



Global Leader
in Stored Electrical Energy

July 11, 2014

Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

Via Email and U.S. Mail

Peter Ruttan
Project Manager -- Office of Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Re: *Response to July 8, 2014 Conditional Approval of Technical Work Plan; Exide Technologies, Vernon California*

Dear Mr. Ruttan:

We are in receipt of DTSC's Conditional Approval of the June 30, 2014 Technical Workplan. Exide appreciates DTSC's review, and is mobilizing to conduct the work as directed. DTSC requested that Exide incorporate various items into an addendum before commencing field activities. Attached is an addendum that addresses all items requested by DTSC, with two minor provisos:

Item 1 (Access and Appendix A): Exide agrees to use the DTSC's recommended Access Agreement, but is making one change to the indemnification clause in paragraph 7. Exide will revise the last phrase to read: "related to events arising from or out of performance of the Work at or on the Property during the time that Owner and/or Resident have been relocated from the property by Exide." The added underlined phrase is necessary to ensure that indemnification is connected to the work. Exide believes this reflects an understanding consistent with the first sentence in paragraph 7, which includes the same phrase.

Item 7 (Confirmation Sampling): As part of conducting a robust environmental investigation, Exide believes that taking samples of the excavated soil (especially once that soil is off the property and thus no longer part of the property) may inform the overall analysis and provide data that is likely to be useful for future activities. Taking confirmation samples is not intrusive, and will not impact soil removal work at these two properties. Respecting DTSC's Conditional Approval, Exide has agreed to remove this sentence from the Work Plan, but Exide reserves the right to take confirmation samples of excavated soil once that soil is no longer on the property.



As always, please contact me if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Frederick Ganster". The signature is written in a cursive style with a large, sweeping initial "F" and a long, horizontal stroke extending to the right.

Frederick Ganster
Exide Technologies



**TECHNICAL WORK PLAN
OFF-SITE PROPERTIES
EXIDE TECHNOLOGIES
VERNON, CALIFORNIA**

Prepared for:
**EXIDE TECHNOLOGIES
Vernon, California**



**TECHNICAL WORK PLAN
OFF-SITE PROPERTIES
EXIDE TECHNOLOGIES
VERNON, CALIFORNIA**

Prepared For:

**EXIDE TECHNOLOGIES
Vernon, California**

Prepared By:

**ADVANCED GEOSERVICES
West Chester, Pennsylvania**

**Project No. 2013-3007-07
June 30, 2014
Revised July 10, 2014**



**TECHNICAL WORK PLAN
OFF-SITE PROPERTIES
EXIDE TECHNOLOGIES
VERNON, CALIFORNIA**

Prepared For:

**EXIDE TECHNOLOGIES
Vernon, California**

Prepared By:

**ADVANCED GEOSERVICES
West Chester, Pennsylvania**

**Project No. 2013-3007-07
June 30, 2014
Revised July 10, 2014**



**Paul G. Stratman, P.E.
Senior Project Consultant
California P.E. No. C61595**



TABLE OF CONTENTS

	<u>PAGE NO.</u>
1.0 Introduction.....	1-1
2.0 Background.....	2-1
3.0 Remedial Activities.....	3-1
3.1 Properties.....	3-1
3.2 Access.....	3-1
3.3 Resident Relocation.....	3-1
3.4 Pre-Excavation Meeting.....	3-2
3.5 Property Photo-Documentation.....	3-3
3.6 Permitting.....	3-3
3.7 Landscape Inventory.....	3-3
3.8 Removal Limits.....	3-4
3.8.1 Property A.....	3-5
3.8.2 Property B.....	3-5
3.9 Erosion Control.....	3-5
3.10 Water Management.....	3-6
3.11 Excavation Area Safety.....	3-6
3.12 Disposal of Excavated Soils.....	3-7
3.13 Confirmation Sampling.....	3-8
3.14 Protection of Existing Structures.....	3-8
3.15 Dust Suppression.....	3-8
3.15.1 Dust Suppression Techniques.....	3-9
3.16 Community Air Monitoring Plan.....	3-9
3.16.1 Real-Time Particulate Monitors.....	3-10
3.16.2 Personal Air Monitors.....	3-10
3.17 Traffic Control.....	3-11
3.18 Restoration.....	3-11
3.19 Interior Cleaning.....	3-12
4.0 Schedule.....	4-1



LIST OF TABLES

TABLE

- 1 Waste Characterization Sampling Composites
- 2 Waste Characterization Sampling Results

LIST OF FIGURES

FIGURE

- 1 Off-Site Properties
- 2 Property A Excavation Plan
- 3 Property B Excavation Plan
- 4 Disposal Route

LIST OF APPENDICES

APPENDIX

- A Access Agreement
- B Waste Characterization Validation
- C Fill Advisory



1.0 INTRODUCTION

On June 19, 2014 the State of California Environmental Protection Agency (Cal/EPA)/Department of Toxic Substances Control (DTSC) issued a letter to Exide Technologies (Exide) referenced as *Request for Technical Work Plan to Perform Focused Soil Removal and Yard Restoration Work on Two Residences in the Northern Assessment Area: Exide Technologies, Vernon, CA (Stipulation and Order, Docket HWCA P3-12/13-010, OAH No. 2013050540, and Corrective Action Consent Order, Docket No.:P3-01/02-010)*. In that letter, DTSC requested Exide to provide a Technical Work Plan (TWP) that describes the work necessary to complete soil removal at two properties where the initial composite sampling showed lead levels above 400 mg/kg in the yard area. Exide has agreed to provide the Technical Work Plan and perform the soil removal activities even though analytical testing and observation of samples indicates the presence of lead-based paint and fill in the soils to be removed.

This document was prepared by Advanced GeoServices Corp. (Advanced GeoServices), on behalf of Exide, and represents the TWP requested by DTSC. This TWP provides the planned activities to excavate, and restore the two properties. This work is being performed as a pilot study to determine which specific activities would be required should further properties undergo soil removal.



2.0 BACKGROUND

The Exide Technologies' Facility is located at 2700 South Indiana Street in the City of Vernon, California, as shown on Figure 1. The property occupies a total area of approximately 15 acres, which is bounded by East 26th Street towards the north and Bandini Boulevard (Bandini) towards the south. The facility is an operating battery recycling facility and is characteristic of the heavy industrial nature of the surrounding land uses.

In November 2013, Exide, (through its contractors, Advanced GeoServices Corp. and ENVIRON International Corporation) with oversight by DTSC, conducted soil sampling at residential properties in the general vicinity of the facility (referred to as the Assessment Areas), at two area schools and in an area located about 14 miles to the south of the facility.

Sampling took place in residential areas determined by DTSC based on previously approved air modeling. The Northern Assessment Area for soil sampling is located in Boyle Heights and East Los Angeles, while the Southern Assessment Area is located in Maywood.

Nineteen properties were sampled in the Northern Assessment Area, and twenty properties were sampled in the Southern Assessment Area. Samples were taken from three depth intervals, 0 to 1 inch, 1 to 3 inches and 3 to 6 inches below the ground surface, and the samples analyzed for up to 24 constituents selected by DTSC. The results were compared to the results from the Background Area, and U.S. Environmental Protection Agency (USEPA) and DTSC soil screening levels.



Lead concentrations in the soil were found to be above the DTSC Residential Soil Screening Value of 80 mg/kg. During the Off-Site Soil Sampling event, two properties were identified with lead concentrations above the California Department of Public Health (CDPH) defined hazard level for bare soils where children play of 400 mg/kg. These concentrations above 400 mg/kg were either the 1 to 3 inch or 3 to 6 inch depth intervals, not the surface 0 to 1 inch.

DTSC requested Exide sample the two properties with a minimum of 14 discrete sample locations (10 general yard locations, 4 drip zone and at least 1 downspout if a downspout is present) at five depth intervals (0-1 inches, 1-3 inches, 3-6 inches, 6-12 inches and 12-18 inches). Exide performed the discrete sampling on April 10, 2014 for the purpose of determining the limits of soil removal. DTSC requested and Exide has agreed to perform soil removal to a depth of 18 inches and restoration activities on the entire yard area of the two properties, even in areas where the discrete soil lead results were below 400 mg/kg.



3.0 REMEDIAL ACTIVITIES

3.1 PROPERTIES

The two properties to be remediated are located northeast of the Exide Facility proximate to the intersection of Olympic Boulevard and South Indiana Avenue. Property A is located west of South Indiana and Property B is located east of South Indiana. Figures 2 and 3 provide plan views of the properties.

Where necessary to protect the confidentiality of the property owners and residents, documents related to the work may include the legend “*Confidential – Not Subject to Public Records Act Disclosure.*”

3.2 ACCESS

Exide will solicit access from the property owner to perform soil removal. The access agreement, developed by DTSC and placed on Exide letterhead stationery, includes, but is not limited to, statements from Exide to the property owner that there will be no costs to them for the work and that the property will be restored to its original or better condition following soil removal. The access agreement will also indemnify the property owner(s) and/or tenant(s) from damage caused to the property during the work. Copies of the access agreement form in English and Spanish are provided in Appendix A.

