ALAMEDA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH LOCAL OVERSIGHT PROGRAM	**Revision Date:** August 9, 2019
	ISSUE DATE: August 1, 2018
	Previous Revisions: October 25, 2018
SUBJECT: Soil Import/Export Characterization Requirements	

INTRODUCTION:

This document has been prepared by Alameda County Department of Environmental Health (ACDEH) for environmental cleanup sites regulated by ACDEH to provide requirements for the characterization of soil to determine its suitability for use at another site. These requirements have been prepared by ACDEH to ensure that unsuitable soil is not imported to environmental cleanup sites or exported from environmental cleanup sites to properties with sensitive land uses. This document is for characterization of soil only and does not address requirements for characterization of other fill material including, but not limited to: crushed rock, pea gravel, recycled concrete, or flowable material.

This document addresses both human health and ecological risk associated with exposure pathways to fill material and identifies fill sources which are unsuitable for use as fill material based on current and historic land use activities. The protocols and criteria presented in this document are intended to be sufficiently conservative to be applicable to all soil fill import sites regardless of land use or other site characteristics. Alternative criteria for soil characterization and suitability may be proposed for consideration by ACDEH via submittal of a site-specific soil import/export management plan and associated supporting technical documents.

This document was prepared using the structure presented in the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) Clean Imported Fill Material Information Advisory (October 2001) and modified to incorporate use of the San Francisco Bay Regional Water Quality Control Boards (Water Board's) Environmental Screening Levels (ESLs), criteria provided to ACDEH by designated Groundwater Basin Managers within Alameda County; and accepted industry practices for soil characterization.

Section 1 of this document discusses criteria for assessing and identifying potentially suitable fill material sources. **Section 2** discusses the evaluation of the suitability of potential fill material. **Section 3** discusses ACDEH's fill import suitability determination process. **Section 4** describes the conditions and reporting requirements for importing suitable fill material.

1. ASSESSMENT OF POTENTIALLY SUITABLE FILL MATERIAL SOURCES

Suitable fill material ("Clean Soil") as defined in this document is soil that will not have an adverse effect on human health or the environment when imported to the receiving site. Clean Soil must consist solely of natural earth material (e.g., soil, clay, silt, sand, gravel, rock) and must have concentrations of naturally occurring chemicals that do not exceed background levels at the receiving site and concentrations of man-made chemicals that do not exceed applicable risk based screening levels for human health risk, ecological risk (aquatic and terrestrial receptors), and concerns for nuisance and gross contamination.

Prior to collecting analytical data to confirm suitability of potential fill material, potential source areas should be screened based on historical land use and material composition. Historic and current land use at, and in the vicinity of, the parcel containing the proposed fill material should be evaluated for environmental impacts to determine the applicable laboratory analysis that should be conducted to characterize the fill material. This assessment consists of the review of historical records and typically includes conducting a phase one environmental site assessment (Phase I ESA) or preliminary environmental assessment (PEA) within six months of the assessment. The assessment should be sufficient to identify Recognized Environmental Conditions (RECs). RECs are typically associated with the

production, use, storage, transport, recycling, or disposal of hazardous material or waste at or in the vicinity of the parcel being evaluated and are used to determine what potential contaminants may be present and therefore should be analyzed for.

Fill material from parcels with the following conditions are not suitable for use as a proposed fill material source without additional evaluation and approval from ACDEH beyond what is required in this guidance:

a. Regulated environmental cleanup sites; or

b. Unaddressed or insufficiently addressed RECs; or

c. Current or historic industrial land uses; or

d. Current or historic unacceptable commercial land uses. Unacceptable commercial land uses are operations that generate revenue through, or that significantly involve:

   i. Manufacturing, repairing, or restoring operations; or

   ii. Providing maintenance services; or

   iii. The use, storage, transport, or disposal of hazardous material or waste.

e. Material containing animal or human waste or debris such as lumber, metal, or refuse.

2. EVALUATION OF FILL MATERIAL SUITABILITY

Proposed fill material source areas that are considered potentially suitable based on the initial screening of historic and current land use must be sampled, analyzed, and meet applicable environmental and human health risk levels before a final determination of the suitability of the proposed fill material can be made. Sampling protocols and strategies, and laboratory analyses vary based on conditions at the location being sampled, the type of compounds that are being evaluated, and the volume of fill material. Samples must be collected and analyzed in a manner sufficient to characterize the lateral and vertical extents of the proposed fill material source area. Minimum sampling and analysis requirements to evaluate the suitability of a proposed fill material source area are derived from various regulatory guidance documents, industry best practices, and requirements from designated Groundwater Basin Managers within Alameda County which are described in further detail below.

