2005 TRC Environmental Corporation (TRC) of Windsor, Connecticut conducted an inspection for suspect asbestos-containing materials (ACM) at Central Connecticut State University, Kaiser Hall Annex "Bubble" in New Britain, Connecticut. The inspection was initiated prior to planned renovation activities in accordance with USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAPS) requirements.

The scope of the inspection was limited to the gymnasium floor area at the Kaiser Hall Annex "Bubble". A Connecticut licensed asbestos inspector from TRC conducted the inspection in accordance with USEPA AHERA protocols and ASTM Standard E2356-04. Bulk samples of suspect materials were collected and analyzed via polarized light microscopy (PLM) and/or transmission electron microscopy (TEM) methods at CTDPH/NVLAP accredited laboratories. No ACM was identified in gymnasium floor. Asbestos-Containing Materials (ACM) to be impacted by renovation activities must be removed prior to disturbance in accordance with OSHA, USEPA, CTDPH, and CTDEP standards for asbestos abatement/disposal. Detailed results of the asbestos survey can be found in Tables 1-3 and Appendices A through E.

TRC also sampled the floor to be tested for Total Mercury (Hg) and for a Toxicity Characteristic Leaching Procedure (TCLP) for Mercury to determine if the gymnasium floor has to be disposed of as hazardous waste. Both Total Mercury and TCLP for Mercury were below the detection limits and the material can be disposed of as normal construction waste. Detailed results of these tests can be found in Table 4 and Appendix F.

Project Outline

PROJECT OUTLINE

DAS Contract No.	03PSX0346E
Project No.:	RC ~~RS~~-05-05
DPW Building No:	39744
Project Address:	Kaiser Hall Annex Central Connecticut State University Stanley Street, New Britain, CT
TRC Project No.:	43500-1340-00001
Asbestos Inspector:	Stephen Arienti (LIC #000583)
Date of Inspection:	April 14, 2005
Asbestos Identified:	None
Hazardous Material:	No

Additional Notes:

The site investigation was limited to the collection and analysis of suspect asbestos-containing materials and analysis for mercury associated with renovations to the gymnasium floor at the Kaiser Hall Annex "Bubble" at Central Connecticut State University.

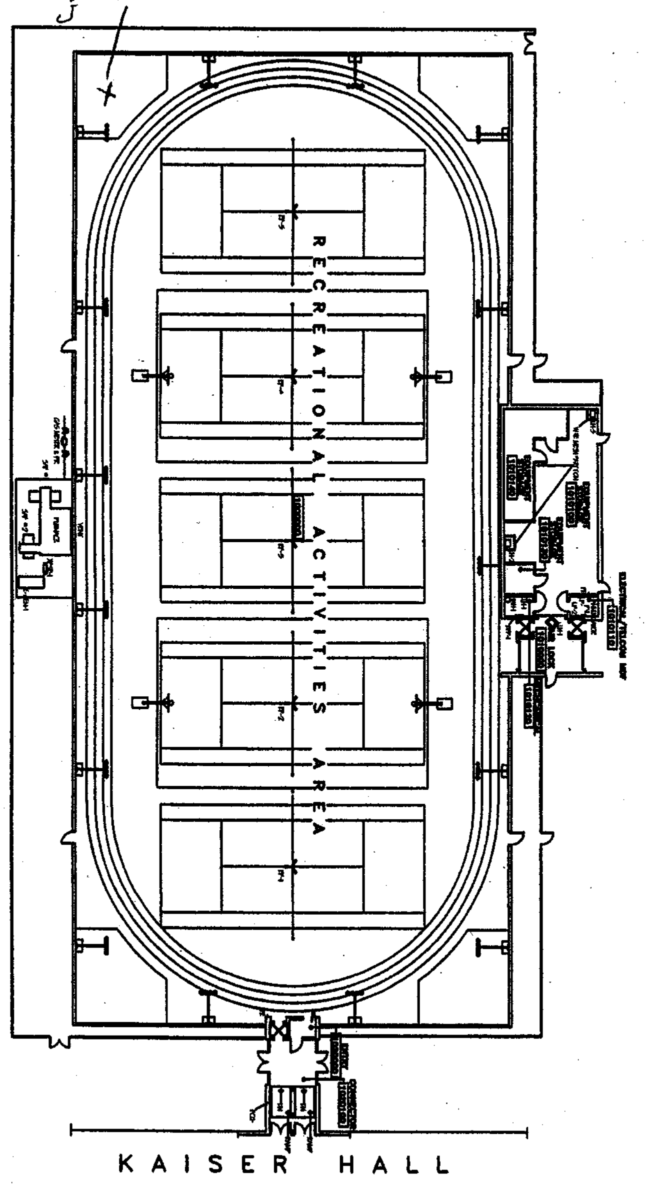
Tables

TABLES

Appendices

APPENDIX A

SITE SKETCH



KAISER HALL ANNEX
DATA BASE
FIRST FLOOR PLAN

Date: 09/11/98

35 A1

CENTRAL CONNECTICUT STATE UNIVERSITY

Office of the University Architect, Rm.# 201, East Hall, 1615 Stanley Street, New Britain, Ct. 06050, Tel.# 860/832-2311, Fax.# 860/832-2329

APPENDIX B

LABORATORY AND INSPECTOR ACCREDITATIONS

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

BULK ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101424-0

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095
Mr. Henry Laliberte
Phone: 860-298-9692 Fax: 860-298-6399
E-Mail: hlaliberte@TRCSolutions.com
URL: http://www.trcsolutions.com

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

June 30, 2005

Effective through

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

TRC ENVIRONMENTAL CORPORATION
WINDSOR, CT

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2005
Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 101424-0

NVLAP-01C (06-01)

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

TRC ENVIRONMENTAL CORPORATION

LOCATED AT 5 Waterside Crossing IN Windsor, CT 06095

AND REGISTERED IN THE NAME OF Henry Laliberte

THIS CERTIFICATE IS ISSUED IN THE NAME OF Henry Laliberte WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

ASBESTOS
AIR-FIBER COUNTING
BULK IDENTIFICATION

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES December 31, 2005 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 30th DAY OF DECEMBER, 2003

PH- 0426

Ellen J. Blaschinski

DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

The American Industrial Hygiene Association

acknowledges that

TRC Environmental Corporation

Windsor, CT

Laboratory #100122

has fulfilled the requirements of the AIHA Laboratory Quality Assurance Programs (LQAP), thereby, conforming to the ISO/IEC 17025 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories.* The above named laboratory has been accredited by AIHA in the following:

ACCREDITATION PROGRAMS

☑ INDUSTRIAL HYGIENE	Accreditation Expires: 09/01/05
☐ ENVIRONMENTAL LEAD	Accreditation Expires:
☐ ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires:
☐ FOOD	Accreditation Expires:
☐ OTHER	Accreditation Expires:

Specific categories of testing, within each Accreditation Program, for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with LQAP requirements. This certificate is not valid without the attached Scope of Accreditation.

Dawn D. Thomas

Dawn D. Thomas, ASQ Certified Quality Mgr.
Chairperson, Analytical Accreditation Board

Henry B. Lick

Henry B. Lick, CIH, CSP, PhD, ROH
President, AIHA

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

BULK ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 200090-0**

PROSCIENCE ANALYTICAL SERVICES, INC.
22 Cummings Park
Woburn, MA 01801-2122
Mr. Adrian Stanca
Phone: 781-935-3212 Fax: 781-932-4857
E-Mail: PASI96@aol.com
URL: http://www.proscience.net

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

December 31, 2005
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

PROSCIENCE ANALYTICAL SERVICES, INC.
WOBURN, MA

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

December 31, 2005
Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 200090-0

NVLAP-01C (06-01)

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

PROSCIENCE ANALYTICAL SERVICES, INC.

LOCATED AT 22 Cummings Park IN Woburn, MA 01801

AND REGISTERED IN THE NAME OF Adrian Stanca

THIS CERTIFICATE IS ISSUED IN THE NAME OF Adrian Stanca, Director / Stephen Chace, Co-Director (Chemistry) WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

WASTEWATER, SOLID WASTE/SOIL

Examination for:
TRACE METALS

ASBESTOS

Bulk Identification (PLM)
Air-Fiber Counting (PCM + TEM)
Water (TEM)

PAINT, SOIL, DUST WIPES

Examination for:
LEAD

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES DECEMBER 31, 2006 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 29th DAY OF DECEMBER 2004

PH-0209

Ellen J. Blaschinski

DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

COMPLETE ENVIRONMENTAL TESTING, INC.

LOCATED AT 80 Lupes Drive IN Stratford, CT 06615

AND REGISTERED IN THE NAME OF David P. Ditta

THIS CERTIFICATE IS ISSUED IN THE NAME OF David P. Ditta (Chemistry) Timothy Fusco (Microbiology) WHO HAS BEEN DESIGNATED BY THE REGISTRANT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

DRINKING WATER, NON-POTABLE WATER/WASTEWATER, SOLID WASTE/SOIL

Examination For:

BACTERIA

INORGANIC CHEMICALS

ORGANIC CHEMICALS

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES September 30, 2006 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 20th DAY OF October 2004

PH - 0116

Ellen J. Blaschinski

DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

0004489 FP **PRSRT T1 0 0564 06450

STEPHEN R. ARIENTI
63 PINEHURST DRIVE
MERIDEN CT 06450

Dear Licensed/Certified Professional,

Attached you will find your validated license/certification for the coming year. Should you have any questions about your license/certificate renewal, please do not hesitate to write or call:

Department of Public Health — **(860) 509-7603**
P.O. Box 340308 — **or**
M.S.#12MQA — **(860) 509-7596**
Hartford, CT 06134-0308

Sincerely,

J Robert Galvin M.D., M.P.H.

J. ROBERT GALVIN, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
STEPHEN R. ARIENTI

VALIDATION NO.	LICENSE NO.	CURRENT THROUGH
03-015629	000583	04/30/05

PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE — COMMISSIONER J Robert Galvin M.D., M.P.H.

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS LICENSED BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

STEPHEN R. ARIENTI

LICENSE NO. 000583
CURRENT THROUGH 04/30/05
VALIDATION NO. 03-015629

SIGNATURE — COMMISSIONER J Robert Galvin M.D., M.P.H.

CERTIFICATE OF ACHIEVEMENT

This certifies that

Stephen Arienti

has successfully completed the

Asbestos Site Inspector Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763

conducted by

ATC Associates Inc.
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Edward [illegible]
Principal Instructor

January 6, 2005
Date of Course

January 6, 2006
Expiration Date

Gregory J. Morsch
Regional Manager

SIAR-1832
Certificate Number

January 6, 2005
Examination Date

APPENDIX C

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORMS

TRC

5 WATERSIDE CROSSING
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6399

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 30103

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
43500-1340-00001	CT DPW – CCSU, Kaiser Hall Annex (Bubble)		PLM: X 24hr; 48hr; 3day; 5day TEM: 24hr; X 48hr; 3day; 5day

INSPECTOR: (SIGNATURE) [signature]
(PRINTED) Stephen Arienti

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	4/14/05	1100			Kaiser Hall Annex Bubble Flooring	X		X		X	Blue rubber flooring and associated dark green/black asphalt layer
02	4/14/05	1100			Kaiser Hall Annex Bubble Flooring	X		X			Blue rubber flooring and associated dark green/black asphalt layer
03	4/14/05	1100			Kaiser Hall Annex Bubble Flooring	X		X			Blue rubber flooring and associated dark green/black asphalt layer

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
[signature]	4/14/05	[signature] 4/14/05			
(Printed) Stephen Arienti	Time: 13:00	(Printed) Kathleen Williamson 1300	(Printed)	Time:	(Printed)

Remarks:

N166666

ProScience Analytical Services, Inc.