3.3 RESIDENT RELOCATION

For these two properties only, Exide will offer the residents of each property the option of relocating to a hotel during construction activities on the property. Exide will pay all costs for the hotel stay on a direct bill basis and will provide a per diem allowance (based on family size) for meals and incidentals while away from the residence. The per diem rate will be based on the federal government rate established for the Los Angeles area. It is anticipated that a local full



service hotel from one of the major chains will be utilized with nearby restaurants for meals as a convenience to the residents. Information on the specific hotel will be provided to DTSC prior to the work taking place. If the residents have pets, Exide will at resident's option provide lodging at a hotel that also allows pets (dogs, cats, birds or similar) to stay with the residents or a boarding kennel/veterinary facility as needed. Exide will work with each individual family to provide the per diem in the most convenient way for the family, i.e. check or cash.

In the event that the residents or their pets opt to relocate during the work, Exide will provide a security guard to watch the property overnight and deter transient access to the property.

3.4 PRE-EXCAVATION MEETING

Prior to the start of removal activities on a property, representatives from Exide, the Contractor, and DTSC will meet with each property owner/tenant to describe the soil removal and restoration activities to be performed on the property. Additional topics to be discussed will include protection of property and sentimental yard fixtures, relocation options, determination of the home occupants (both human and animal), the means of paying per diem expenses property security and post-restoration watering and care.

DTSC is preparing a flyer describing the work to be performed to leave with the residents. The flyer will include a 24-hour toll-free bilingual (English and Spanish) hotline provided by the Contractor for residents or immediate and local neighbors to call if any questions or concerns arise during the work. The hotline will be discontinued following the construction activities.

A sign will be provided by the Contractor that displays the toll-free hotline information line. The hotline will be an answering service that will collect the caller's contact information and forward to the Contractor. If it is an emergency situation which must be dealt with immediately, the Contractor will report to the site to address the issue. If it is not an emergency, the issue will be addressed at the appropriate time during business hours. The sign will be placed near the street on the property where excavation is occurring. The sign shall read: "For information about the



current work activities please call 1-800-XXX-XXXX” with the actual phone number displayed once it is established.

In addition to the residents at the properties to be addressed, DTSC will notify local neighbors of the planned work. This notification will be in the form of a flyer mailed or given to the residents. DTSC will determine which residents in proximity to the work will be notified.

3.5 PROPERTY PHOTO-DOCUMENTATION

Exide and the Contractor will document the existing conditions of the properties by use of photographs and possibly video recording in order to restore the properties to their original condition following soil removal.

3.6 PERMITTING

For local permitting purposes, Property A is within the jurisdiction of the City of Los Angeles, and Property B is within the jurisdiction of Los Angeles County. Required permits pertaining to excavation and traffic control will be obtained prior to mobilization to the site by the Contractor as only licensed California contractors may obtain permits. DTSC has indicated that it will assist Exide in obtaining the necessary permits for the work to be performed. The following permits will be obtained by the Contractor:

- Grading and Drainage Permit
- Lane Closure (Traffic Control) Permit

3.7 LANDSCAPE INVENTORY

Prior to soil removal activities, the Contractor will assess all vegetation on the property (excluding trees) and create a Landscape Inventory approved by a licensed Landscape Architect provided by the Contractor. The Landscape Inventory will document the number and type of



vegetation on each property and any planter walls, ornamental features such as decorative blocks, etc. that would have to be removed along with an installed replacement cost. Additionally, a sketch of the property along with location of each type of vegetation, planter walls, etc. will be developed. Advanced GeoServices and the Contractor will review the Landscape Inventory and sketch with the property owner and obtain the property owner's signature documenting agreement that the number, type and location are accurate. The replacement plants will be of similar species as existing plants indicated on the Landscape Inventory and be of nursery stock as available. The property owner will be given the option of restoring all plants on the property or accept monetary compensation as provided on the Landscape Inventory. If the property owner opts for vegetation replacement, the Contractor will install the plants per the Landscape Inventory that were removed during excavation or damaged during the work along with planter walls, decorative blocks and other ornamental features.

3.8 REMOVAL LIMITS

The removal areas will be excavated by the Contractor to a depth as shown on Figures 2 and 3. Areas within the biological root zone of trees will be excavated to a maximum depth of six inches in order to preserve the integrity and survivability of the trees. Excavations will be conducted using small construction equipment proposed by the Contractor (e.g., mini-excavator, skid steers). Hand excavations may be conducted in close proximity to structures, utilities, mature trees or other areas, as needed, that would be difficult to excavate around or that may become damaged by equipment. Soil removal will not be performed beneath or inside structures, roads, sidewalks, brick patios, driveways or other inaccessible or permanent features. Excavations against houses, garages, outbuildings, driveways, sidewalks, structural perimeter walls and fences and patios will be limited to six inches for a one foot offset from the structure and slope downward 1H:1V to the full 18-inch removal depth as necessary. No soil removal will occur under decks or other areas inaccessible by residents.



Landscaping areas and planters will be excavated to 18 inches where shown on Figures 2 and 3. If a planter is not structurally sound, the planter will be removed, with the permission of the property owner, the soil removed and the planter rebuilt by the Contractor.

Shrubs and other plants (excluding trees) will be removed and disposed off-site. Trees will be left in place.

3.8.1 Property A

Figure 2 illustrates the horizontal and vertical limits of excavation for this property. Both the front yard and backyard will be excavated to a maximum depth of 18 inches. The approximate area of excavation on the property is 601 square feet. Preliminary calculations indicate that approximately 50 cubic yards will be excavated, disposed and replaced.

3.8.2 Property B

Figure 3 provides the horizontal and vertical limits of excavation for this property. Both the front yard, back yard, side yard and driveway area will be excavated to a maximum depth of 18 inches. The approximate area of excavation on the property is 2,050 square feet. Preliminary calculations indicate that approximately 109 cubic yards will be excavated, disposed and replaced.

3.9 EROSION CONTROL

In order to prevent any sediment from leaving the work area during soil disturbance activities, silt socks will be used on the perimeter of the property as needed. Additionally, inlet control devices will be utilized in case of a rain event. Actual erosion control devices will be proposed by the Contractor performing the work and will be shared with DTSC for review and approval at least one week prior to the beginning of field work or at the pre-excavation meeting described in Section 3.4.



3.10 WATER MANAGEMENT

The work will require the spraying of water as a mist on the excavation areas prior to removal in order to prevent fugitive dust during construction as discussed in Section 3.15. The amount of water will not saturate the soils, and no runoff is expected during this operation. Although not anticipated to be needed to prevent off-site migration of soil, silt socks (compost filled fabric tubes), silt fence or similar measures will be installed along the perimeter of the excavations. Water spraying during loading, if necessary, will be conducted while the transport vehicle is located on a decontamination area consisting of plastic sheeting and a water collection point provided by the Contractor. All water used for loading and/or decontamination will be captured and transported to the Exide facility for treatment and disposal. Dry decontamination methods (i.e. shovels to remove any fallen soil, brushes to loosen caked on soil, etc. followed by HEPA vacuuming) are anticipated to be used on transport trucks and on excavation equipment following construction. No impact to water quality is anticipated.

The Contractor will provide water absorption materials to capture all water prior to leaving the property. This would include any leaks in hoses or stormwater from a rain event that may happen during construction. All captured water would be transported to the Exide facility for treatment and disposal.

3.11 EXCAVATION AREA SAFETY

At the end of each day, the Contractor shall install orange safety fencing, as needed, along the edges of excavation to restrict access to the areas. The Contractor shall follow applicable sections of “Article 6 – Excavations” in California Occupational Safety and health Administration’s Construction Safety Orders. The Contractor shall notify Underground Service Alert (USA) 48 hours prior to initiating excavation activities.



3.12 DISPOSAL OF EXCAVATED SOILS

Advanced GeoServices performed waste characterization on the soils from the two properties scheduled for remediation. Samples from the back yard for Property A as well as front and back yards of Property B were analyzed for Soluble Threshold Limit Concentration (STLC), Total Threshold Limit Concentration (TTLC) and Toxic Characteristic Leaching Procedure (TCLP). Composite samples for each excavation area were created from the highest lead concentration of the five discrete locations and depth intervals in each area. Aliquot information comprising the composite samples is provided on Table 1. Drip zone samples were not used in the composites. The samples were sent to Eurofins Calscience Inc. laboratory in Garden Grove, California. Based on the results of the samples, provided as Table 2, the waste is characterized as Cal-Haz. The laboratory data package is provided in Appendix B. The Contractor will identify the disposal facility, based on the characterization results, prior to removal work. The trucks/roll-offs will proceed directly to the disposal facility after loading and decontamination. The precautions the Contractor will utilize to prevent track-out from trucks or roll-off bins will be a decontamination area consisting of plastic sheeting. The vehicles will undergo dry decontamination methods (i.e. shovels to remove any fallen soil, brushes to loosen caked on soil, etc. followed by HEPA vacuuming) as necessary. Following the transport vehicle departure, the Contractor will remove any residual soils from the decontamination area using the techniques discussed above. Transport vehicle departure will be scheduled when the transport vehicle has reached its limit of weight or volume. Actual times for departure will be determined by the Contractor in the field.

A map that shows the planned local route to the disposal facility is provided as Figure 4. The map begins at the intersection of Olympic Boulevard and South Indiana Street to provide a level of confidentiality to the properties to be remediated.