2.1. Minimum Analytical Requirements

Minimum analytical requirements for characterization of potentially suitable fill material proposed for import to a destination (a) outside of the jurisdiction of Zone 7 Water Agency (Zone 7); or (b) within the jurisdiction of Zone 7 are provided in Table 1a and Table 1b, respectively. Sampling and laboratory analysis must be conducted in accordance with the following requirements:

a. All analysis must performed in accordance with the United States Environmental Protection Agency's (USEPA's) SW-864 Compendium;

b. Analysis of samples must be completed and reported by an analytical laboratory accredited by the California State Environmental Laboratory Accreditation Program and the National Environmental Laboratory Accreditation Program;

c. The laboratory reporting limits must not exceed the screening levels adopted by ACDEH as described in Section 2.4 below;

d. The laboratory reporting limits must be reported on a dry-weight basis; and

e. The results of the laboratory analysis must be reported in a standard laboratory data package, including a summary of the quality control and quality assurance sample results and chain of custody documentation.

2.2. Minimum Sampling Requirements

Sampling for the characterization of potentially suitable fill material must be conducted under the direct charge of a professional engineer or geologist licensed in the state of California ("Qualified Professional") and in accordance with industry best practices including, but not limited to those discussed in the subsections below.

2.2.1. Vapor Forming Compounds

Vapor forming compounds consist of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) that readily form a vapor when exposed to air. In order to minimize volatilization of VOCs and SVOCs during sample collection, and ensure that analytical results are representative of the proposed fill material, discrete samples must be collected and analyzed in accordance with USEPA Method 5035. Composite sampling is not acceptable for the evaluation of VOCs and SVOCs.

2.2.2. Composite Sampling

Composite sampling is acceptable under the following conditions:

a. Analysis is for non-vapor forming chemicals;

b. The composite sample is comprised of roughly equivalent masses of each of the discrete samples;

c. Sufficient mass of discrete samples from each of the composited locations are submitted so as to allow for analysis of the discrete samples; and

d. Each of the discrete samples that comprise the composite sample must be analyzed in the event that the composite sample exceeds the applicable screening level.

2.2.3. In Situ Characterization

Pre-excavation (e.g., In Situ) characterization of potentially suitable fill material must meet the minimum requirements provided in Table 2a (for import to a destination outside of the jurisdiction of Zone 7 Water Agency's jurisdiction) and Table 2b (for import to a destination within the Zone 7 Water Agency's jurisdiction). Additional requirements include:

- Characterization of soil lithology in the proposed source area using the Unified Soil Classification System from the ground surface to the total depth of the proposed excavation for the fill material. The characterized soil lithology at each sample location must be presented as a soil boring log and must be reviewed and stamped by a Qualified Professional.
- Collection and analysis of at least one sample from each sample location for every five feet below ground surface that the proposed fill area extends.
- Characterization of layers of proposed fill material that exhibit significantly different geological characteristics or lithologies as separate sources. For example, if soil at a site generally consists of clay from the ground surface to a depth of 3 feet below ground surface with interbedded silts and sands beyond, the clay layer should be characterized and managed as one source and the interbedded silts and sands should be characterized as a second source.
- Use of direct push technology for sample collection and analyses for VOCs and SVOCs. Samples collected for analysis of non-vapor forming compounds may be collected using direct push technology, augers, or from a bucket, sidewall, or base sample from "pot hole" excavations.

2.2.4. Stockpile Characterization

The minimum sample quantities for the characterization of potentially suitable fill material that have been excavated and stockpiled are based on the total volume of the stockpiled fill material and are summarized in Table 3. Stockpiles must be generated from the same source area, must be segregated by fill material composition, and be located on the parcel generating the proposed fill material. Samples being analyzed for VOCs and SVOCs must be collected from at least 1 foot below the exposed surface of the stockpile.