22 Cummings Park, Woburn MA 01801 Ph 781-935-3212 Fx 781-932-4857

Date: 4/15/05

TEM Bulk Sample Chain Of Custody Record

Client: TRC Environmental
Client Job #: 43500-1340-00001
Client Job Ref./Loc: DPW - CCSU - Kaiser Hall
Client P.O. #:
Relinquished By: X K Williamson Recieved By: X Sa 4/18/05 9:40 AM
Report to: D. LePage
Sampler's Name: S. Anersti

Analysis Type: (Please Circle) Chatfield / $\boxed{\text{N.O.B., N.Y.S.}}$ / Qualitative

IMPORTANT!! Turn Around Time Requested, (Circle) <12 Hour <24 Hour $\boxed{\text{<48 Hour}}$ <3 Day <5 Day Other____

Client I.D.#	Lab I.D.#	Description	Location	For Lab Use Only: Acceptable on receipt	For Lab Use Only: Comments
01	30103	Floor / Asphalt	Kaiser Hall		
		2 Layers			

For Lab Use Only

	# Sples.	Total	Client #	Batch #	Results Reported	Comments

APPENDIX D

PLM LABORATORY ANALYSIS DATA

TRC ENVIRONMENTAL CORPORATION
Environmental Chemistry Laboratory
5 Waterside Crossing - Windsor, CT 06095
(860) 298-6308
AIHA Laboratory Certificate No. 259, Lab ID #100122
NIST-NVLAP Code #101424-0

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Public Works

Site: CCSU, Kaiser Hall Annex (Bubble)
Lab Log #: 30103
Project #: 43500-1340-00001
Date Received: 04/15/05
Date Analyzed: 04/15/05

RESULTS

Sample No.	Color	Homogeneous	Multi-Layered	Layer No.	Other Matrix Mat'ls	Asbestos %	Asbestos Type
01	Blue (flooring)	No	Yes	1	--	ND<1%	None
01	Black/Green (asphalt)	No	Yes	2	--	ND<1%	None
02	Blue (flooring)	No	Yes	1	--	ND<1%	None
02	Black/Green (asphalt)	No	Yes	2	--	ND<1%	None
03	Blue (flooring)	No	Yes	1	--	ND<1%	None
03	Black/Green (asphalt)	No	Yes	2	--	ND<1%	None

The Laboratory at TRC utilizes Polarized Light Microscopy (PLM) following the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA/600/M4-82-020, 1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey. Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2005. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through September 1, 2005. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. In those cases, negative results should be confirmed by quantitative transmission electron microscopy as recommended by the EPA.

Analyst: Kathleen Williamson

QC Analyst: Kathleen Williamson

Reviewed by: KWilliamson
Laboratory Analyst

Approved Signatory: Henry J. Laliberte
Henry J. Laliberte
Laboratory Manager

Date Issued: 4/15/05

APPENDIX E

TEM LABORATORY ANALYSIS DATA

ProScience Analytical Services, Inc

22 Cummings Park, Woburn, Massachusetts 01801
781-935-3212 ~ Fax: 781-932-4857 ~ E-Mail PASI96@aol.com

Client #: 297
Client Project: 43500-1340-00001
Client Reference: DPW - CCSU - Kaiser Hall Annex (Bubble)
Client Name: TRC Environmental Corp. (CT)

Method: **TEM NOB**
Batch: **NT 6666**
Date Analyzed: 4/20/2005
Date Received: 4/18/2005
Date of Report: 4/20/2005

LAB ID	Field ID	Description:	Color	Initial Sample Weight	% Asbestos Types						% Other Non-asb.	% Organic	% Carb.	Total % Asbestos	Analyzed /Charged	Preped/ Charged
					CHR	AMO	ACT	CRO	ANT	TRE						
NT53433	01T	Blue rubber flooring		.3452	.00	.00	.00	.00	.00	.00	.84	81.05	18.11	ND	Yes	No
NT53434	01A	Grn./blk. Asphalt layer assoc. w/01T		.6721	.00	.00	.00	.00	.00	.00	92.93	5.73	1.34	ND	Yes	No

Comments:

Allison Small, Analyst

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

APPENDIX F

GYMNASIUM FLOORING MATERIAL WASTE CHARACTERIZATION DATA

COMPLETE ENVIRONMENTAL TESTING, INC.

80 Lupes Drive
Stratford, CT 06615

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cet@cetlabs.com

April 20, 2005

Mr. Donald LePage
TRC Environmental Consultants
5 Waterside Crossing
Windsor, CT 06095

Project: CT DPW-CCSU Kaiser Hall Annex
Project #: 43500-0000
CET #: 05040452
Floorin: 01
Collection Date(s): 4/14/05

PREP ANALYSIS:

TCLP, Metals [EPA 1311]

	01
TCLP, Metals	Completed [4/20/05]

ANALYSIS:

TCLP Mercury BY ICPMS [EPA 6020A] Units: mg/l Analysis Date: 4/20/05

	01
TCLP Mercury BY ICPMS	ND < 0.002

Total Mercury [EPA 7471] Units: mg/kg (Dry Wt) Analysis Date: 4/18/05

	01
Total Mercury	ND < 0.20

NOTES:
[] Indicates Date Prep Test Completed; ND is Not Detected.

Total Solids [EPA 160.3 mo] Units: percent Analysis Date: 4/18/05

	01
Total Solids	100*

*Assumed 100% solids.

Sincerely,

David Ditta
Laboratory Director

Notes:
[ ]Indicates Date Prep Test Completed; ND is Not Detected.

CET

COMPLETE ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY

80 Lupes Drive
Stratford, CT 06615
Tel (203) 377-9984
Fax (203) 377-9952

COMPANY NAME AND ADDRESS	REPORT TO:	PROJECT #:	PROJECT LOCATION:	PURCHASE ORDER #:	SAMPLED BY:
TRC Environmental, 5 Waterside Crossing, Windsor CT, 06095 — CT OPW - CCSU Kaiser Hall Annex, New Britain, CT	Don LePage	43500-00001			SA/JS

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
[signature]	4/14/05	1500			
FEDEX			E Tammy	4/15/05	1028

ANALYSIS REQUIRED

SAMPLE I.D.	DATE	TIME	SAMPLE MATRIX	PRIORITY TURNAROUND SAME DAY	24 HR	2-3 DAY	STANDARD TURNAROUND	# OF CONTAINERS	Total Hg	TCLP Hg
01	4/14/05	1100	Rubber Flooring		~~X~~	X		2	X	X

SPECIAL INSTRUCTIONS Fax to Don LePage Fax: (860) 298-6399 Phone (860) 298-6222

COMMENTS

REV. 4/02

TABLES

TABLE 1
BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS
CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX "BUBBLE"
NEW BRITAIN, CONNECTICUT

Sample No.	Sample Location	Homogeneous Material	% and Type Asbestos
01	Kaiser Hall Annex Gymnasium flooring	Green/black asphalt layer associated with blue rubber flooring	ND<1%[1]
		Blue rubber flooring	ND<1%[1]
02	Kaiser Hall Annex Gymnasium flooring	Green/black asphalt layer associated with blue rubber flooring	ND<1%[1]
		Blue rubber flooring	ND<1%[1]
03	Kaiser Hall Annex Gymnasium flooring	Green/black asphalt layer associated with blue rubber flooring	ND<1%[1]
		Blue rubber flooring	ND<1%[1]

NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM
NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
ND<1% Non-detected, less than 1%
NAD No asbestos detected
\+ Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
1 NOB material; result confirmed by TEM analyses
* Quantified by PLM Point Counting techniques

TABLE 4 SUMMARY OF GYMNASIUM FLOORING MATERIAL HAZARDOUS WASTE DETERMINATION CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX "BUBBLE" NEW BRITAIN, CONNECTICUT			
Waste Stream	**Metal**	**mg/L Leachate**	**Hazardous/Non-Hazardous**
Gymnasium Floor Material	Arsenic	---	Analyte not tested
	Barium	---	Analyte not tested
	Cadmium	---	Analyte not tested
	Chromium	---	Analyte not tested
	Lead	---	Analyte not tested
	Mercury	**ND<0.002**	**Non-Hazardous**
	Selenium	---	Analyte not tested
	Silver	---	Analyte not tested

Each sample was analyzed following the Toxicity Characteristic Leaching Procedure (TCLP) for the Resource Conservation Recovery Act (RCRA). If mercury (Hg) levels exceed 0.2 mg/L for TCLP Mercury, then the waste is identified as hazardous waste.

See Appendix G for results.

COMPLETE ENVIRONMENTAL TESTING, INC.

80 Lupes Drive
Stratford, CT 06615

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cet@cetlabs.com

April 20, 2005

Mr. Donald LePage
TRC Environmental Consultants
5 Waterside Crossing
Windsor, CT 06095

43500-1340-00001

Project: CT DPW-CCSU Kaiser Hall Annex
Project #: 43500-0000
CET #: 05040452
Floorin: 01
Collection Date(s): 4/14/05

PREP ANALYSIS:

TCLP, Metals [EPA 1311]

	01
TCLP, Metals	Completed [4/20/05]

ANALYSIS:

TCLP Mercury BY ICPMS [EPA 6020A] Units: mg/l Analysis Date: 4/20/05

	01
TCLP Mercury BY ICPMS	ND < 0.002

Total Mercury [EPA 7471] Units: mg/kg (Dry Wt) Analysis Date: 4/18/05

	01
Total Mercury	ND < 0.20

NOTES:
[] Indicates Date Prep Test Completed; ND is Not Detected.

Connecticut Laboratory Certification PH 0116
Massachusetts Laboratory Certification M-CT903
Rhode Island Laboratory Certification 199

Project#: 43500-0000
Cet#: 05040452
Project: CT DPW-CCSU Kaiser Hall Annex

April 20, 2005

Total Solids [EPA 160.3 mo] Units: percent Analysis Date: 4/18/05

	01
Total Solids	100*

*Assumed 100% solids.

Sincerely,

David Ditta
Laboratory Director

Notes:
[ ]Indicates Date Prep Test Completed; ND is Not Detected.

CET
COMPLETE ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY

80 Lupes Drive
Stratford, CT 06615
Tel (203) 377-9984
Fax (203) 377-9952

COMPANY NAME AND ADDRESS	REPORT TO:	PROJECT #:	PROJECT LOCATION:	PURCHASE ORDER #:	SAMPLED BY:
TRC Environmental, 5 Waterside Crossing, Windsor CT, 06095 — CT OPW - CCSU Kaiser Hall Annex, New Britain, CT	Don LePage	43500-00001			SA/JS

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
[illegible]	4/14/05	1500			
FEDEX			[illegible]	4/15/05	1028

ANALYSIS REQUIRED

SAMPLE I.D.	DATE	TIME	SAMPLE MATRIX	PRIORITY TURNAROUND SAME DAY	24 HR	2-3 DAY	STANDARD TURNAROUND	# OF CONTAINERS	Total Hg	TCLP Hg
01	4/14/05	1100	Rubber Flooring		~~X~~	X		2	X	X

SPECIAL INSTRUCTIONS Fax to Don LePage. Fax (860) 298-6399 Phone (860) 298-6222

COMMENTS

REV. 4/02

TRC
Customer-Focused Solutions

5 Waterside Crossing
Windsor, CT 06095-1563
(860) 298-9692
FAX: (860) 298-6399
FEDERAL I.D. #06-0861618

PLEASE REMIT TO:
P.O. BOX 8500-53878
Philadelphia, PA 19178-3878

INVOICE

JUNE 15, 2005
INVOICE NO. 138942
PROJECT 43500
CLIENT NO. 0001050
PROJ. MGR. LEPAGE, DONALD
CONTRACT NO. 03PSX0346AE
P.O. NO. DPWM1-0000001904
TERMS NET 30 DAYS
PAGE 1 OF 1

CONNECTICUT, STATE OF
DEPARTMENT OF PUBLIC WORKS
165 CAPITOL AVENUE
HARTFORD, CT 06106

ATTN: MIKE SANDERS

ASBESTOS/LEAD ABATEMENT DESIGN CONSULTANT'S ON-CALL CONTRACT
DPW/DAS TERM CONTRACT WORK
DPW PROJECT NO.: RC-05-05
BUILDING NO.: 39744

PROFESSIONAL SERVICES FOR PERIOD ENDING MAY 27, 2005

PROJECT-TASK: 43500134000001 CCSU KAISER HALL BUBBLE LT SVY

ITEM #	UNITS	ITEM UNIT COSTS	AMOUNT
ACM-001	1	$178.29	178.29
ACM-002	1	$356.58	356.58
ACM-006	1	$106.13	106.13
ACM-007	1.5	$ 38.21	59.31
PLM-001	6	$ 12.74	76.44
TEM-001	2	$ 50.94	101.88
	TASK TOTAL		$876.63
		TOTAL THIS INVOICE	$876.63

REFERENCE CLIENT # AND INVOICE # ON YOUR PAYMENT

TRC
Customer-Focused Solutions

LETTER OF TRANSMITTAL

DATE 6/15/05	JOB NO.
ATTENTION Mr. Michael Sanders	
RE: INVOICES	

TO State of Connecticut DPW
State Office Building, Room 275
Hartford, CT

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via ______ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ ______

COPIES	DATE	NO.	DESCRIPTION
2	6/14/05	1	INVOICE RC-04-11 Gallaudet #40032 -420
2		2	2B-04-24 SOB #19263 -310
2		3	RT-04-08 Wilcox RVTS #34928 -430
2		4	RT-05-07 Windham RVTS #68080 -1330
2		5	RC-05-05 Kaiser CCSU #39744 -1340
2		6	2B-05-11 Health Lab #20304 -1430

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ______ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ______ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ______ corrected prints
☐ For review and comment ☐ ______
☐ FOR BIDS DUE ______ 19 ______ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS ______

COPY TO ______

SIGNED: [signature]

If enclosures are not as noted, kindly notify us at once.