3.13 CONFIRMATION SAMPLING

Vertical and horizontal limits of excavation are provided on Figures 2 and 3. Therefore, no confirmation sampling will be performed on the bottom of the excavation. Backfill will be placed following excavation limit verification to begin restoration as soon as possible.

3.14 PROTECTION OF EXISTING STRUCTURES

Throughout site preparation, removal, and restoration activities, the Contractor will implement procedures to protect existing property features from damage. Procedures will include safe working distances, warning tape, manual digging and temporary fencing and barriers. At the completion of work on a daily basis, and as necessary during the course of work, driveways and sidewalks on the property will be cleaned using high efficiency particulate air (HEPA) certified vacuums. If a wet method is necessary (e.g., power spray), the Contractor will ensure that the water is collected in a manner such that sediment is prevented from entering stormwater inlets or other structures. Any damage to public or private properties shall be addressed by the Contractor at no expense to the property owner or any other party.

Additionally, the Contractor shall take measures to minimize any potential intrusion of fugitive dust into the residential structures by dust suppression techniques as discussed in Section 3.15 and by requesting all residence windows and doors be closed prior to excavation activities.

3.15 DUST SUPPRESSION

The largest potential source of dust and emissions during the work will be the excavation and handling of material during soil removal.



3.15.1 Dust Suppression Techniques

A rule of “no visible dust” will be applied to all aspects of the work. This will be accomplished by implementing the following procedures to control the possible generation and migration of dust during the excavation and handling of materials:

- Apply water directly to the active excavation prior to soil disturbance. Additionally, water will be applied during the truck loading operations, as appropriate.
- Promptly apply water to excavation or loading operations upon any observance of dust.
- Control dust during operation of trucks by not allowing material to be dropped from heights above the top rail of the truck body.
- Cease work if the wind speeds exceed 20 miles per hour.
- Regularly inspect all rear gate seals and locking mechanisms on material transport vehicles in order to prevent spillage and dust production.
- HEPA vacuum and/or wash the trucks prior to leaving the loading areas to prevent the deposition of material.
- Clean up all spilled soil material within the loading area and work areas.
- Tarp all trucks used for off-site transport of materials.

Air monitoring to ensure compliance with the project performance standards will be conducted as per Section 3.16.

3.16 COMMUNITY AIR MONITORING PLAN

Air monitoring will be performed by Exide during excavation activities to ensure that there is no fugitive dust from the excavation activities. Real-time particulate monitors and personal air monitors (PAMs) will be utilized during the operations.



3.16.1 Real-time Particulate Monitors

Exide will utilize three (3) particulate dust monitors at an excavation area daily. Particulate dust monitors measure the total dust in the air. A monitor will be placed downwind of the excavation area to provide a baseline dust concentration. A monitor will be placed upwind of the excavation to monitor any dust coming from sources unrelated to the work. The third monitor will be placed at the closest entryway to the home to understand any particulates in proximity to the work. Exide will utilize Dust Trak model 8530 or model 8532 which measure total suspended particles (TSP) in the air. This monitors measure aerosol particulates corresponding to PM₁₀ size fractions. A representative from Advanced GeoServices will place the monitors each day of excavation prior to soil disturbance activities and review the levels relative to the area-specific action level on ½ hour intervals during the work. The action level shall be the South Coast Air Quality Management District's standard for PM₁₀ which is 50 micrograms per cubic meter (ug/m³). This concentration will be above the upwind monitor reading which will be considered the baseline reading. If the downwind or entryway monitor shows a level above the action level, the upwind monitor will be checked to see if there is an upwind source for the increased dust level, the Contractor will be informed, and the monitor will be checked again in 10 minutes to determine whether the level has dropped below the action level. If it has not, the Contractor will be instructed to slow the work and increase the dust suppression techniques as described in Section 3.14 as needed to lower the dust levels below the action level.

3.16.2 Personal Air Monitors

In addition to the three dust monitors, Advanced GeoServices will place a Gilian GilAir-5 model PAM co-located with a dust monitor at each location during the excavation work. The PAMs will be analyzed for lead content at an off-site laboratory after completion of the excavation work to be reviewed and documented for future use. The date, start time, end time and air flow will be recorded on the cassette for analysis purposes.



3.17 TRAFFIC CONTROL

Excavated material will be transported via surface streets directly to the off-site disposal facility. Backfill will be transported directly to the residential property.

The Contractor will control construction vehicular traffic to make sure activities are performed safely and efficiently. The Contractor and his personnel will remain cognizant of the nature of this work within residential neighborhoods. Speed limits will be established and implemented by signs and flagmen, as necessary, to minimize dust generation and maintain a safe environment for workers and local residents, including children. All trucks hauling excavated or backfill soil will be tarped during transportation.

3.18 RESTORATION

Structural soil fill material will be used to achieve backfill grades to within 3 inches of final grade for excavation areas that are 12 inches or greater. Soil samples of any fill materials will be collected prior to use and submitted by the Contractor for laboratory analysis. The sampling procedures will follow DTSC's *Information Advisory for Clean Imported Fill Material*, dated October 2001 and provided as Appendix C. Sample analysis results will be compared to the DTSC Residential Screening Values. Soil fill materials will be free from roots and other organic matter, trash, debris, and stones larger than three inches in any dimension. Soil fill materials will be placed in loose, 8-inch lifts and compacted by mechanical methods.

Topsoil material will be a natural, friable soil with organic content of at least 2% and nutrients sufficient to sustain grass growth and free of any trash or other deleterious debris. The maximum particle size will be 3/4 inch and rocks greater than 1/8 inch shall not be greater than 5% total by weight. The Contractor will screen the topsoil, as required, so the maximum particle size is not exceeded. Topsoil samples will be collected prior to use and submitted by the Contractor for laboratory analysis, and the results will be compared to the DTSC Residential Screening Values as well as determining the appropriate soil nutrients and organic content.



Topsoil materials will be placed to an approximately 2-inch or 6-inch depth over the structural soil fill material. Once topsoil is placed, it shall be tilled to a depth of two inches for acceptance of sod.

All fill replacement areas and areas disturbed by soil removal operations will be uniformly smooth-graded to mimic the pre-excavation grades, except as necessary to permit adequate drainage with the notification and acceptance of the property owner. Grade control will be performed by the Contractor to confirm the appropriate grades and to make modifications as necessary.

The Contractor will apply a sod tolerant to the local climate conditions or match the existing grass. The topsoil will be moistened prior to laying sod. The sod will be laid tightly together with no open joints visible and no overlapping. End joints will be staggered by a minimum of 12 inches. Sod will be rolled to ensure a good bond between sod and soil using rollers not exceeding 100 pounds or suitable wooden or metal tampers. Sod will be watered immediately after installation to a saturation depth of approximately three inches.

The property owner will be provided a sprinkler, garden hose (50 feet) and timer for each area of excavation (e.g., front yard, back yard). The Contractor is responsible for setting up the watering system immediately following sod placement. The Contractor will instruct the property owner on the use of the watering system. Following instruction, the property owner will assume full responsibility for grass cutting and care of the sod. The property owner will be provided compensation for their water bills for 3 months of daily watering.

3.19 INTERIOR CLEANING

Following construction activities, the property owners will be provided certificates or coupons to schedule an interior cleaning by a bonded, national cleaning service company experienced in residential home deep cleaning such as cleaning following fire, flood or lead-based paint abatement. The certificate will allow for a one-time cleaning of the interior of the home to



include HEPA-vacuuming of all floorings, window sills, drapes and furniture. The resident/property owner would schedule the cleaning with the cleaning company directly. All waste materials generated would be collected and brought to the Exide facility for proper disposal.



4.0 SCHEDULE

Exide understands that DTSC will be the lead entity with all communications with the property owners and immediate neighbors.

Once DTSC has provided written approval of this TWP and the access agreements have been signed, Exide will request the Contractor begin to obtain the required permits immediately. It is anticipated that mobilization and the pre-construction meetings with the residents/property owners will take place 1-2 weeks following receipt of all required permits. The excavation work at each property is expected to take 1 to 2 days with an equal amount of time for backfill, topsoil placement and sod installation. Landscaping restoration will be coordinated with the property owner and will take additional time to complete with the duration dependent on the amount of landscaping required and plant availability.

The expectation is that this work can be completed by the end of the July with timely approval of this TWP, permits and obtaining resident agreement. The schedule presented provides a reasonable approach to the activities required by the DTSC while taking into consideration the proposed work and the number of reviews and approvals required to begin the work.

Exide will notify DTSC as soon as practicable if circumstances beyond its or the Contractor's control such as extended rain events, unforeseen material or obstacles in the yard or difficulties in obtaining access prevent the work from being completed according to this schedule.