2.3. Conditions Requiring Additional Sampling and Analysis

In addition to the minimum sampling requirements identified above, the following conditions, if present, require additional sampling and analysis as indicated:

1. **Evidence of Contamination** – Samples must be collected and analyzed from any locations where there is evidence of contamination such as strong odors, staining, observable sheen or free product, stressed vegetation, and/or elevated responses from field screening instruments such as a photoionization detector.
2. **Contaminants Associated with Surface Deposition** – When characterization for contaminants associated with surface deposition (e.g., pesticides, herbicides, fungicides, asbestos, and lead) are required for fill material characterization, representative samples must be collected from surface and near surface soils in accordance with the following:
    - For in situ characterization, one sample should be collected from each of the following intervals from each sample location: 0 to 6 inches below ground surface; 6 inches to 2 feet below ground surface; and 2 feet to 3 feet below ground surface; and
    - For stockpiled fill material, fill material from the surface and near surface (0 to 3 feet below ground surface) must be segregated from other fill material and characterized as a separate potential fill source.
3. **Groundwater and Saturated Soil** – If groundwater or saturated soil is encountered during fill characterization or excavation, the following additional samples must be collected and analyzed:
    - One soil sample per sample location from immediately above the saturated soil (i.e., the capillary fringe); and
    - One groundwater sample from each soil boring, excavation, or dewatering well in which groundwater is encountered.
4. **Dewatering** – If dewatering is conducted to support excavation of potentially suitable fill material, characterization of the fill material must be conducted after dewatering has been implemented and soil is no longer saturated.

2.4. Screening Levels

To be considered suitable fill material, analytical results of the fill characterization sampling must be less than applicable environmental and human health risk based screening levels.

2.4.1. Default Screening Levels

ACDEH has adopted the Regional Water Board's Tier 1 Environmental Screening Levels (ESLs) dated January 2019 (Revison 2) as default screening levels for all constituents with the following exception:

- **Arsenic**: the screening level for arsenic adopted by ACDEH is 11.00 milligrams of arsenic per kilogram of sample. This concentration is based on the upper estimate (99th percentile) for regional background levels of arsenic in the urbanized San Francisco bay region[3].

The use of Tier 1 ESLs as a default screening level is applicable to all sites regardless of land use or other site characteristics.

2.4.2. Alternative Screening Levels

In the event that fill characterization fails the default screening levels, alternative screening levels may be proposed for consideration by ACDEH via submittal of a site-specific soil import/export management plan. The soil import management plan must include a site-specific risk assessment for the receiving location and associated supporting technical documents.

The use of hazardous waste characteristic of toxicity levels (California Code of Regulations Title 22 Section 66261.24) as a screening level to evaluate the suitability of the import of soils is unacceptable for all sites except for appropriately designed and permitted treatment, storage, disposal, or recycling facilities.

3. ACDEH FILL MATERIAL IMPORT SUITABILITY DETERMINATION PROCESS

To obtain a determination from ACDEH that a proposed fill material is suitable, ACDEH requires submittal of a technical report (the "Fill Material Characterization Report") documenting the characterization of the proposed fill material. This technical report must contain, at a minimum, the following elements:

1. A cover letter from the owner of the proposed fill source material with the following statement: "I have read and acknowledge the content, recommendations, and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH". This cover letter must be signed by the owner of the proposed fill source material or a legally authorized representative of the owner of the proposed fill source material;
2. A statement that fill material characterization was conducted under the responsible charge of a Qualified Professional. This statement must be accompanied by the signed and dated seal of the Qualified Professional with responsible charge;
3. Narrative identifying and summarizing the following elements:
    a. The location, assessor's parcel number, and physical address of the proposed fill material source area;
    b. A summary of historical land uses and operations conducted at and in the vicinity of the proposed fill material source area with citations for supporting documentation;
    c. Identification and description of any identified RECs;
    d. A summary of fill material characterization efforts conducted, including a description of sampling and analysis and applicable geology and hydrogeology within the proposed fill material source area;
    e. A summary of the results of analytical sampling; and
    f. Recommendations and conclusions for the suitability of the proposed fill material.
4. Tables summarizing the site characterization analytical data;
5. A completed Proposed Fill Material Source Characterization Summary Form. A copy of this form is provided in pdf in Attachment A. An excel spreadsheet of this form is available on request;
6. Figure(s) depicting the following elements:
    a. Sample locations;

b. Parcel lines and parcel numbers;

c. Lateral extent(s) and depth(s) of the proposed fill material source area(s);

d. Location of any identified RECs;

e. Location of known current and historic infrastructure including structures, roadways, utilities, and any above ground or below ground storage tanks.

7. Boring logs depicting the geology, sample depths, and any encountered groundwater from each sample location;

8. Copies of laboratory analytical data;

9. Copies of supporting environmental documents such as Phase I ESA, PEA, or historic subsurface investigation reports.

The Fill Material Characterization Report and supporting documentation must be submitted to ACDEH via email to deh.loptoxic@acgov.org and uploaded to the State Water Resources Control Board's GeoTracker database. ACDEH will review the Fill Material Characterization Report and will issue a directive letter that (a) determines that the proposed fill material is suitable for import/export; (b) requests additional characterization; or (c) determines that the proposed fill material is not suitable for import/export. ACDEH's determination will include conditions described in Section 4 and may include additional conditions or requirements.