Document Review Sheet

Document Name/Type DPW Survey

Project Name DPW- CCSU Kaiser Hall

Project Job Number 73500 - 1350 - 00001

Computer Location of Text H:/H/s/DPW/1350/1350 Input.doc

Date Submitted for Review 4/27/05 **Author's Initials** SA

Technical Review Date 5/11/05 **Reviewer's Initials** EB

Project Manager's Review Date ______ **PM's Initials** ______

Comments/Corrections:

Date Submitted for Second Review ______ **Author's Initials** ______

Second Technical Review Date ______ **Reviewer's Initials** ______

Project Manager Review Date ______ **PM's Initials** ______

Comments/Corrections:

Release Date 5/12/05 **Approved By** DL

REPORT

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX NEW BRITAIN, CONNECTICUT

PROJECT NO. RS-05-05
BUILDING NO. 39744

Prepared for

State of Connecticut
Department of Public Works
Hartford, Connecticut

Prepared by

TRC Environmental Corporation
Windsor, Connecticut

May 11, 2005

PRE-RENOVATION INVESTIGATIVE SURVEY FOR ASBESTOS-CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX NEW BRITAIN, CONNECTICUT

PROJECT NO. RS-05-05
BUILDING NO. 39744

Prepared for
State of Connecticut
Department of Public Works
Hartford, Connecticut

Prepared by
TRC Environmental Corporation
Windsor, Connecticut

____
Donald LePage
Project Manager

TRC Project No. 43500-1340-00001
May 11, 2005

TRC Environmental Corporation
5 Waterside Crossing
Windsor, Connecticut 06095
Telephone (860) 298-9692
Facsimile (860) 298-6399

TABLE OF CONTENTS

EXECUTIVE SUMMARY

On April 14,2005 TRC Environmental Corporation (TRC) of Windsor, Connecticut conducted an inspection for suspect asbestos-containing materials (ACM) at Central Connecticut State University, Kaiser Hall Annex "Bubble" in New Britain, Connecticut. The inspection was initiated prior to planned renovation activities in accordance with USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAPS) requirements.

The scope of the inspection was limited to the gymnasium floor area at the Kaiser Hall Annex "Bubble". A Connecticut licensed asbestos inspector from TRC conducted the inspection in accordance with USEPA AHERA protocols and ASTM Standard E2356-04. Bulk samples of suspect materials were collected and analyzed via polarized light microscopy (PLM) and/or transmission electron microscopy (TEM) methods at CTDPH/NVLAP accredited laboratories. No ACM was identified in gymnasium floor. Asbestos-Containing Materials (ACM) to be impacted by renovation activities must be removed prior to disturbance in accordance with OSHA, USEPA, CTDPH, and CTDEP standards for asbestos abatement/disposal. Detailed results of the asbestos survey can be found in Tables 1-3 and Appendices A through E.

TRC also sampled the floor to be tested for Total Mercury (Hg) and for a Toxicity Characteristic Leaching Procedure (TCLP) for Mercury to determine if the gymnasium floor has to be disposed of as hazardous waste. Both Total Mercury and TCLP for Mercury were below the detection limits and the material can be disposed of as normal construction waste. Detailed results of these tests can be found in Table 4 and Appendix F.

PROJECT OUTLINE

DAS Contract No.	03PSX0346E
Project No.:	RS-05-05
DPW Building No:	39744
Project Address:	Kaiser Hall Annex Central Connecticut State University Stanley Street, New Britain, CT
TRC Project No.:	43500-1340-00001
Asbestos Inspector:	Stephen Arienti (LIC #000583)
Date of Inspection:	April 14, 2005
Asbestos Identified:	None
Hazardous Material:	No

Additional Notes:

The site investigation was limited to the collection and analysis of suspect asbestos-containing materials and analysis for mercury associated with renovations to the gymnasium floor at the Kaiser Hall Annex "Bubble" at Central Connecticut State University.

TABLES

TABLE 1 BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX "BUBBLE" NEW BRITAIN, CONNECTICUT			
Sample No.	**Sample Location**	**Homogeneous Material**	**% and Type Asbestos**
01	Kaiser Hall Annex Gymnasium flooring	Green/black asphalt layer associated with blue rubber flooring	ND<1%[1]
		Blue rubber flooring	ND<1%[1]
02	Kaiser Hall Annex Gymnasium flooring	Green/black asphalt layer associated with blue rubber flooring	ND<1%[1]
		Blue rubber flooring	ND<1%[1]
03	Kaiser Hall Annex Gymnasium flooring	Green/black asphalt layer associated with blue rubber flooring	ND<1%[1]
		Blue rubber flooring	ND<1%[1]

NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM
NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
ND<1% Non-detected, less than 1%
NAD No asbestos detected
\+ Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
1 NOB material; result confirmed by TEM analyses
* Quantified by PLM Point Counting techniques

TABLE 2 IDENTIFIED ASBESTOS CONTAINING MATERIALS (>1%) CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX "BUBBLE" NEW BRITAIN, CONNECTICUT					
Material	**Sampled-Assumed (mo/yr)**	**General Location**	**NESHAP Category**	**AHERA Category**	**Estimated Quantity**
PLM/TEM Laboratory Analysis revealed no material was identified as asbestos containing material (ACM)					

AHERA Categories = thermal system insulation (TSI), surfacing material or miscellaneous
NESHAP Categories = friable, category I non-friable or category II non-friable
Friable = crumbled, pulverized or reduced to powder by hand pressure when dry
Category I Non-friable = packings, gaskets, resilient floor covering and asphalt roofing
Category II Non-friable = all non-friable that is not Category I

TABLE 3 CONFIRMED NON-ASBESTOS CONTAINING MATERIALS CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX "BUBBLE" NEW BRITAIN, CONNECTICUT	
Material	**General Location**
Blue rubber flooring	Kaiser Hall Annex "Bubble"
Green/black asphalt layer associated with blue rubber flooring	Kaiser Hall Annex "Bubble"

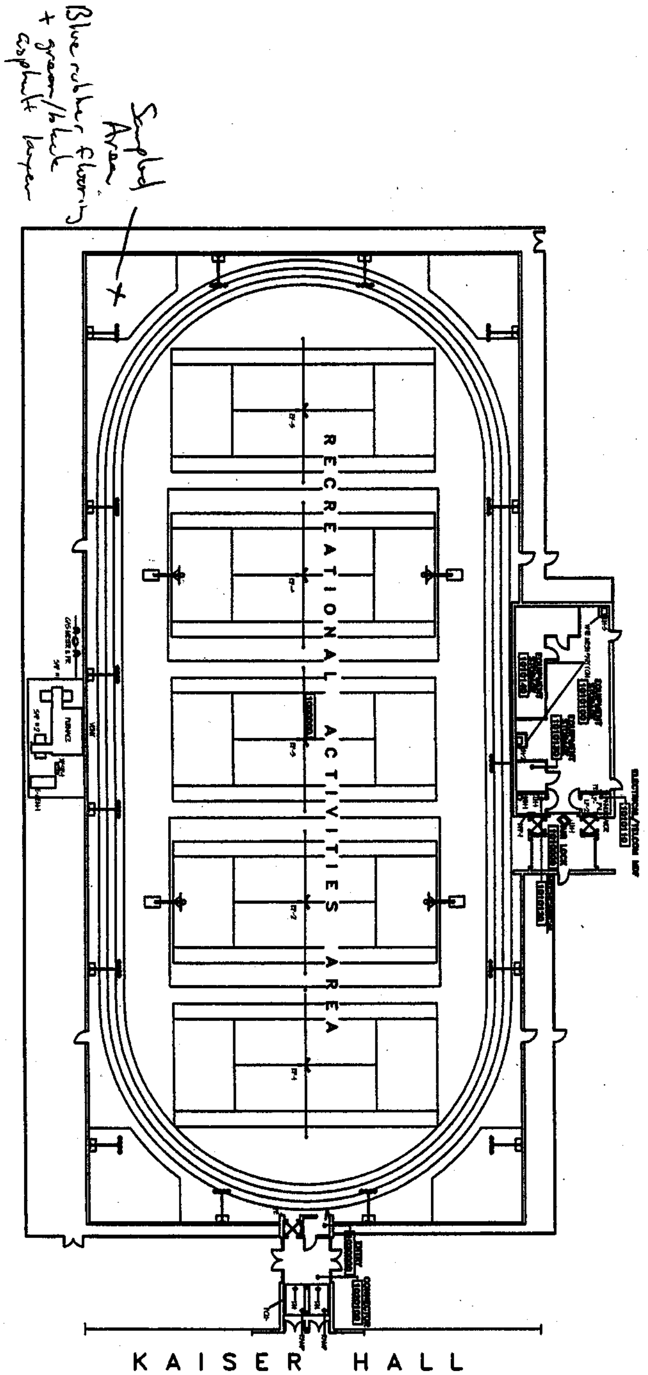
TABLE 4 SUMMARY OF GYMNASIUM FLOORING MATERIAL HAZARDOUS WASTE DETERMINATION CENTRAL CONNECTICUT STATE UNIVERSITY – KAISER HALL ANNEX "BUBBLE" NEW BRITAIN, CONNECTICUT			
Waste Stream	**Metal**	**mg/L Leachate**	**Hazardous/Non-Hazardous**
Gymnasium Floor Material	Arsenic	---	Analyte not tested
	Barium	---	Analyte not tested
	Cadmium	---	Analyte not tested
	Chromium	---	Analyte not tested
	Lead	---	Analyte not tested
	Mercury	**ND<0.002**	**Non-Hazardous**
	Selenium	---	Analyte not tested
	Silver	---	Analyte not tested

Each sample was analyzed following the Toxicity Characteristic Leaching Procedure (TCLP) for the Resource Conservation Recovery Act (RCRA). If mercury (Hg) levels exceed 0.2 mg/L for TCLP Mercury, then the waste is identified as hazardous waste.

See Appendix G for results.