TABLES

Table 1
Waste Characterization Sampling Composites
Technical Work Plan
Exide Vernon Off-Site



Waste Characterization Samples		
Composite Sample Aliquots		
Property B		
Front Yard		
Sample Point	Depth Interval (in)	Concentration (mg/kg)
Pt. 1	6 to 12	580
Pt. 2	1 to 3	544
Pt. 3	3 to 6	468
Pt. 4	3 to 6	673
Pt. 5	3 to 6	631
No Drip Zones		
Back Yard		
Sample Point	Depth Interval (in)	Concentration (mg/kg)
Pt. 6	6 to 12	586
Pt. 7	3 to 6	749
Pt. 8	6 to 12	706
Pt. 9	3 to 6	433
Pt. 10	1 to 3	580
No Drip Zones		
Property A		
Back Yard		
Sample Point	Depth Interval (in)	Concentration (mg/kg)
Pt. 6	3 to 6	439
Pt. 7	3 to 6	756
Pt. 8	1 to 3	5500
Pt. 9	3 to 6	922
Pt. 10	3 to 6	606
No Drip Zones		

Table 2
Waste Characterization Sampling Results
Technical Work Plan
Exide Vernon Off-Site

Sample ID	COC	TTLIC (mg/kg)	Cal Title 22 Limits (mg/kg)	STLC (mg/L)	Cal Title 22 Limits (mg/L)	TCLP (mg/L)	RCRA (mg/L)
Property B-Back							
	Arsenic	4.02	500	ND	5	ND	5
	Barium	292	10000	7.64	100	ND	100
	Cadmium	2.05	100	0.126	1	ND	1
	Chromium	27.2	2500	0.336	5 (560)	ND	5
	Lead	558	1000	47.6	5	1.02	5
	Selenium	ND	100	ND	1	ND	1
	Silver	ND	500	ND	5	ND	5
	Mercury	0.216	20	ND	0.2	ND	0.2
Property B-Front							
	Arsenic	3.4	500	ND	5	ND	5
	Barium	231	10000	7.82	100	ND	100
	Cadmium	1.66	100	0.126	1	ND	1
	Chromium	24.1	2500	0.343	5 (560)	ND	5
	Lead	450	1000	46.2	5	0.153	5
	Selenium	ND	100	ND	1	ND	1
	Silver	ND	500	ND	5	ND	5
	Mercury	0.164	20	ND	0.2	ND	0.2
Property A-Back							
	Arsenic	14.1	500	0.304	5	ND	5
	Barium	552	10000	9.81	100	ND	100
	Cadmium	201	100	0.406	1	ND	1
	Chromium	38	2500	0.724	5 (560)	ND	5
	Lead	502	1000	22.7	5	0.142	5
	Selenium	ND	100	ND	1	ND	1
	Silver	0.347	500	ND	5	ND	5
	Mercury	0.28	20	ND	0.2	ND	0.2
	ND	Not Detected					
	TTLIC	Total Threshold Limit Concentration					
	STLC	Soluble Threshold Limit Concentration					
	TCLP	Toxic Characteristic Leaching Procedure					





FIGURES



LEGEND:

- MEIR for LEAD
- MEIR for ARSENIC



GRAPHIC SCALE



(IN FEET)
1 inch = 2000 ft.



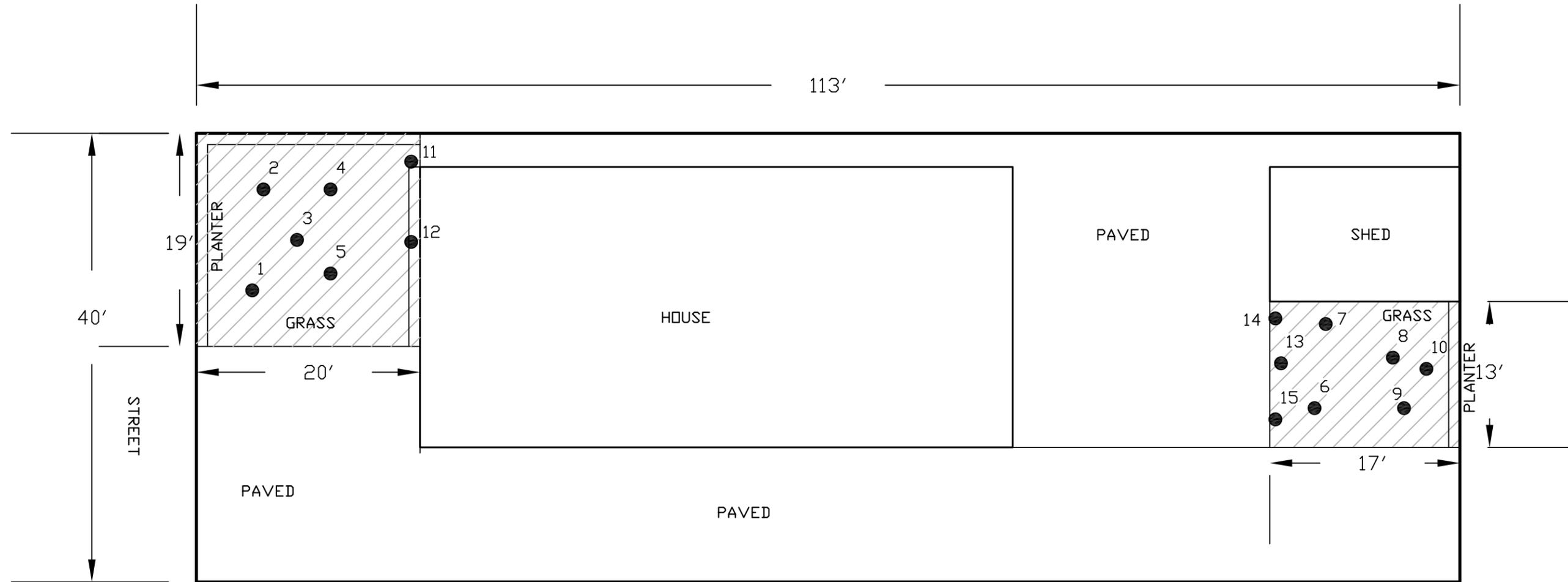
Engineering for the Environment. Planning for People.™

1055 ANDREW DRIVE, SUITE A, WEST CHESTER PA, 19380
tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

TECHNICAL WORK PLAN

OFF-SITE PROPERTIES

PROJECT ENGINEER:	BLF	SCALE:	1" ~ 2000'
CHECKED BY:	KO	PROJECT NUMBER:	2013-3007
DRAWN BY:	KEZ	DATE:	FIGURE: 1



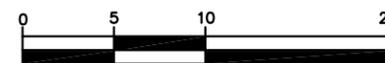
NOTES:

1. DIMENSIONS ARE APPROXIMATE.
2. EXCAVATE TO DEPTHS AS SHOWN.
3. EXCAVATE 6 INCHES TO WITHIN 12 INCHES OF STRUCTURES, SLOPE EXCAVATION 1H:1V TO A DEPTH OF 18 INCHES.
4. STRUCTURES INCLUDE BUILDINGS, DRIVEWAYS, SIDEWALKS, PATIOS AND FENCES.
5. EXCAVATE 6 INCHES UNDER DRIP ZONE (BIOLOGICAL ROOT ZONE) OF TREES.
6. HEPA VACUUM ALL CRACKS AND CREVICES ON OPEN DRIVEWAYS, SIDEWALKS AND HARDSCAPE WITHIN PROPERTY BOUNDARY.
7. PLACE BACKFILL IN LOOSE LIFTS NOT TO EXCEED EIGHT (8) INCHES; COMPACT WITH SMALL EQUIPMENT PRIOR TO PLACING NEXT LIFT.
8. PLACE A MINIMUM OF TWO (2) INCHES OF TOPSOIL (NO COMPACTION) AND SCARIFY PRIOR TO PLACEMENT OF SOD.
9. SET UP WATERING SYSTEM (GARDEN HOSE AND TIMED SPRINKLER PER EXCAVATION AREA).
10. REPLACE LANDSCAPING AS DIRECTED BY THE ENGINEER.

LEGEND:

- SAMPLING POINT
- NO EXCAVATION
- ▨ 18" EXCAVATION

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.



PROPERTY A
EXCAVATION PLAN

PROJECT MANAGER: PGS SCALE: 1" = 10'

CHECKED BY: BLJ PROJECT NUMBER: 2013 3007

DRAWN BY: KO DATE:

ADVANCED Geoservices
Engineering for the Environment. Planning for People.™

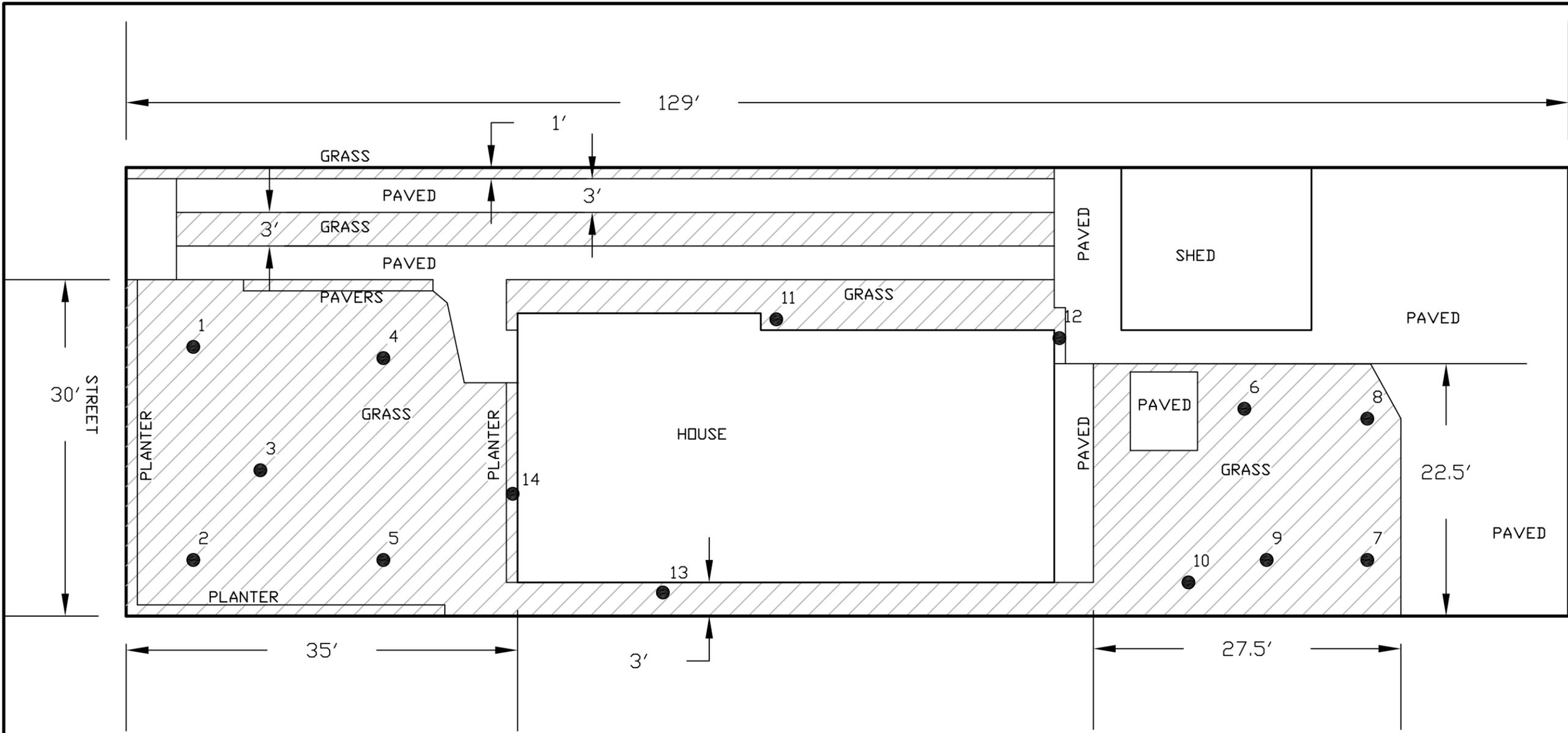
1055 ANDREW DRIVE, SUITE A, WEST CHESTER PA, 19380
tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

TECHNICAL WORK PLAN
OFF-SITE PROPERTIES

EXIDE TECHNOLOGIES
VERNON, CALIFORNIA

Figure

2



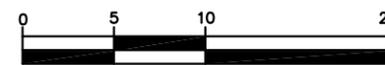
NOTES:

1. DIMENSIONS ARE APPROXIMATE.
2. EXCAVATE TO DEPTHS AS SHOWN.
3. EXCAVATE 6 INCHES TO WITHIN 12 INCHES OF STRUCTURES, SLOPE EXCAVATION 1H:1V TO A DEPTH OF 18 INCHES.
4. STRUCTURES INCLUDE BUILDINGS, DRIVEWAYS, SIDEWALKS, PATIOS AND FENCES.
5. EXCAVATE 6 INCHES UNDER DRIP ZONE (BIOLOGICAL ROOT ZONE) OF TREES.
6. HEPA VACUUM ALL CRACKS AND CREVICES ON OPEN DRIVEWAYS, SIDEWALKS AND HARDSCAPE WITHIN PROPERTY BOUNDARY.
7. PLACE BACKFILL IN LOOSE LIFTS NOT TO EXCEED EIGHT (8) INCHES; COMPACT WITH SMALL EQUIPMENT PRIOR TO PLACING NEXT LIFT.
8. PLACE A MINIMUM OF TWO (2) INCHES OF TOPSOIL (NO COMPACTION) AND SCARIFY PRIOR TO PLACEMENT OF SOD.
9. SET UP WATERING SYSTEM (GARDEN HOSE AND TIMED SPRINKLER PER EXCAVATION AREA).
10. REPLACE LANDSCAPING AS DIRECTED BY THE ENGINEER.

LEGEND:

- SAMPLING POINT
- NO EXCAVATION
- ▨ 18" EXCAVATION

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.



PROPERTY B
EXCAVATION PLAN

PROJECT MANAGER:	PGS	SCALE:	1" = 10'
CHECKED BY:	BLF	PROJECT NUMBER:	2013 3007
DRAWN BY:		KO	DATE:

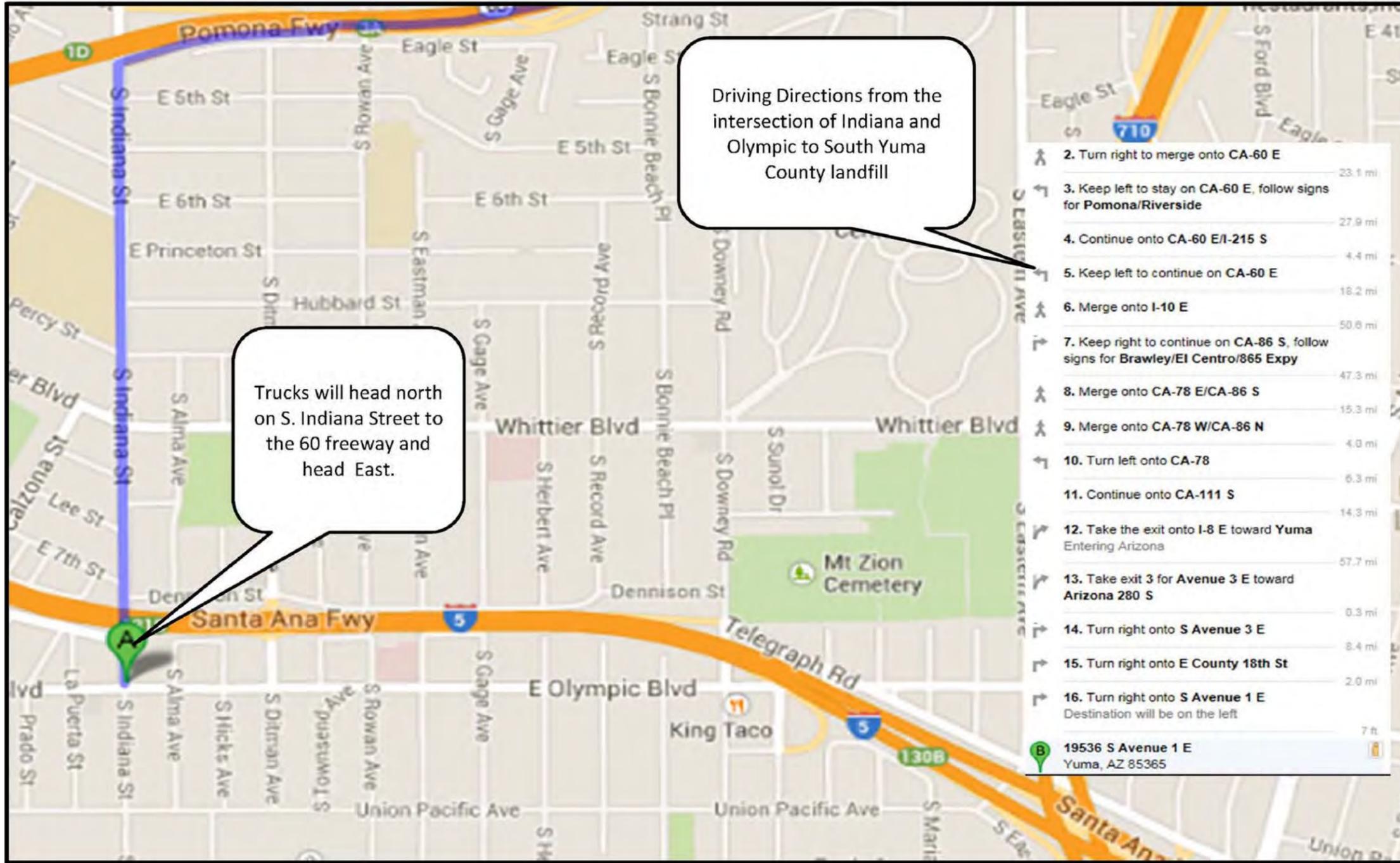
ADVANCED Geoservices
 Engineering for the Environment. Planning for People.
 1055 ANDREW DRIVE, SUITE A, WEST CHESTER PA, 19380
 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

TECHNICAL WORK PLAN
OFF-SITE PROPERTIES

EXIDE TECHNOLOGIES
VERNON, CALIFORNIA

Figure

3



Trucks will head north on S. Indiana Street to the 60 freeway and head East.