APPENDIX A

SITE SKETCH



09/11/98
P:\DATABASE\#35

building no.	dwg. no.
35	A1

KAISER HALL ANNEX
DATA BASE
FIRST FLOOR PLAN

40' 30' 20' 10' 0 10'

CENTRAL CONNECTICUT STATE UNIVERSITY

Office of the University Architect, Rm.# 201, East Hall, 1615 Stanley Street, New Britain, Ct. 06050, Tel.# 860/832-2311, Fax.# 860/832-2329

APPENDIX B

LABORATORY AND INSPECTOR ACCREDITATIONS

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

BULK ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101424-0**

TRC ENVIRONMENTAL CORPORATION
5 Waterside Crossing
Windsor, CT 06095
Mr. Henry Laliberte
Phone: 860-298-9692 Fax: 860-298-6399
E-Mail: hlaliberte@TRCSolutions.com
URL: http://www.trcsolutions.com

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

June 30, 2005

Effective through

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

TRC ENVIRONMENTAL CORPORATION
WINDSOR, CT

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2005
Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 101424-0

NVLAP-01C (06-01)

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

TRC ENVIRONMENTAL CORPORATION

LOCATED AT 5 Waterside Crossing IN Windsor, CT 06095

AND REGISTERED IN THE NAME OF Henry Laliberte

THIS CERTIFICATE IS ISSUED IN THE NAME OF Henry Laliberte WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

ASBESTOS
AIR-FIBER COUNTING
BULK IDENTIFICATION

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES December 31, 2005 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 30th DAY OF DECEMBER, 2003

PH- 0426

Ellen J. Blaschinski
DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

The American Industrial Hygiene Association

OVER TWENTY FIVE YEARS 25 OF ACCREDITING LABS AIHA

acknowledges that

TRC Environmental Corporation

Windsor, CT

Laboratory #100122

has fulfilled the requirements of the AIHA Laboratory Quality Assurance Programs (LQAP), thereby, conforming to the ISO/IEC 17025 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories.* The above named laboratory has been accredited by AIHA in the following:

ACCREDITATION PROGRAMS

☑ INDUSTRIAL HYGIENE	Accreditation Expires: 09/01/05
☐ ENVIRONMENTAL LEAD	Accreditation Expires:
☐ ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires:
☐ FOOD	Accreditation Expires:
☐ OTHER	Accreditation Expires:

Specific categories of testing, within each Accreditation Program, for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with LQAP requirements. This certificate is not valid without the attached Scope of Accreditation.

Dawn D. Thomas, ASQ Certified Quality Mgr.
Chairperson, Analytical Accreditation Board

Henry B. Lick, CIH, CSP, PhD, ROH
President, AIHA

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

BULK ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 200090-0**

PROSCIENCE ANALYTICAL SERVICES, INC.
22 Cummings Park
Woburn, MA 01801-2122
Mr. Adrian Stanca
Phone: 781-935-3212 Fax: 781-932-4857
E-Mail: PASI96@aol.com
URL: http://www.proscience.net

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

December 31, 2005

Effective through

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

PROSCIENCE ANALYTICAL SERVICES, INC.
WOBURN, MA

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

December 31, 2005
Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 200090-0

NVLAP-01C (06-01)

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

PROSCIENCE ANALYTICAL SERVICES, INC.

LOCATED AT 22 Cummings Park IN Woburn, MA 01801

AND REGISTERED IN THE NAME OF Adrian Stanca

THIS CERTIFICATE IS ISSUED IN THE NAME OF Adrian Stanca, Director
Stephen Chace, Co-Director (Chemistry) WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

WASTEWATER, SOLID WASTE/SOIL

Examination for:
TRACE METALS

ASBESTOS

Bulk Identification (PLM)
Air-Fiber Counting (PCM + TEM)
Water (TEM)

PAINT, SOIL, DUST WIPES

Examination for:
LEAD

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES DECEMBER 31, 2006 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 29th DAY OF DECEMBER 2004

PH-0209

Ellen J. Blaschinski

DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

COMPLETE ENVIRONMENTAL TESTING, INC.

LOCATED AT 80 Lupes Drive IN Stratford, CT 06615

AND REGISTERED IN THE NAME OF David P. Ditta

THIS CERTIFICATE IS ISSUED IN THE NAME OF David P. Ditta (Chemistry) Timothy Fusco (Microbiology) WHO HAS BEEN DESIGNATED BY THE REGISTRANT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

DRINKING WATER, NON-POTABLE WATER/WASTEWATER, SOLID WASTE/SOIL

Examination For:

BACTERIA

INORGANIC CHEMICALS

ORGANIC CHEMICALS

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES September 30, 2006 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 20th DAY OF October 2004

PH - 0116

Ellen J. Blaschinski

DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

0004489 FP **PRSRT T1 0 0564 06450
STEPHEN R. ARIENTI
63 PINEHURST DRIVE
MERIDEN CT 06450

Dear Licensed/Certified Professional,

Attached you will find your validated license/certification for the coming year. Should you have any questions about your license/certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
or
(860) 509-7596

Sincerely,

J Robert Galvin M.D., M.P.H.

J. ROBERT GALVIN, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
STEPHEN R. ARIENTI

VALIDATION NO.	LICENSE NO.	CURRENT THROUGH
03-015629	000583	04/30/05

PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE — COMMISSIONER J Robert Galvin M.D., M.P.H.

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS LICENSED BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

STEPHEN R. ARIENTI

LICENSE NO.
000583
CURRENT THROUGH
04/30/05
VALIDATION NO.
03-015629

SIGNATURE — COMMISSIONER J Robert Galvin M.D., M.P.H.

CERTIFICATE OF ACHIEVEMENT

This certifies that

Stephen Arienti

has successfully completed the

Asbestos Site Inspector Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763

conducted by

ATC Associates Inc.
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Principal Instructor	*Regional Manager*
January 6, 2005	SIAR-1832
Date of Course	*Certificate Number*
January 6, 2006	January 6, 2005
Expiration Date	*Examination Date*

APPENDIX C

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORMS

TRC
5 WATERSIDE CROSSING
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6399

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 30103

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
43500-1340-00001	CT DPW – CCSU, Kaiser Hall Annex (Bubble)		PLM: X 24hr; 48hr; 3day; 5day TEM: 24hr; X 48hr; 3day; 5day
INSPECTOR: (SIGNATURE)	(PRINTED) Stephen Arienti		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE: COMP	TYPE: GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM NY NOB 198.1 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	4/14/05	1100			Kaiser Hall Annex Bubble Flooring	X		X		X	Blue rubber flooring and associated dark green/black asphalt layer
02	4/14/05	1100			Kaiser Hall Annex Bubble Flooring	X		X			Blue rubber flooring and associated dark green/black asphalt layer
03	4/14/05	1100			Kaiser Hall Annex Bubble Flooring	X		X			Blue rubber flooring and associated dark green/black asphalt layer

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	4/14/05	4/14/05			
(Printed) Stephen Arienti	Time: 13:00	(Printed) Kathleen Williamson 1300	(Printed)	Time:	(Printed)

Remarks:

N166669

At: 18602986399

ProScience Analytical Services, Inc.

22 Cummings Park, Woburn MA 01601 Ph 781-935-3212 Fx 781-932-4857

Date: 4/15/05

TEM Bulk Sample Chain Of Custody Record

Client: TRC Environmental

Client Job # 43500-1340-00001

Client Job Ref./Loc DPW - CCSU - Kaiser Hall

Client P.O. #

Relinquished By X K Williamson Recieved By X Sa 4/18/05 940 AM

Report to D. LePage

Sampler's Name S. Anenti

Analysis Type: (Please Circle) Chatfield / N.O.B., N.Y.S. / Qualitative

IMPORTANT!! Turn Around Time Requested, (Circle) <12 Hour <24 Hour $\boxed{\text{<48 Hour}}$ <3 Day <5 Day Other____

Client I.D.#	Lab I.D.#	Description	Location	For Lab Use Only: Acceptable on receipt	For Lab Use Only: Comments
01	30103	Floor / Asphalt	Kaiser Hall		
		2 Layers			

For Lab Use Only

	# Spls.	Total	Client #	Batch #	Results Reported	Comments

APPENDIX D

PLM LABORATORY ANALYSIS DATA

TRC ENVIRONMENTAL CORPORATION
Environmental Chemistry Laboratory
5 Waterside Crossing - Windsor, CT 06095
(860) 298-6308
AIHA Laboratory Certificate No. 259, Lab ID #100122
NIST-NVLAP Code #101424-0

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Public Works

Site: CCSU, Kaiser Hall Annex (Bubble)
Lab Log #: 30103
Project #: 43500-1340-00001
Date Received: 04/15/05
Date Analyzed: 04/15/05

RESULTS

Sample No.	Color	Homogeneous	Multi-Layered	Layer No.	Other Matrix Mat'ls	Asbestos %	Asbestos Type
01	Blue (flooring)	No	Yes	1	--	ND<1%	None
01	Black/Green (asphalt)	No	Yes	2	--	ND<1%	None
02	Blue (flooring)	No	Yes	1	--	ND<1%	None
02	Black/Green (asphalt)	No	Yes	2	--	ND<1%	None
03	Blue (flooring)	No	Yes	1	--	ND<1%	None
03	Black/Green (asphalt)	No	Yes	2	--	ND<1%	None

The Laboratory at TRC utilizes Polarized Light Microscopy (PLM) following the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA/600/M4-82-020, 1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey. Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2005. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through September 1, 2005. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. In those cases, negative results should be confirmed by quantitative transmission electron microscopy as recommended by the EPA.

Analyst: Kathleen Williamson

QC Analyst: Kathleen Williamson

Reviewed by: K Williamson
Laboratory Analyst

Approved Signatory: Henry J. Laliberte
Henry J. Laliberte
Laboratory Manager

Date Issued: 4/15/05

APPENDIX E

TEM LABORATORY ANALYSIS DATA

ProScience Analytical Services, Inc

22 Cummings Park, Woburn, Massachusetts 01801
781-935-3212 ~ Fax 781-932-4857 ~ E-Mail PASI96@aol.com

Client #:	297	**Method:**	**TEM NOB**
Client Project:	43500-1340-00001	**Batch:**	**NT 6666**
Client Reference:	DPW - CCSU - Kaiser Hall Annex (Bubble)	Date Analyzed:	4/20/2005
Client Name:	TRC Environmental Corp. (CT)	Date Received:	4/18/2005
		Date of Report:	4/20/2005

LAB ID	Field ID	Description:	Color	Initial Sample Weight	% Asbestos Types						% Other Non-asb.	% Organic	% Carb.	Total % Asbestos	Analyzed /Charged	Preped/ Charged
					CHR	AMO	ACT	CRO	ANT	TRE						
NT53433	01T	Blue rubber flooring		.3452	.00	.00	.00	.00	.00	.00	.84	81.05	18.11	ND	Yes	No
NT53434	01A	Grn./blk. Asphalt layer assoc. w/01T		.6721	.00	.00	.00	.00	.00	.00	92.93	5.73	1.34	ND	Yes	No

Comments:

Allison Small, Analyst

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

APPENDIX F

GYMNASIUM FLOORING MATERIAL WASTE CHARACTERIZATION DATA

COMPLETE ENVIRONMENTAL TESTING, INC.

80 Lupes Drive
Stratford, CT 06615

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cet@cetlabs.com

April 20, 2005

Mr. Donald LePage
TRC Environmental Consultants
5 Waterside Crossing
Windsor, CT 06095

Project: CT DPW-CCSU Kaiser Hall Annex
Project #: 43500-0000
CET #: 05040452
Floorin: 01
Collection Date(s): 4/14/05

PREP ANALYSIS:

TCLP, Metals [EPA 1311]

	01
TCLP, Metals	Completed [4/20/05]

ANALYSIS:

TCLP Mercury BY ICPMS [EPA 6020A] Units: mg/l Analysis Date: 4/20/05

	01
TCLP Mercury BY ICPMS	ND < 0.002

Total Mercury [EPA 7471] Units: mg/kg (Dry Wt) Analysis Date: 4/18/05

	01
Total Mercury	ND < 0.20

NOTES:
[ ] Indicates Date Prep Test Completed; ND is Not Detected.

Connecticut Laboratory Certification PH 0116
Massachusetts Laboratory Certification M-CT903
Rhode Island Laboratory Certification 199

Total Solids [EPA 160.3 mo] Units: percent Analysis Date: 4/18/05

	01
Total Solids	100*

*Assumed 100% solids.

Sincerely,

David Ditta
Laboratory Director

Notes:
[ ]Indicates Date Prep Test Completed; ND is Not Detected.

CET
COMPLETE ENVIRONMENTAL TESTING, INC.
80 Lupes Drive
Stratford, CT 06615
Tel (203) 377-9984
Fax (203) 377-9952

CHAIN OF CUSTODY

COMPANY NAME AND ADDRESS	REPORT TO:	PROJECT #:	PROJECT LOCATION:	PURCHASE ORDER #:	SAMPLED BY:
TRC Environmental 5 Waterside Crossing Windsor CT, 06095 CT OPW - CCSU Kaiser Hall Annex New Britain, CT	Don LePage	43500-00001			SA/JS

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
[signature]	4/14/05	1500			
FEDEX			[signature]	4/15/05	1028

ANALYSIS REQUIRED

SAMPLE I.D.	DATE	TIME	SAMPLE MATRIX	PRIORITY TURNAROUND SAME DAY	PRIORITY TURNAROUND 24 HR	PRIORITY TURNAROUND 2-3 DAY	STANDARD TURNAROUND	# OF CONTAINERS	Total Hg	TCLP Hg
01	4/14/05	1100	Rubber Flooring		~~X~~	X		2	X	X

SPECIAL INSTRUCTIONS Fax to Don LePage. Fax: (860)298-6399 Phone (860)298-6222

COMMENTS

REV. 4/02

ProScience Analytical Services, Inc.

22 Cummings Park, Woburn MA 01801 Ph 781-935-3212 Fx 781-932-4857

Date: 4/15/05

TEM Bulk Sample Chain Of Custody Record

Client: TRC Environmental
Client Job #: 43500-1340-00001
Client Job Ref./Loc: DPW - CCSU - Kaiser Hall
Client P.O. #:
Relinquished By: X K Williamson Recieved By X
Report to: D. LePage
Sampler's Name: S. Anerti

Analysis Type: (Please Circle) Chatfield N.O.B., N.Y.S. Qualitative

IMPORTANT!! Turn Around Time Requested. (Circle) <12 Hour <24 Hour <48 Hour <3 Day <5 Day Other____

Client I.D.#	Lab I.D.#	Description	Location	For Lab Use Only: Acceptable on receipt	For Lab Use Only: Comments
01	30103	Floor / Asphalt	Kaiser Hall		
		2 Layers			

For Lab Use Only

# Sples	Total	Client #	Batch #	Results Reported	Comments

COMPLETE ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY

80 Lupes Drive
Stratford, CT 06615
Tel (203) 377-9984
Fax (203) 377-9952

COMPANY NAME AND ADDRESS	REPORT TO:	PROJECT #:	PROJECT LOCATION:	PURCHASE ORDER #:	SAMPLED BY:
TRC Environmental 5 Waterside Crossing Windsor CT 06095 CT DPW - CCSU Kaiser Hall Annex New Britain, CT	Don LePage	73500-00001			SA/JS

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
[signature]	4/14/05	1500			

ANALYSIS REQUIRED

SAMPLE I.D.	DATE	TIME	SAMPLE MATRIX	PRIORITY TURNAROUND SAME DAY	PRIORITY TURNAROUND 24 HR	PRIORITY TURNAROUND 2-3 DAY	STANDARD TURNAROUND	# OF CONTAINERS	Total Hg	TCLP Hg
01	4/14/05	1100	Rubber Flooring		~~X~~	X		2	X	X

SPECIAL INSTRUCTIONS Fax to Don LePage Fax: (860) 298-6399 Phone (860) 298-6222

COMMENTS

REV. 4/02

II

HAZARDOUS MATERIAL INSPECTION/ABATEMENT REQUEST

ON HOLD

TO: Jerry Glassman/ John Wytas
Statewide Services – Room 280
DPW-Asbestos/Lead Management
165 Capitol Avenue, Htfd., CT 06106

Tel. 860 713-5709
Tel.:860-713-5702
FAX: 860-713-7250

FROM: Anthony Pileggi
University Architect
CCSU
1615 Stanley Street, New Britain, CT 06050
(Mailing Address)

TEL.: 860 832-2311

DATE: March 17, 2005 , 200

BUILDING NAME: Kaiser Hall Annex ("Bubble") DPW # 40112

ADDRESS: 205 Ella Grasso Blvd.

PROJECT TYPE: Asbestos (Asbestos/Lead/Outdoor/Indoor/Air Quality

Capital (>$50K) Term (<$50K and/or time issue) Not known yet
(Circle One)

REQUESTED COMPLETION DATE OF INSPECTION: 05/21/05

TYPE OF INSPECTION/ABATEMENT REQUEST:
(Circle One)

XXX ASBESTOS (circle): Roof, Floor, Tile, Piping, Ceiling Tile, Transite, or Other:________
If asbestos in roof, please complete the following:
Bond or Warranty:________
Access to roof from:________

_____LEAD (circle): Paint, Piping, Soil, Water, Roofing Material, or Other:________
(PLEASE INDICATE FUNDING SOURCE ________)

_____INDOOR AIR QUALITY (Describe Briefly):________
(PLEASE INDICATE FUNDING SOURCE ________)

SCOPE OF ASB. ABATEMENT (if applicable) ________

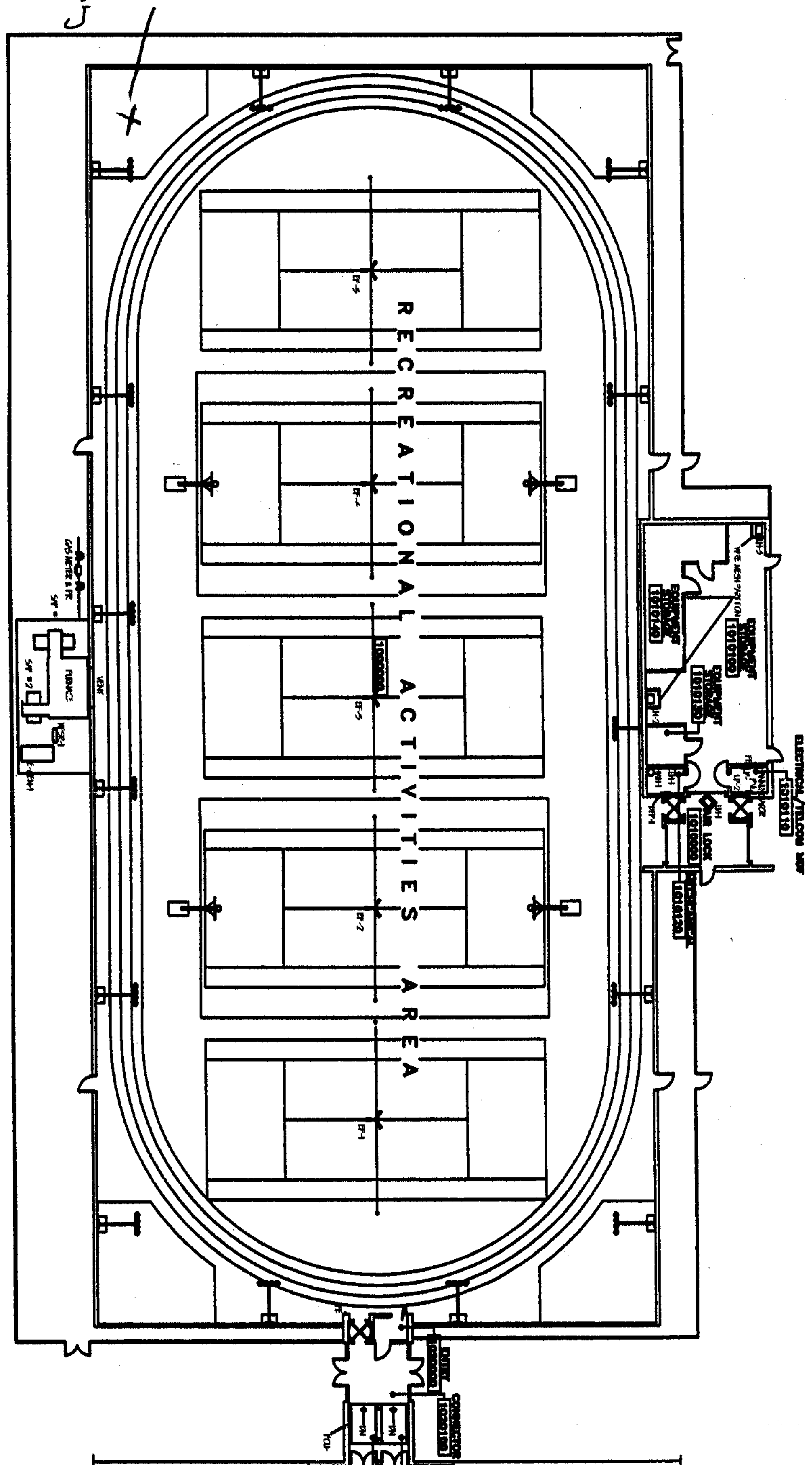
BUILDING AREA DESCRIPTION:
Specific Area in Question: Flooring system including adhesive and base course; No drawing attached

ON SITE/CONTACT PERSON: Anthony Pileggi TEL. # 860 637-4400 Cell

DESIGNREV (33)
HAZARDOUS MATERIAL INSPECTION REQUEST
5/23/01

Sampled Area

Blue rubber flooring + green/black asphalt layer



KAISER HALL

date 05/11/98
file P:\DATABASE\#35

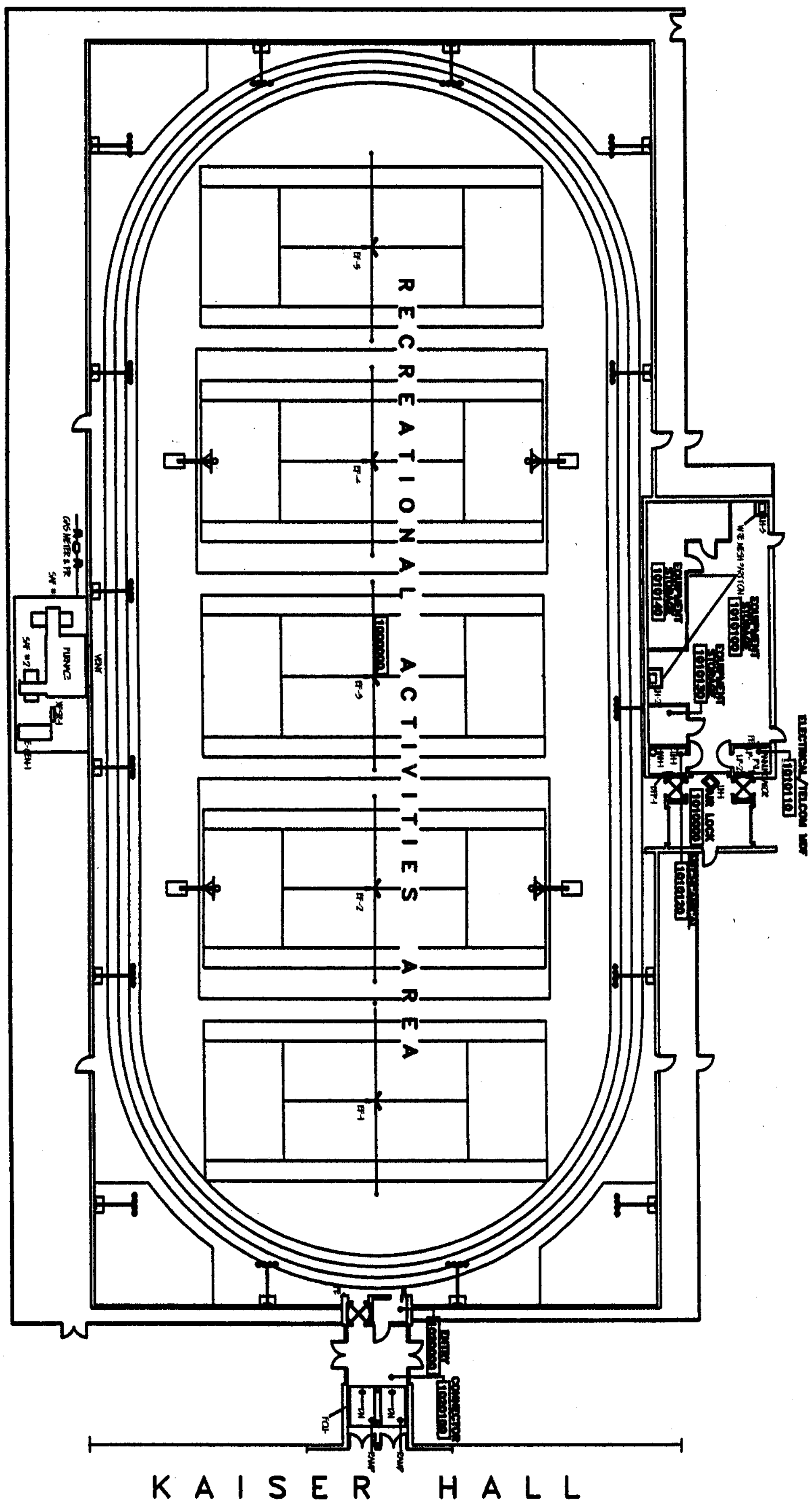
building no. 35 | dwg. no. A1

KAISER HALL ANNEX
DATA BASE
FIRST FLOOR PLAN

40' 30' 20' 10' 0 10'