Driving Directions from the intersection of Indiana and Olympic to South Yuma County landfill

2. Turn right to merge onto CA-60 E 23.1 mi
 3. Keep left to stay on CA-60 E, follow signs for Pomona/Riverside 27.9 mi
 4. Continue onto CA-60 E/I-215 S 4.4 mi
 5. Keep left to continue on CA-60 E 16.2 mi
 6. Merge onto I-10 E 50.8 mi
 7. Keep right to continue on CA-86 S, follow signs for Brawley/EI Centro/865 Expy 47.3 mi
 8. Merge onto CA-78 E/CA-86 S 15.3 mi
 9. Merge onto CA-78 W/CA-86 N 4.0 mi
 10. Turn left onto CA-78 6.3 mi
 11. Continue onto CA-111 S 14.3 mi
 12. Take the exit onto I-8 E toward Yuma Entering Arizona 57.7 mi
 13. Take exit 3 for Avenue 3 E toward Arizona 280 S 0.3 mi
 14. Turn right onto S Avenue 3 E 8.4 mi
 15. Turn right onto E County 18th St 2.0 mi
 16. Turn right onto S Avenue 1 E Destination will be on the left 7 ft
- 19536 S Avenue 1 E
Yuma, AZ 85365



DISPOSAL ROUTE

ADVANCED Geoservices
 Engineering for the Environment. Planning for People.
 1055 ANDREW DRIVE, SUITE A, WEST CHESTER PA, 19380
 tel 610.840.9100 fax 610.840.9199 www.advancedgeoservices.com

TECHNICAL WORK PLAN
 OFF - SITE PROPERTIES

EXIDE TECHNOLOGIES
 VERNON, CALIFORNIA

PROJECT MANAGER:	PGS	SCALE:	1" = 10'
CHECKED BY:	BLF	PROJECT NUMBER:	2013 3007
DRAWN BY:	KO	DATE:	

Figure



APPENDIX A

Access Agreement



Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

ACCESS AGREEMENT REGARDING FOCUSED SOIL REMOVAL,
YARD AND RESIDENCE INTERIOR RESTORATION WORK

This Access Agreement Regarding Focused Soil Removal, Yard and Residence Restoration Work ("Agreement") is made by and between the Property Owner ("Owner") and Exide Technologies, Inc. ("Exide") (together referred to as the "Parties") for the focused soil removal, yard and residence restoration work required of Exide by the Department of Toxic Substances Control ("DTSC") as set forth in the Technical Work Plan for these activities as conditionally approved by DTSC, as more specifically described in the attached Exhibit A (the "Work").

RECITALS

Whereas, the Owner is the owner of the real property and the residence located at _____, California (the "Property").

Whereas, the Property and residence is being remediated by Exide pursuant to the Technical Work Plan which is specifically described in Exhibit A and was conditionally approved by DTSC (the "Work") on July 8, 2014.

The Owner and Exide desire to enter into this Agreement to provide access for the specific limited purpose of performing the Work authorized in Exhibit A.





Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

AGREEMENT

NOW, THEREFORE, it is mutually agreed by and between the undersigned Parties as follows:

1. Incorporation: The Recitals are incorporated into this Agreement.
2. Temporary Access: The Owner grants to Exide, its contractors and subcontractors and to DTSC, its officers, employees, agents, contractors, and other duly authorized representatives permission to enter, during agreed upon hours, on the Property for the specific limited purpose of performing and overseeing the Work authorized in Exhibit A.
3. Maintenance and Restoration of the Property: Exide agrees, during the entire performance of the Work, to maintain the portions of the Property accessed in a safe, clean and orderly manner, and shall promptly after performing the Work, restore the Property and the Residence to the condition that existed prior to the execution of this Agreement.
4. Relocation of Residents: Exide agrees to relocate residents living on the Property and their pets, at Exide's expense, during the entire period the Work is being performed. Exide agrees to provide a per diem allowance of _____ (based on family size) to be paid by Exide. Exide agrees the form of the allowance distribution shall be based on the family's specific financial situation. Exide agrees to provide security for the Property and Residence during the entire period the Work is being performed, including during the time any Residents are being relocated.

Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

5. Inventory of Resident Possessions: Exide

may conduct an inventory which may include a photographic inventory of possessions on the Property in order to document possessions remaining at or on the Property during the time that the Owner or Residents have been relocated from the Property. Exide agrees to indemnify Owner or Residents as specified in paragraph 7.

6. Limitation of Access: This Agreement is limited to the activities described in Exhibit A, and all actions deemed necessary in preparation or termination of the Work, and the Owner does not grant permission for the performance of any other activities not agreed upon in writing by the Owner. The Owner further reserves the right, upon reasonable notice to Exide and DTSC, to terminate this Agreement at any time or deny Exide access to the Property if the Owner determines that the Work will interfere with the Owner or Resident's enjoyment of the Property.

7. Indemnification: Exide shall indemnify, defend and hold harmless Owner and any Residents, their agents, representatives and employees, from any and all claims actions, losses, demands, liens, liabilities, damages, fees and/or costs, including attorney's fees and litigation costs, arising from or out of performance of the Work by Exide and its subcontractors pursuant to this Agreement. Exide also agrees to indemnify, defend and hold harmless Owner and any Residents, their agents, representatives and employees, from any and all claims, actions, losses, demands, liens, liabilities, damages, fees and/or costs, including attorney's fees and litigation costs, related to events occurring at or on the Property arising from or out of performance of the Work by Exide and its subcontractors pursuant to this Agreement

Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

during the time that Owner and/or Residents have been relocated from the Property by Exide.

8. Insurance: Exide agrees to require its contractors and consultants which perform the Work at the Property to maintain the following insurance and provide a Certificate of Insurance to Owner, listing Owner as an additional insured prior to entering the Property:

- a. Commercial Liability Insurance, including contractual liability, property damage, bodily injury and death, \$1,000,000 per occurrence, with \$1,000,000 annual aggregate;
- b. Pollution Legal Liability, \$1,000,000 per occurrence, with at least a \$2,000,000 annual aggregate that includes natural resources damages, diminution in value, off-site bodily injury, property damage and clean-up costs, all endorsed to include third-party coverage;
- c. Automobile liability if vehicles are to be brought on the Property: \$1,000,000 combined single limit; and
- d. Professional Errors and Omission Insurance with a limit of at least \$1,000,000 per claim, where consulting or engineering services are performed as part of the Work.

Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

9. Compliance with Applicable Laws: Exide agrees

that all activities performed pursuant to this Agreement shall comply with all applicable local, state and federal laws, including, but not limited to, statutes, regulations, codes, rules and ordinances.

10. Governing Law: This Agreement shall be governed by and interpreted pursuant to California law.

11. Waste Disposal: All soils and other waste generated at the Property during the Work shall be timely and properly disposed of by Exide in accordance with all federal, state and local laws. Exide shall be designated as the “generator” on any and all hazardous waste manifests required to be prepared as part of the work authorized by this Agreement.

IN WITNESS WHEREOF, the Owner and Exide have caused this Agreement to be executed by their respective duly authorized representative as of the dates set forth below. This Agreement shall become effective on the date last below signed.

DATED: _____

OWNER

DATED: _____

Exide Technologies





Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

ACUERDO DE ACCESO EN RELACION CON LA REMOCION DEL SUELO, TRABAJO DE RESTAURACION DEL PATIO Y EL INTERIOR DE LA RESIDENCIA

Este acuerdo de acceso en relación con la remoción del suelo, trabajo de restauración del patio y el interior de la residencia (“contrato”) se realiza por y entre el dueño de la propiedad (“Propietario”) y Exide Technologies, Inc (“Exide”)(juntos se refieren como las “Partes”) para la remoción del suelo, trabajo de restauración del patio y la residencia requeridos para Exide por el departamento de control de sustancias toxicas (“DTSC”) como se establece en Plan de Trabajo Técnico para estas actividades aprobadas condicionalmente por DTSC, tal como se describe más específicamente en el Anexo A adjunto (el “Trabajo”).

RECITALES

Considerando que, el Propietario es el dueño de la propiedad inmueble y la residencia ubicada en _____, California (La “Propiedad”).

Considerando que la propiedad y la residencia están siendo remediadas por Exide de conformidad con el Plan de Trabajo Técnico que se describe específicamente en el Anexo A y fue aprobada condicionalmente por el DTSC (el “trabajo”) en Julio 8, 2014.

El Propietario y Exide desean entrar en este acuerdo para facilitar el acceso para el propósito limitado y específico de llevar a cabo el Trabajo autorizado en el Anexo A.



Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

ACUERDO

AHORA, POR LO TANTO, se acuerda mutuamente por y entre las Partes firmantes de la siguiente manera:

1. Incorporación: Los recitales se incorporan a este acuerdo.
2. Acceso Temporal: El Propietario autoriza a Exide, sus contratistas y subcontratistas y al DTSC, sus funcionarios, empleados, agentes, contratistas y otros representantes debidamente autorizados permiso para ingresar, durante la hora acordada, en la propiedad con el propósito limitado y específico de llevar a cabo la supervisión del trabajo autorizado en el Anexo A.
3. Mantenimiento y Restauración de la Propiedad: Exide acuerda, que durante toda la ejecución del Trabajo, en mantener las porciones de la propiedad que se accedieron en una forma segura, limpia y ordenada, que inmediatamente después de la realización del Trabajo, restaurara la propiedad y la residencia a las condiciones que existían antes de la ejecución de este Acuerdo
4. Reubicación de los Residentes: Exide acuerda en reubicar a los residentes que viven en la propiedad y a sus mascotas a expensas de Exide, durante todo el periodo en el que el Trabajo está siendo ejecutado. Exide acuerda en proveer viáticos por una suma de _____ (basado en el tamaño de la familia) que son pagados por Exide. Exide está de acuerdo en que la distribución de los viáticos será basada en la específica situación financiera de la familia. Exide está de acuerdo en proveer seguridad a la Propiedad y Residencia durante todo el periodo en el que el Trabajo está siendo realizado, incluyendo durante el tiempo que cualquiera de los Residentes está siendo reubicado.

Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

5. Inventario de las Posesiones de los Residentes: Exide puede realizar un inventario el cual puede incluir un inventario fotográfico de las posesiones en la Propiedad con el fin de documentar las posesiones restantes en o sobre la Propiedad durante el tiempo que el Propietario o los Residentes han sido reubicados de la Propiedad.

Exide está de acuerdo en indemnizar al Propietario o Residentes como se especifica en el párrafo 7.

6. Limitaciones de Acceso: este acuerdo se limita a las actividades descritas en el anexo A, y todas las acciones consideradas necesarias en la preparación o terminación del trabajo, y el Propietario no otorga el permiso para la realización de cualesquier otras actividades no acordadas por escrito por el Propietario. El Propietario además se reserva el derecho, con una notificación razonable a Exide y DTSC, de terminar el Acuerdo en cualquier momento o negar el acceso a Exide a la Propiedad si el Propietario determina que el Trabajo interferirá con el disfrute de la propiedad por parte del Propietario o los Residentes.

7. Indemnización: Exide deberá indemnizar, defender y mantener sin daño al Propietario y cualquier residente, sus agentes, representantes y empleados, de cualquier y todas las acciones de reclamos, pérdidas, demandas, gravámenes, responsabilidades, daños, honorarios y / o costos, incluyendo los honorarios del abogado y costos de litigio, derivadas de o fuera de la ejecución del Trabajo por Exide y sus subcontratistas en conformidad con este Acuerdo. Exide también está de acuerdo en indemnizar, defender y mantener sin daño al Propietario y cualquier residente, sus agentes, representantes y empleados, de cualquier y



Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

todas las reclamaciones, acciones, pérdidas, demandas, gravámenes, responsabilidades, daños, honorarios y / o costos, incluyendo los honorarios de abogados y costos de litigio, en relación con los acontecimientos que ocurren en o sobre la Propiedad derivadas de o fuera de la ejecución del Trabajo por Exide y sus subcontratistas en conformidad con este Acuerdo durante el tiempo que propietario y / o residentes han sido reubicados de la Propiedad por Exide.

8. Seguro: Exide acuerda en exigir a sus contratistas y consultores los cuales realizan El Trabajo en la Propiedad de mantener los siguientes seguros y proporcionar un Certificado de Seguro al Propietario, listando al Propietario como asegurado adicional antes de entrar en la Propiedad:

- a. Seguro de Responsabilidad Comercial, incluyendo la responsabilidad contractual, daños a la propiedad, lesiones corporales y muerte, \$ 1,000,000 por incidente, con \$ 1,000,000 agregado anual;
- b. Responsabilidad Legal de Contaminación, \$ 1,000,000 por incidente, con al menos 2.000.000 dólares agregado anual que incluye daños a los recursos naturales, la disminución del valor, lesiones corporales fuera de las instalaciones, los daños a la propiedad y los costos de limpieza, todo avalado para incluir la cobertura de terceros;
- c. Responsabilidad de automóviles si los vehículos tienen que ser llevados a la Propiedad: \$ 1,000,000 límite único combinado; y



Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

- d. Seguro de Errores Profesionales y Omisión con límite de por lo menos \$1,000,000 por reclamo, donde los servicios de consultoría o ingeniería realizan como parte del Trabajo

9. Cumplimiento de las leyes que aplican: Exide acuerda en que todas las actividades realizadas conforme a este Acuerdo, deberán cumplir con todas las leyes locales, estatales y federales que aplican, incluyendo, pero no limitado a, estatutos, reglamentos, códigos, normas y ordenanzas.

10. Ley Vigente: este Contrato se registrará e interpretará en conformidad con la ley de California.

11. Eliminación de Residuos: Todos los suelos y otros residuos generados en la Propiedad durante el Trabajo, serán oportuna y debidamente eliminados por Exide en acuerdo con todas las leyes federales, estatales y locales. Exide será designado como el "generador" en cualquiera y todos los manifiestos de residuos peligrosos que se requieren para estar preparados como parte del trabajo autorizado por este Acuerdo.



Exide Technologies
2700 S. Indiana Street
Vernon, CA 90058
Phone 323.262.1101
Fax 323.269.1906

EN FE DE LO CUAL, el Propietario y Exide han causado este Acuerdo para ser ejecutado por su respectivo representante debidamente autorizado en las fechas indicadas a continuación. Este Acuerdo se hará efectivo en la fecha de la última firma abajo.

FECHA: _____

PROPIETARIO

FECHA: _____

Exide Technologies





APPENDIX B

Waste Characterization Validation

DATA VALIDATION SUMMARY

Level I

Site Name: Exide - Vernon
 Project Number: 2013-3007
 Sampling Date(s): 6/2/2014

Laboratory: Calscience
 Case/Order/SDG #: 14-06-0122

Compound List: Total Metals, TCLP, STLC

Method: 6010, 7471

The following table indicates the data validation criteria examined, any problems identified, and the QA action applied.

Data Validation Criteria:	Accept	FYI	Qualify	Comments
Holding Times	X			
Blank Analysis	X			
Field Duplicate Analysis				NA
Surrogate Recoveries				NA
Matrix Spike Analysis (MS/MSD)		X		
Laboratory Control Sample Analysis (LCS)	X			
Laboratory Duplicate Analysis	X			
Overall Assessment of Data	X			
Other:				

General Comments: _____

- Accept - No qualification required.
- FYI - For your information only, no qualification necessary.
- Qualify - Qualify as rejected, estimated or biased.
- NR - Not Reviewed
- NA - Not Applicable

QA Scientist *Emily Castor*
 Date 06/19/2014

Analytical Report

Exide Technologies
 2700 South Indiana Street
 Vernon, CA 90023-0957

Date Received: 06/03/14
 Work Order: 14-06-0122
 Preparation: EPA 3050B
 Method: EPA 6010B
 Units: mg/kg

Project: Vernon - offsite

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Property B Back	14-06-0122-1-A	06/02/14 12:40	Solid	ICP 7300	06/03/14	06/05/14 16:16	140603L04

Parameter	Result	RL	DF	Qualifiers
Arsenic	4.02	0.754	1.01	
Barium	292	0.503	1.01	
Cadmium	2.05	0.503	1.01	
Chromium	27.2	0.251	1.01	
Lead	558	0.503	1.01	
Selenium	ND	0.754	1.01	
Silver	ND	0.251	1.01	

Property B Front	14-06-0122-2-A	06/02/14 12:30	Solid	ICP 7300	06/03/14	06/05/14 16:17	140603L04
------------------	----------------	-------------------	-------	----------	----------	-------------------	-----------

Parameter	Result	RL	DF	Qualifiers
Arsenic	3.40	0.758	1.01	
Barium	231	0.505	1.01	
Cadmium	1.66	0.505	1.01	
Chromium	24.1	0.253	1.01	
Lead	450	0.505	1.01	
Selenium	ND	0.758	1.01	
Silver	ND	0.253	1.01	

Property A Back	14-06-0122-3-A	06/02/14 12:45	Solid	ICP 7300	06/03/14	06/05/14 16:19	140603L04
-----------------	----------------	-------------------	-------	----------	----------	-------------------	-----------

Parameter	Result	RL	DF	Qualifiers
Arsenic	14.1	0.743	0.990	
Barium	552	0.495	0.990	
Cadmium	201	0.495	0.990	
Chromium	38.0	0.248	0.990	
Lead	502	0.495	0.990	
Selenium	ND	0.743	0.990	
Silver	0.347	0.248	0.990	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

Exide Technologies	Date Received:	06/03/14
2700 South Indiana Street	Work Order:	14-06-0122
Vernon, CA 90023-0957	Preparation:	EPA 3050B
	Method:	EPA 6010B
	Units:	mg/kg
Project: Vernon - offsite		Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	097-01-002-18437	N/A	Solid	ICP 7300	06/03/14	06/04/14 12:16	140603L04

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.750	1.00	
Barium	ND	0.500	1.00	
Cadmium	ND	0.500	1.00	
Chromium	ND	0.250	1.00	
Lead	ND	0.500	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	

Analytical Report

Exide Technologies
 2700 South Indiana Street
 Vernon, CA 90023-0957

Date Received: 06/03/14
 Work Order: 14-06-0122
 Preparation: T22.11.5. All
 Method: EPA 6010B
 Units: mg/L

Project: Vernon - offsite

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Property B Back	14-06-0122-1-A	06/02/14 12:40	Solid	ICP 7300	06/03/14	06/05/14 17:58	140605LA1

Comment(s): - The analysis was performed on a STLC extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.150	1.00	
Barium	7.64	0.100	1.00	
Cadmium	0.126	0.100	1.00	
Chromium	0.336	0.100	1.00	
Lead	47.6	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