CENTRAL CONNECTICUT STATE UNIVERSITY

Office of the University Architect, Rm.# 201, East Hall, 1615 Stanley Street, New Britain, Ct, 06050, Tel.# 860/832-2311, Fax.# 860/832-2329



date 05/11/98
file P:\DATABASE\#35
building no. 35
dwg. no. A1

KAISER HALL ANNEX
DATA BASE
FIRST FLOOR PLAN

40' 30' 20' 10' 0 10'

CENTRAL CONNECTICUT STATE UNIVERSITY

Office of the University Architect, Rm.# 201, East Hall, 1615 Stanley Street, New Britain, Ct, 06050, Tel.# 860/832-2311, Fax.# 860/832-2329

PART 1 – GENERAL

1.01 SUMMARY

A. SECTION INCLUDES

1. The work in this section includes furnishing, installing and commissioning all access control hardware as hereinafter specified or obviously necessary for all swinging doors.

B. RELATED DOCUMENTS

1. Related documents, drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

C. RELATED SECTIONS

1. 062000 Finish Carpentry
2. 080100 Operations and Maintenance
3. 081113 Metal Doors and Frames
4. 081416 Flush Wood Doors
5. 087100 Door Hardware
6. Division 26 Electrical
7. Division 27 Communications

1.02 REFERENCES

A. STANDARDS

1. AIA A201 1997 General Conditions of the Contract
2. ANSI A156.1 Butts and Hinges
3. ANSI A156.13 Bored and Preassembled Locks and Latches
4. ANSI A156.3 Exit Devices
5. ANSI A156.7 Template Hinge Dimensions
6. ANSI A156.18 Material and Finishes
7. UL10C Positive Pressure Fire Tests of Door Assemblies
8. UL294 Access Control Systems
9. UL1076 Proprietary Burglar Alarm Units and Systems

B. CODES

1. NFPA 101 Life Safety Code
2. ANSI A117.1 Accessible and Usable Buildings and Facilities
3. ADA Americans with Disabilities Act

1.03 SUBMITTALS

A. GENERAL REQUIREMENTS

1. Submit copies of finish hardware schedule in accordance with Division 1, General Requirements.

B. SCHEDULES AND PRODUCT DATA

1. Schedules to be in vertical format, listing each door opening, and organized into “hardware sets” indicating complete designations of every item required for each door opening to function as intended. Hardware schedule shall be submitted within two (2) weeks from date the purchase order is received by the finish hardware supplier. Furnish four (4) copies of revised schedules after approval for field and file use. Note any special mounting instructions or requirements with the hardware schedule. Schedules to include the following information:

    a. Location of each hardware set cross-referenced to indications on drawings, both on floor plans and in door and frame schedule.
    b. Handing and degree of swing of each door.
    c. Door and frame sizes and materials.
    d. Keying information.
    e. Type, style, function, size, and finish of each hardware item.
    f. Elevation drawings and operational descriptions for all electronic openings.
    g. Name and manufacturer of each hardware item.
    h. Fastenings and other pertinent information.
    i. Explanation of all abbreviations, symbols and codes contained in schedule
    j. Mounting locations for hardware when varies from standard.

2. Submit catalog cuts and/or product data sheets for all scheduled access control hardware.
3. Submit copy of manufacturer’s official certification or accreditation document indicating proof of status as a qualified and authorized provider of the primary access control components.

C. SAMPLES

1. Upon request, samples of each type of hardware in finish indicated shall be submitted. Samples are to remain undamaged and in working condition through submittal and review process. Items will be returned to the supplier or incorporated into the work within limitations of keying coordination requirements.

D. TEMPLATES

1. Furnish a complete list and suitable templates, together with finish hardware schedule to contractor, for distribution to necessary trades supplying materials to be prepped for finish hardware.

E. ELECTRONIC HARDWARE SYSTEMS

1. Provide complete wiring diagrams prepared by an authorized factory employee for each opening requiring electronic hardware, except openings where only magnetic hold-open devices are specified. Provide a copy with each hardware schedule submitted after approval.
2. Provide complete operational descriptions of electronic components listed by opening in the hardware submittals. Operational descriptions to detail how each electrical component functions within the opening incorporating all conditions of ingress and egress. Provide a copy with each hardware schedule submitted for approval.
3. Provide elevation drawings of electronic hardware and systems identifying locations of the system components with respect to their placement in the door opening. Provide a copy with each hardware schedule submitted for approval.
4. Prior to installation of electronic hardware, arrange conference between supplier, installers and related trades to review materials, procedures and coordinating related work.
5. The electrical products contained within this specification represent a complete engineered system. If alternate electrical products are submitted, it is the responsibility of the distributor to bear the cost of providing a complete and working system including re-engineering of electrical diagrams and system layout, as well as power supplies, power transfers and all

required electrical components. Coordinate with electrical engineer and electrician to ensure that line voltage and low voltage wiring is coordinated to provide a complete and working system.

6. For each item of electrified hardware specified, provide standardized molex plug connectors to accommodate up to twelve (12) wires. Molex plug connectors shall plug directly into through-door wiring harnesses, frame wiring harnesses, electric locking devices and power supplies.

F. OPERATIONS AND MAINTENANCE MANUALS

1. Upon completion of construction and building turnover, furnish two (2) complete maintenance manuals to the owner. Manuals to include the following items:

   a. Approved hardware schedule, catalog cuts and keying schedule.
   b. Hardware installation and adjustment instructions.
   c. Manufacturer’s written warranty information.
   d. Wiring diagrams, elevation drawings and operational descriptions for all electronic openings.

1.04 QUALITY ASSURANCE

A. SUBSTITUTIONS

1. No substitution on any of the access control products specified in this section are allowed.

B. ACCESS CONTROL SUPPLIER

1. Supplier/Dealers, verifiably authorized and in good standing with the primary product manufacturers, with a minimum [3] years experience supplying integrated access control systems similar in material, design, and scope to that indicated for this Project and whose work has resulted in construction with a proven record of successful in-service performance.

C. ACCESS CONTROL INSTALLER QUALIFICATIONS

1. Systems Integrators, verifiably factory trained and certified by the primary product manufacturers, with a minimum [3] years documented experience installing complete integrated access control systems similar in material, design, and scope to that indicated for this Project and whose work has resulted in construction with a proven record of successful in-service performance. Qualifications include, but are not necessarily limited, to the following:

   a. References: Provide a list of references for similar projects including contact name, phone number, name and type of project.
   b. Professional Staffing: Firms to have a dedicated access control systems integration department with full time, experienced professionals on staff experienced in providing on site consulting services for both electrified door hardware and integrated access control systems installations.
   c. Factory Training: Installation and service technicians are to be competent factory trained and certified personnel capable of maintaining the system.
   d. Service Center: Firms to have a service center capable of providing training, in-stock parts, and emergency maintenance and repairs at the Project site with 24-hour/7-days a week maximum response time.

2. Persona IP-Enabled Access Control products are required to be supplied and installed only through designated ASSA ABLOY “Certified Integrator” (CI) accounts.

1.05 FIRE-RATED OPENINGS

1. Provide door hardware for fire-rated openings that comply with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed by Underwriters Laboratories (UL) or Warnock Hersey (WH) for use on types and sizes of doors indicated.
2. Project requires door assemblies and components that are compliant with positive pressure and S-label requirements. Specifications must be cross-referenced and coordinated with door manufacturers to ensure that total opening engineering is compatible with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies.

   a. Hardware required for fire doors shall be listed with Underwriters Laboratories for ratings specified.

   b. Certification(s) of compliance shall be made available upon request by the Authority Having Jurisdiction.

1.06 DELIVERY, STORAGE AND HANDLING

A. MARKING AND PACKAGING

1. Properly package and mark items according to the approved access control hardware schedule, complete with necessary screws and accessories, instructions and installation templates for spotting mortising tools. Contractor shall check deliveries against accepted list and provide receipt for them, after which he is responsible for storage and care. Any shortage or damaged good shall be made without cost to the owner.
2. Packaging of door hardware is the responsibility of the supplier. As hardware supplier receives material from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set and door numbers to match the approved hardware schedule. Two or more identical sets may be packed in same container.

B. DELIVERY

1. The supplier shall deliver all hardware to the project site as required to meet the project schedule.

C. STORAGE

1. Do not store electronic access control hardware, software or related accessories at Project site without prior authorization.

   a. Access control firmware and software: Where approved and directed, inventory upon receipt and store electronic access control equipment in a secure, temperature and humidity controlled environment in original manufacturer's sealed containers.

2. If authorized provide secure lock-up for access control hardware delivered to the Project, but not yet installed. Control handling of access control hardware items that are not immediately replaceable so that completion of work will not be delayed by hardware losses both before and after installation.

1.07 COORDINATION

A. Coordinate quantity and arrangement of assemblies with ceiling space configuration and with components occupying ceiling space, including structural members, pipes, air-distribution components, raceways, cable trays, recessed lighting fixtures, and other items.

B. Access Control System Electrical Coordination: Coordinate the layout and installation of scheduled electrified door hardware, and related access control equipment, with required connections to source power junction boxes, power supplies, detection and monitoring hardware and fire alarm system.

C. Door Hardware Interface: The access control system to interface and be connected to electronic door control hardware (electromechanical locks, electric strikes, magnetic locks, door position switches, other monitoring contacts, and related auxiliary control devices) as described under Division 8 "Door Hardware". Coordinate the installation and configuration of specified door hardware being monitored or controlled with the controls, software and access control hardware specified in this Section.

1.08 WARRANTY

A. All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one (1) year commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the owner.

1. Exit Devices: Five (5) years
2. Proximity Locksets: Two (2) years

B. Access Control Software Upgrades: Version upgrades and "fix" releases to the access control system software are available at no extra charge as long as the version of software provided under this specification remains the current manufacturer's version or for up to (2) years after a new version release.

1. Major access control software revisions that provide new functionality to the product provided free of charge for up to one (1) year from the date of substantial completion.
2. Access control system software is to be upgradable as may be required or as necessary, to expand and manage the owner's site or sites. Upgrades are to be offered at a published flat fee for the primary system software, with single license modules included in the primary fee structure. System upgrades offered at a costing structure based upon the original number of licensed modules issued, or on those to be purchased at a future date, are not allowed.
3. As part of the submittal package, provide a list of available software upgrades and/or expansions modules. List to identify related costs for upgrades, or expansions to the original system, up to the next qualifying operational level.

1.09 ACCESS CONTROL SCOPE OF WORK

A. Furnish and install at the indicated locations the specified electrified and integrated door hardware and access control firmware and software for a completely operational access control and security site management system. System includes, but is not necessarily limited, to the following:

1. Electrified integrated card reader locks and exit hardware, [permanent and temporary override cylinders], network control processors, reader controller panels, I/O monitor/control interfaces, door position switches, remote card readers, keypads, and display terminals,

access cards and credentials, system application software, special tools, operating manuals, and required cabling and accessories as detailed below and listed in the Hardware Sets at the end of Part 3.

a. Provide the appropriate number of reader controller panels and I/O monitoring/control expansion interfaces as needed to handle the number of card readers, locking devices, door status devices, and identified alarm inputs specified in this section, and as shown on the security drawings.

b. Provide manufacturer approved integrated card reader locks, exit hardware, and remote [mullion, jamb, wall] mounted card readers, keypads, and display terminals that are functionally compatible with the specified access control equipment interfaces.

2. Access control system equipment to be installed in an enclosure box compatible with the specified components. This enclosure to include, but is not necessarily limited to, the network control processor, I/O monitor/control interface panels, power supplies, terminal strips, wire ducts, keyed lock cylinder, integrated outlet for A/C power, and standoffs.

a. Enclosure box to be located in the designated IT/Telecom room(s) with connection to the [campus wide, district wide, enterprise wide] local area network for communication back to the central server host.

3. Owner to provide the following:

a. Computer hardware and peripherals to be from an approved, major line computer manufacturer. The following manufacturers will be considered "pre-approved", however, specific information detailing compliance with the manufacturer's requirements must be included within the project submittal package as specified.

1) Compaq
2) Dell
3) Hewlett-Packard
4) IBM

b. Central Server Host Computer:

1) System Server to include the following minimal requirements: Windows Server 2003 (Service Pack 1 or higher) or later Operating System, Intel Pentium IV 1 GHz (equivalent or greater), SQL Server 2005 Express Edition or SQL 2005, 1GB Ram or larger, 120GB hard disk space available or more as needed, CRT or LCD minimum 15" display Monitor, CD/RW Drive. Single serial port, or multiple USB ports, and one parallel port, keyboard and mouse.

c. Client Workstations:

1) Client Workstation to include the following minimal requirements: Windows XP Professional (Service Pack 2 or higher) or Windows Vista Business, Intel Pentium III 500 MHz (equivalent or greater), SQL Server 2000 Client Access License, 1GB Ram or larger, 30GB hard disk space available or more as needed, CRT or LCD minimum 15" display Monitor, CD/RW Drive. Single serial port, or multiple USB ports, and one parallel port, keyboard and mouse.

d. Owner will be responsible for ensuring that each computer hardware component includes the required interfaces, expansion boards, and peripherals that will be necessary to allow the system to operate as described within this specification and as indicated on the drawings.

e. Power Sourcing and Network Switches: Quantity as required to accommodate installed access control (and video surveillance) devices.

f. Network Control Processor Connections:

1) LAN/Ethernet communication ports (jacks) and network interface cards as needed, CAT5e cabling from network router/switch to network control processor, outlet and cover plates and/or patch cables required for network connection within each designated IT/Telecom room.
2) Required static IP addresses.

4. Power Supplies, including battery back up and separately fused surge protection, required for the electrified door hardware and access control equipment.
5. Installation, final configuration and commissioning of electrified door and access control system hardware, communication firmware, power supplies and related accessories.
6. System application software including installation, programming, and end user training of the access control system demonstrating operating, repair, and maintenance procedures. Include no fewer than 16 hours of on-site central server training for designated personnel (facilities maintenance, security, IT, administration) by a factory certified representative.

a. Include minimum of 8 hours of Client Software Application (client workstation) training at each of the remote installed facilities for local administrative staff.

7. Provide manufacturer required power controllers, interface boards, and programming that may be required for approved electric latch retraction exit devices supplied under this Section.
8. Electrical contractor, Division 26, to provide the following:

a. Source power wiring (120VAC) as required for the electrified locking and access control hardware, equipment, accessories and power supplies. This includes quad outlets as required on a dedicated circuit in the designated IT/Telecom room(s) and the related conduit, stub-in, junction boxes and connectors required for the source power delivery and connections.

b. Provide required conduit, stub-in, junction and back boxes for both the electrified locking hardware and access control equipment at each of the access controlled or monitored openings per plan drawings and specs. Supply and install conduit between each of the aforementioned devices and between the electrical junction boxes, power supplies and access control equipment located on or above the door opening.

1) At wall mounted remote readers, provide conduit on the secured side of the door, 36" from the finish floor and 6" from the edge of the frame, to the related power supplies and access control equipment.
2) At electrical hardware power transfers provide conduit on the secured side of the opening from the power transfer, thru-wire hinge, or serviceable panel location on the frame jamb to the related power supplies and access control equipment.

c. Electrical Contractor to provide all 120VAC cabling connections and terminations from the electrical junction boxes to these electrical devices.

9. Access Control System Integrator to provide the following:

a. Low voltage wiring (12/24VDC) and communication cabling (RS-232/RS-485) from network control processors to reader controllers, I/O monitor/control interface panels, electrified and integrated locking hardware, remote card readers, keypads, or display terminals, monitoring and signaling switches, and power supplies. Work includes related connectors, final terminations, and hook-ups required for a complete and functional access controlled opening in accordance with applicable codes and specified system operational narratives.

10. Full and seamless integration of the site intrusion alarm service and motion detector systems, Division 28 if applicable, with the installed site access control system software.
11. Final connections to fire alarm system, if required, by electrical and fire alarm system contractors.
12. Provide permits, submittals and approvals required by the authority having jurisdiction, prior to commencing with work.

PART 2 – PRODUCTS

2.01 SYSTEM ARCHITECTURE - ACCESS CONTROL AND SITE MANAGEMENT SYSTEM (ACSMS)

A. General: All access control hardware is to tie into the owners' existing Persona site management system.

2.02 MANUFACTURERS

A. Only manufacturers as listed below shall be accepted. Obtain each type of finish hardware and access control (hinges, latch and locksets, proximity locksets, access control software and components, exit devices, door closers, etc.) from a single manufacturer.

2.03 MATERIALS

A. SCREWS AND FASTENERS

1. All required screws shall be supplied as necessary for securing finish hardware in the appropriate manner. Thru-bolts shall be supplied for exit devices and door closers where required by code and the appropriate blocking or reinforcing is not present in the door to preclude their use.

B. HANGING DEVICES

1. POWER TRANFER HINGES

a. Power-over-Ethernet (PoE) Data Hinges: Provide PoE hinges allowing for both power and Ethernet data to be transferred from an incoming source to the door opening and linked with electrified door hardware via Molex™ standardized plug connectors and wire harnesses.

1) Each hinge features two 6-position and two 4-position Molex connectors, 9 multistrand wires; 2 twisted pairs (26 AWG), 4 straight conductors (28 gauge) and 1 straight conductor (22 AWG) with concealed plug connectors eliminating the need for

separate or exposed wiring. Rated 350 mA continuous @ 48 volts DC nominal, the hinge is capable of two PoE wiring configurations:

a) Power over Data (5 wire): Power and Data supplied together over the 2 twisted (26 AWG) pairs. The 22 AWG conductor is used for the earth ground connection.
b) Data with Power over Spares (9 wire): Data over 2 twisted (26 AWG) pairs with Power over spare pairs 94 straight 28 AWG conductors). The 22 Awg conductor is used for earth ground connection.

1. Specified Manufacturer: McKinney PoE Series
2. Approved Substitutes: NONE

C. ACCESS CONTROL DEVICES - ON LINE ELECTRONIC ACCESS CONTROL SYSTEM

1. PoE MORTISE LOCKSETS

a. Power-over-Ethernet (PoE) Access Control Mortise Locks.
   1) BHMA certified extra heavy duty, lever type cylindrical lock conforming to ANSI 156.13 Series 1000, Grade 1 standard and ANSI A117.1 accessibility guidelines. Motorized locking control of lever handle trim (solenoids not acceptable) with ¾" anti-friction deadlocking latch, UL listed and labeled for up to 3 hour fire rated openings.
   2) Power-over-Ethernet intelligent access control locking devices interface using standard IEEE 802.3af Ethernet for data and power communication directly from the locking unit back to a host server over an existing or newly installed TCP/IP network facilitating centralized control via a Software Development Kit (SDK) to an online electronic access control system without the need for additional interfaces or components (excluding PoE Endspan and Midspan devices). Provide access control products with non-volatile memory.
   3) Fully-encrypted AES-128 (IEEE 802.3af) communication between IP Enabled lock and electronic access control system platform via SDK. Programmable time zone periods, blocked holidays, automatic unlock with or without first entry, minimum of 2,400 user codes and the ability to audit the last 10,000 transactions (event type, date, time, user ID and name). Distributed intelligence allows stand alone functional operation of lock in absence of network communication or slowdown allowing for system operational redundancy.
   4) Integrated reader supports High Coercivity (HiCo) magnetic swipe credentials, HID® 125 kHz proximity credentials or ISO 14443 A/B and ISO 15693 13.56 MHz contactless credentials: HID® iCLASS / iCLASS SE (full authentication, all formats), MIFARE Classic and DESFire EV1 (full authentication, all formats); NFC (Near Field Communications) and HID® SIO-Enabled™.
      a) Valid/ Invalid credential presentation viewable by means of LED indicators on outside escutcheon.
      b) Dual factor keypad authentication function optional.
   5) Environmental Conditions: Conformally coated weather resistant electronic controller shall meet the following minimum requirements:
      a) Operating temperature: -31 to 150 degrees F (-35 to 65 degrees C)
      b) Operating humidity: 5% to 95% relative humidity non-condensing
      c) Weatherized design suitable to withstand harsh environments with a certified rating of IP55
   6) Configuration: Programming of time zone periods, blocked holidays, automatic unlock with or without first entry, and listing 10,000 event transaction history consisting of event type, date, time, user ID and name is required.

a) Provide network and lock configuration CD tool kit for initial lock set-up and programming via USB connection.
b) Monitoring: Software accessible monitoring (via SDK) of inside lever handle (Request-to-Exit), door position switch (DPS) integral to the lock (door open/closed status), forced door, unknown card, door held open, battery and tamper.
c) Standard privacy function initiated from push button on inside escutcheon and cancelled upon activation of valid Request-To-Exit (REX) or user defined credentials.
1. Activation of privacy function is indicated by LED notification on inside escutcheon.
2. Redundant actuation of privacy button does not deactivate privacy mode.

7) Emergency override access capability by mechanical key cylinder retraction of lock latch bolt without electronic activation necessary.
8) Power Source: PoE Class 2; Max 7 W.
a) PoE Endspan/Midspan, electrical hard wiring, grounding, connections, mounting boxes, and structured cabling framework are required for complete system functionality (by others).
b) Network Cabling (by others) Requirements: Meet or exceed ANSI/TIA/EIA-568-C; CAT5e or higher as set forth by AHJ.
c) Bonding and Grounding Requirements: Meet or exceed TIA-607-B to ensure proper operation; Connect locking device ground cable to building electrical earth ground.
d) Network Surface Mount Box: Meet or exceed ANSI/TIA/EIB-568-B; CAT5e or higher (RJ45).