Property B Front	14-06-0122-2-A	06/02/14 12:30	Solid	ICP 7300	06/03/14	06/05/14 17:59	140605LA1
------------------	----------------	-------------------	-------	----------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a STLC extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.150	1.00	
Barium	7.82	0.100	1.00	
Cadmium	0.126	0.100	1.00	
Chromium	0.343	0.100	1.00	
Lead	46.2	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

Property A Back	14-06-0122-3-A	06/02/14 12:45	Solid	ICP 7300	06/03/14	06/05/14 18:01	140605LA1
-----------------	----------------	-------------------	-------	----------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a STLC extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Arsenic	0.304	0.150	1.00	
Barium	9.81	0.100	1.00	
Cadmium	0.406	0.100	1.00	
Chromium	0.724	0.100	1.00	
Lead	22.7	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

Exide Technologies
2700 South Indiana Street
Vernon, CA 90023-0957

Date Received: 06/03/14
Work Order: 14-06-0122
Preparation: T22.11.5. All
Method: EPA 6010B
Units: mg/L

Project: Vernon - offsite

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	097-05-006-7287	N/A	Aqueous	ICP 7300	06/03/14	06/05/14 17:49	140605LA1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.150	1.00	
Barium	ND	0.100	1.00	
Cadmium	ND	0.100	1.00	
Chromium	ND	0.100	1.00	
Lead	ND	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

Analytical Report

Exide Technologies
 2700 South Indiana Street
 Vernon, CA 90023-0957

Date Received: 06/03/14
 Work Order: 14-06-0122
 Preparation: EPA 1311
 Method: EPA 6010B
 Units: mg/L

Project: Vernon - offsite

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Property B Back	14-06-0122-1-A	06/02/14 12:40	Solid	ICP 7300	06/03/14	06/04/14 16:01	140604LA1

Comment(s): - The analysis was performed on a TCLP extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1.00	
Barium	ND	1.00	1.00	
Cadmium	ND	0.100	1.00	
Chromium	ND	0.100	1.00	
Lead	0.102	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

Property B Front	14-06-0122-2-A	06/02/14 12:30	Solid	ICP 7300	06/03/14	06/04/14 16:03	140604LA1
------------------	----------------	-------------------	-------	----------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a TCLP extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1.00	
Barium	ND	1.00	1.00	
Cadmium	ND	0.100	1.00	
Chromium	ND	0.100	1.00	
Lead	0.153	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

Property A Back	14-06-0122-3-A	06/02/14 12:45	Solid	ICP 7300	06/03/14	06/04/14 16:05	140604LA1
-----------------	----------------	-------------------	-------	----------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a TCLP extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.100	1.00	
Barium	ND	1.00	1.00	
Cadmium	ND	0.100	1.00	
Chromium	ND	0.100	1.00	
Lead	0.142	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

Exide Technologies
 2700 South Indiana Street
 Vernon, CA 90023-0957

Date Received: 06/03/14
 Work Order: 14-06-0122
 Preparation: EPA 1311
 Method: EPA 6010B
 Units: mg/L

Project: Vernon - offsite

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-021-1218	N/A	Aqueous	ICP 7300	06/03/14	06/04/14 15:28	140604LA1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	1.00	
Barium	ND	1.00	1.00	
Cadmium	ND	0.100	1.00	
Chromium	ND	0.100	1.00	
Lead	ND	0.100	1.00	
Selenium	ND	0.150	1.00	
Silver	ND	0.0500	1.00	

Analytical Report

Exide Technologies
 2700 South Indiana Street
 Vernon, CA 90023-0957

Date Received: 06/03/14
 Work Order: 14-06-0122
 Preparation: T22.11.5. All
 Method: EPA 7470A
 Units: mg/L

Project: Vernon - offsite

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Property B Back	14-06-0122-1-A	06/02/14 12:40	Solid	Mercury 04	06/03/14	06/05/14 18:50	140605L03

Comment(s): - The analysis was performed on a STLC extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

Property B Front	14-06-0122-2-A	06/02/14 12:30	Solid	Mercury 04	06/03/14	06/05/14 18:56	140605L03
------------------	----------------	-------------------	-------	------------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a STLC extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

Property A Back	14-06-0122-3-A	06/02/14 12:45	Solid	Mercury 04	06/03/14	06/05/14 18:59	140605L03
-----------------	----------------	-------------------	-------	------------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a STLC extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

Method Blank	099-04-004-528	N/A	Aqueous	Mercury 04	06/03/14	06/05/14 18:45	140605L03
--------------	----------------	-----	---------	------------	----------	-------------------	-----------

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

Exide Technologies	Date Received:	06/03/14
2700 South Indiana Street	Work Order:	14-06-0122
Vernon, CA 90023-0957	Preparation:	EPA 1311
	Method:	EPA 7470A
	Units:	mg/L

Project: Vernon - offsite

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Property B Back	14-06-0122-1-A	06/02/14 12:40	Solid	Mercury 04	06/03/14	06/04/14 21:11	140604L05

Comment(s): - The analysis was performed on a TCLP extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

Property B Front	14-06-0122-2-A	06/02/14 12:30	Solid	Mercury 04	06/03/14	06/04/14 21:18	140604L05
------------------	----------------	-------------------	-------	------------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a TCLP extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

Property A Back	14-06-0122-3-A	06/02/14 12:45	Solid	Mercury 04	06/03/14	06/04/14 21:20	140604L05
-----------------	----------------	-------------------	-------	------------	----------	-------------------	-----------

Comment(s): - The analysis was performed on a TCLP extract of the sample.

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

Method Blank	099-04-005-766	N/A	Aqueous	Mercury 04	06/03/14	06/04/14 21:07	140604L05
--------------	----------------	-----	---------	------------	----------	-------------------	-----------

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.00500	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Analytical Report

Exide Technologies
 2700 South Indiana Street
 Vernon, CA 90023-0957

Date Received: 06/03/14
 Work Order: 14-06-0122
 Preparation: EPA 7471A Total
 Method: EPA 7471A
 Units: mg/kg

Project: Vernon - offsite

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Property B Back	14-06-0122-1-A	06/02/14 12:40	Solid	Mercury 05	06/04/14	06/04/14 17:58	140604L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		0.216		0.0781		1.00	
Property B Front	14-06-0122-2-A	06/02/14 12:30	Solid	Mercury 05	06/04/14	06/04/14 18:00	140604L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		0.164		0.0820		1.00	
Property A Back	14-06-0122-3-A	06/02/14 12:45	Solid	Mercury 05	06/04/14	06/04/14 18:02	140604L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		0.280		0.0847		1.00	
Method Blank	099-16-272-285	N/A	Solid	Mercury 05	06/04/14	06/04/14 17:20	140604L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Mercury		ND		0.0833		1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Exide Technologies
2700 South Indiana Street
Vernon, CA 90023-0957

Date Received: 06/03/14
Work Order: 14-06-0122
Preparation: EPA 1311
Method: EPA 6010B

Project: Vernon - offsite

Page 3 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-05-2144-3	Sample	Solid	ICP 7300	06/03/14	06/04/14 15:49	140604SA1
14-05-2144-3	Matrix Spike	Solid	ICP 7300	06/03/14	06/04/14 15:50	140604SA1
14-05-2144-3	Matrix Spike Duplicate	Solid	ICP 7300	06/03/14	06/04/14 15:52	140604SA1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	ND	5.000	4.643	93	3.901	78	80-140	17	0-11	3,4
Barium	1.380	5.000	6.712	107	4.607	65	87-123	37	0-6	3,4
Cadmium	ND	5.000	5.572	111	4.742	95	82-124	16	0-7	4
Chromium	ND	5.000	5.408	108	4.610	92	86-122	16	0-8	4
Lead	0.9435	5.000	6.490	111	5.605	93	84-120	15	0-7	4
Selenium	ND	5.000	5.615	112	4.733	95	79-127	17	0-9	4
Silver	ND	2.500	2.792	112	1.661	66	86-128	51	0-7	3,4

FYI

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Exide Technologies
2700 South Indiana Street
Vernon, CA 90023-0957

Date Received: 06/03/14
Work Order: 14-06-0122
Preparation: T22.11.5. All
Method: EPA 7470A

Project: Vernon - offsite

Page 4 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Property B Back	Sample	Solid	Mercury 04	06/03/14	06/05/14 18:50	140605S03
Property B Front	Matrix Spike	Solid	Mercury 04	06/03/14	06/05/14 18:52	140605S03
Property A Back	Matrix Spike Duplicate	Solid	Mercury 04	06/03/14	06/05/14 18:54	140605S03

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.05000	0.03846	77	0.04516	90	71-134	16	0-14	4

FYI

Return to Contents



APPENDIX C

Fill Advisory

Information Advisory

Clean Imported Fill Material



October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California



California
Environmental
Protection Agency



Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.dtsc.ca.gov.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contami-

nation and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:

Target Compounds

Land near to an existing freeway

Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)

Land near a mining area or rock quarry

Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH

Agricultural land

Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)

Residential/acceptable commercial land

VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 subsamples per location
Volume of Borrow Area Stockpile	Samples per Volume
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards + 1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

materials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary

to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all com-

pounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.