1. Specified Manufacturer: Sargent 8200 Line PoE Series with Bluetooth
2. Approved Substitutes: NONE

2. PoE CYLINDRICAL LOCKSETS

a. Power-over-Ethernet (PoE) Access Control Cylindrical Locks.
1) BHMA certified extra heavy duty, lever type cylindrical lock conforming to ANSI 156.2 Series 4000, Grade 1 standard and ANSI A117.1 accessibility guidelines. Motorized locking control of lever handle trim (solenoids not acceptable) with ½” anti-friction deadlocking latch, UL listed and labeled for up to 3 hour fire rated openings.
2) Power-over-Ethernet intelligent access control locking devices interface using standard IEEE 802.3af Ethernet for data and power communication directly from the locking unit back to a host server over an existing or newly installed TCP/IP network facilitating centralized control via a Software Development Kit (SDK) to an online electronic access control system without the need for additional interfaces or components (excluding PoE Endspan and Midspan devices). Provide access control products with non-volatile memory.
3) Fully-encrypted AES-128 (IEEE 802.3af) communication between IP Enabled lock and electronic access control system platform via SDK. Programmable time zone periods, blocked holidays, automatic unlock with or without first entry, minimum of 2,400 user codes and the ability to audit the last 10,000 transactions (event type, date, time, user ID and name). Distributed intelligence allows stand alone functional operation of lock in absence of network communication or slowdown allowing for system operational redundancy.
4) Integrated reader supports High Coercivity (HiCo) magnetic swipe credentials, HID® 125 kHz proximity credentials or ISO 14443 A/B and ISO 15693 13.56 MHz contactless credentials: HID® iCLASS / iCLASS SE (full authentication, all formats),

MIFARE Classic and DESFire EV1 (full authentication, all formats); NFC (Near Field Communications) and HID® SIO-Enabled™.

c) Valid/ Invalid credential presentation viewable by means of LED indicators on outside escutcheon.
d) Dual factor keypad authentication function optional.

5) Environmental Conditions: Conformally coated weather resistant electronic controller shall meet the following minimum requirements:
   d) Operating temperature: -31 to 150 degrees F (-35 to 65 degrees C)
   e) Operating humidity: 5% to 95% relative humidity non-condensing
   f) Weatherized design suitable to withstand harsh environments with a certified rating of IP55
6) Configuration: Programming of time zone periods, blocked holidays, automatic unlock with or without first entry, and listing 10,000 event transaction history consisting of event type, date, time, user ID and name is required.
   d) Provide network and lock configuration CD tool kit for initial lock set-up and programming via USB connection.
   e) Monitoring: Software accessible monitoring (via SDK) of inside lever handle (Request-to-Exit), door position switch (DPS) integral to the lock (door open/closed status), forced door, unknown card, door held open, battery and tamper.
   f) Standard privacy function initiated from push button on inside escutcheon and cancelled upon activation of valid Request-To-Exit (REX) or user defined credentials.
      3. Activation of privacy function is indicated by LED notification on inside escutcheon.
      4. Redundant actuation of privacy button does not deactivate privacy mode.
7) Emergency override access capability by mechanical key cylinder retraction of lock latch bolt without electronic activation necessary.
8) Power Source: PoE Class 2; Max 7 W.
   e) PoE Endspan/Midspan, electrical hard wiring, grounding, connections, mounting boxes, and structured cabling framework are required for complete system functionality (by others).
   f) Network Cabling (by others) Requirements: Meet or exceed ANSI/TIA/EIA-568-C; CAT5e or higher as set forth by AHJ.
   g) Bonding and Grounding Requirements: Meet or exceed TIA-607-B to ensure proper operation; Connect locking device ground cable to building electrical earth ground.
   h) Network Surface Mount Box: Meet or exceed ANSI/TIA/EIB-568-B; CAT5e or higher (RJ45).

      1. Specified Manufacturer: Sargent 10 Line PoE Series with Bluetooth
      2. Approved Substitutes: NONE

3. PoE EXIT DEVICES

a. Power-over-Ethernet (PoE) Access Control Rim Exit Devices.
   1) BHMA certified panic and exit device hardware conforming to ANSI 156.3, Grade 1 standard and ANSI A117.1 accessibility guidelines. Electronic motorized locking control of lever handle (solenoids not acceptable) contained completely within the body of the outside trim control. U.L. listed and labeled for either panic or “Fire Exit Hardware” for use on up to 3 hour fire rated openings.
   2) Power-over-Ethernet intelligent access control locking devices interface using standard IEEE 802.3af Ethernet for data and power communication directly from the locking unit back to a host server over an existing or newly installed TCP/IP network

facilitating centralized control via a Software Development Kit (SDK) to an online electronic access control system without the need for additional interfaces or components (excluding PoE Endspan and Midspan devices).

a) Provide access control products with non-volatile memory.

3) Fully-encrypted AES-128 (IEEE 802.3af) communication between IP Enabled lock and electronic access control system platform via SDK. Programmable time zone periods, blocked holidays, automatic unlock with or without first entry, minimum of 2,400 user codes and the ability to audit the last 10,000 transactions (event type, date, time, user ID and name). Distributed intelligence allows stand alone functional operation of lock in absence of network communication or slowdown allowing for system operational redundancy.
4) Integrated reader supports High Coercivity (HiCo) magnetic swipe credentials, HID® 125 kHz proximity credentials or ISO 14443 A/B and ISO 15693 13.56 MHz contactless credentials: HID® iCLASS / iCLASS SE (full authentication, all formats), MIFARE Classic and DESFire EV1 (full authentication, all formats); NFC (Near Field Communications) and HID® SIO-Enabled™.
    a) Valid/ Invalid credential presentation viewable by means of LED indicators on outside escutcheon.
    b) Dual factor keypad authentication function optional.
5) Environmental Conditions: Conformally coated weather resistant electronic controller shall meet the following minimum requirements:
    a) Operating temperature: -31 to 150 degrees F (-35 to 65 degrees C)
    b) Operating humidity: 5% to 95% relative humidity non-condensing
    c) Weatherized design suitable to withstand harsh environments with a certified rating of IP55
6) Configuration: Programming of time zone periods, blocked holidays, automatic unlock with or without first entry, and listing 10,000 event transaction history consisting of event type, date, time, user ID and name is required.
    a) Provide network and lock configuration CD tool kit for initial lock set-up and programming via USB connection.
7) Monitoring: Software accessible monitoring (via SDK) of inside push rail (Request-to-Exit), integral door position switch (DPS) integral to the lock (door open/closed status), forced door, unknown card, door held open, battery and tamper.
    a) Standard privacy function initiated from push button on inside escutcheon and cancelled upon activation of valid Request-To-Exit (REX) or user defined credentials.
        1. Activation of privacy function is indicated by LED notification on inside escutcheon.
        2. Redundant actuation of privacy button does not deactivate privacy mode.
    b) Emergency override access capability by mechanical key cylinder retraction of lock latch bolt without electronic activation necessary.
8) Power Source: PoE Class 2; Max 7 W.
    a) PoE Endspan/Midspan, electrical hard wiring, grounding, connections, mounting boxes, and structured cabling framework are required for complete system functionality (by others).
    b) Network Cabling (by others) Requirements: Meet or exceed ANSI/TIA/EIA-568-C; CAT5e or higher as set forth by AHJ.
    c) Bonding and Grounding Requirements: Meet or exceed TIA-607-B to ensure proper operation; Connect locking device ground cable to building electrical earth ground.
    d) Network Surface Mount Box: Meet or exceed ANSI/TIA/EIB-568-B; CAT5e or higher (RJ45).

        1. Specified Manufacturer: Sargent 80 PoE Series with Bluetooth

2. Approved Substitutes: NONE

D. WALL CARD READERS

1. Keypad/Magnetic Stripe Card Readers:
   a. The system to have the ability to support ABA standard, Track 1 or 2 high or low coercivity magnetic stripe cards. Card readers constructed of a rugged, weatherized casing suitable for either indoor or outdoor applications. Reader to have multi-color LED status display and meet the following specifications:
      1) Power: Card reader powered from its associated controller, including its standby power source.
      2) Output: Wiegand protocol interface compatibility.
      3) Optional card slot heater required for exterior applications.

         a) Specified Manufacturer: HID Global Model RP/RPK 40 with Bluetooth.
         b) Approved Substitutes: None

2.04 CABLES AND WIRING

A. Comply with Division 27 Section "Conductors and Cables for Electronic Safety and Security."

B. Data Line Supervision: System to include alarm initiation capability in response to opening, closing, shorting, or grounding of data transmission lines.

C. Install appropriate number of conductor pairs, in the wire gage (AWG) recommended by manufacturer, corresponding to the electronic locking functions specified, amperage drawn and distances covered between the power supplies, power transfer devices, electrified hardware and access control equipment.

2.05 ACCESS CONTROL HARDWARE FINISHES

A. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 or traditional U.S. finishes shown by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

C. Where specified hardware shall have an antimicrobial coating which permanently suppresses the growth of bacteria, algae, fungus, mold and mildew applied. The finish shall control the spread and growth of bacteria, mold and mildew and shall be FDA listed for use in medical and food preparation equipment.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Contractor shall ensure that the building is secured and free from weather elements prior to installing access control door hardware. Examine hardware before installation to ensure it is free of defects.

B. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance of the installed access control system.

C. Examine roughing-in for electrical source power to verify actual locations of wiring connections before electrified and integrated access control door hardware installation.

D. Examine roughing-in for LAN and control cable conduit systems to PCs, controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.

E. Notify architect of any discrepancies or conflicts between the specifications, drawings and scheduled access controlled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.02 PREPARATION

A. Doors and frames at scheduled access controlled openings to be properly prepared to receive specified electrified and access control hardware connections without additional in-field modifications.

3.03 INSTALLATION

A. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with the governing regulations.

1. “Recommended Locations for Builders Hardware for Standard Steel Doors and Frames” by the Door and Hardware Institute (DHI.)

2. NWWDA Industry Standard I.S.1.7, “Hardware Locations for Wood Flush Doors.”

B. All hardware shall be applied and installed in accordance with best trade practice by an experienced hardware installer. Care shall be exercised not to mar or damage adjacent work.

C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

D. Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

E. Install each item of electrified door hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

F. Mounting Heights: Mount integrated access control door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."

G. Boxed Power Supplies: Verify locations.

1. Configuration: Provide the least number of power supplies required to adequately serve doors with access control equipment.

H. Final connect the system control switches (integrated card key locking hardware, remote readers, keypads, display terminals, biometrics), and monitoring, and signaling equipment to the related Controller devices at each opening to properly operate the electrified door and access control hardware according to system operational narratives.

1. System Application Software: Install, and test application(s) software and databases for the complete and proper operation of systems involved. Assign software license(s) to Owner.

3.04 FIELD QUALITY CONTROL

A. The Contractor shall comply with AIA A201 1997 section 3.3.1 which reads as follows: “The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the contract Documents give other specific instructions concerning these matters.”

B. Prior to the installation of hardware, manufacturer's representatives for locksets, closers, and exit devices shall arrange and hold a jobsite meeting to instruct the installing contractor's personnel on the proper installation of their respective products. A letter of compliance, indicating when this meeting is held and who is in attendance, shall be sent to the Architect and Owner.

C. The hardware supplier shall do a final inspection prior to building completion to ensure that all hardware was correctly installed and is in proper working order.

D. The manufacturer’s representative shall do a final inspection prior to building completion to ensure that all hardware was correctly installed and is in proper working order.

E. Commissioning and Testing Schedule: Prior to final acceptance of the access control system installation, the following testing and documentation to be performed and provided to the Owner.

1. Inspection: Verify that units and controls are properly installed, connected, and labeled and that interconnecting wires and terminals are identified.

2. Pre-testing: Program and adjust the system and pretest all components, wiring, and functions to verify they conform to specified requirements. Provide testing reports indicating devices tested, pass/fail status, and actions taken to resolve problem(s) on failed tests.
3. Acceptance Test Schedule: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
4. Provide “as designed” drawings showing each device and wiring connection and electronic enclosure legends showing cabling in and out.
5. Provide a complete set of operating instructions for access control hardware devices and a complete software user manual. The documentation includes module reference guides for each electronic enclosure.

3.05 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore to proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

C. Instruct owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes and usage of any electronic devices.

3.06 PROTECTION

A. Contractor shall protect all hardware, as it is stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

3.07 HARDWARE SCHEDULE

A. The following schedule is furnished for whatever assistance it may afford the Contractor; do not consider it as entirely inclusive. Should any particular door or item be omitted in any scheduled hardware heading, provide door or item with hardware same as required for similar purposes. Hardware supplier is responsible for handing and sizing all products as listed in the hardware heading. Quantities listed are for each pair of doors, or for each single door.

B. Refer to Section 080671, Door Hardware Schedule, for hardware sets.

END OF SECTION 281300