4. CONDITIONS OF ACDEH FILL MATERIAL IMPORT SUITABILITY DETERMINATION

As a condition of import/export, a technical report be submitted to ACDEH via email and uploaded to GeoTracker documenting the import/export of soil (the "Soil Import Summary Report"). The report must be uploaded to the GeoTracker information repositories for both the fill material source area and the destination. Please note that for locations importing soil from multiple sources, a single report can be submitted that documents import from multiple sources. For locations in which soil import activities last more than one year, a Soil Import Summary Report must be submitted on a semi-annual basis for the duration of import activities. The Soil Import Summary Report must contain the following elements at a minimum:

1. A cover letter from the owner of the proposed fill source material that states, at a minimum, the following: "I have read and acknowledge the content, recommendations, and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH." This cover letter must be signed by the owner of the proposed fill source material or a legally authorized representative of the owner of the proposed fill source material;

2. The technical report must include a statement that fill material characterization was conducted under the responsible charge of a Qualified Professional. This statement must be accompanied by the signed and dated seal of the Qualified Professional with responsible charge;

3. Summary tables of soil import logs. These logs must include the following information for each delivery of fill material: arrival date, manifest number or truck tag, quantity of fill material delivered, originating facility, and profile number;

4. A figure depicting the location and depth of imported soil. If fill material from multiple sources has been imported, the location and depth of imported soil from each source must be distinguished;

5. Copies of all manifests or other documentation of soil import as an appendix; and

6. Copies of all fill characterization profiles as an appendix.

5. CLOSING

If you have questions or comments regarding the requirements presented in this document, please contact ACDEH's Local Oversight Program for Releases of Hazardous Materials at 510-567-6700.

This document was prepared by, or under the direction of, the undersigned.

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ENCLOSURES

Tables

Table 1a	Minimum Required Analyses for Characterization of Fill Material for Off-Site Reuse for Receiving Facilities Located outside of Zone 7 Water Agency Jurisdictional Boundaries
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Table 3	Minimum Required Sample Density and Spacing for Stockpile (Post-Excavation) Characterization of Proposed Fill Material Sources

Appendices

Appendix A	Proposed Fill Material Source Characterization Summary Form

REFERENCES

1. DRAFT Technical Reference Document: Characterization and Reuse of Petroleum Hydrocarbon Impact Soil as Inert Waste. San Francisco Bay Regional Water Quality Control Board. October 2006.
2. Environmental Screening Levels (ESLs) revision 2. San Francisco Bay Regional Water Quality Control Board. January 2019.
3. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region. Duverge. December 2011
4. Information Advisory: Clean Imported Fill Material. Department of Toxic Substances Control (DTSC). October 2001.
5. Interim Guidance for Sampling Agricultural Properties revision 3. Department of Toxic Substances Control. August 7, 2008.
6. Preliminary Endangerment Assessment Guidance Manual. Department of Toxic Substances Control. January 1994. Revised October 2015.

TABLES

Table 1a
Minimum Required Analyses for Characterization of Fill Material for Off-Site Reuse
for Receiving Facilities Located outside of Zone 7 Water Agency Jurisdictional Boundaries

		Current and Historic Land Use At or Within 500 Feet of Fill Source Area			Current and Historic Land Use at Parcel(s) Containing Fill Source Area			
Laboratory Analysis[1]	**Analytical Method**	Major Roadway or Freeway	Mining Area or Rock Quarry	Regulated Cleanup Site and RECs	Agricultural	Residential / Acceptable Commercial[2]	Existing Historic Engineered Fill[3]	Industrial / Unacceptable Commercial
California Title 22 Metals [4]	USEPA 6010B and/or USEPA 7471A	X (Lead Only)	X	Additional As Required	X	X	X[5]	N/A
Asbestos	PLM or OSHA 191		X (PLM)	Additional As Required		X (OSHA 191)	X[5]	N/A
pH	USEPA 9045D		X	Additional As Required			X[5]	N/A
Pesticides	USEPA 8141A; and USEPA 8151A; and USEPA 8081A or 8080A			Additional As Required	X		X[5]	N/A
VOCs	USEPA 8260B with collection by USEPA 5035			Additional As Required		X	X[5]	N/A
SVOCs & PAHs	USEPA 8270C SIM	X (PAHs Only)		Additional As Required		X	X[5]	N/A
TPH	USEPA 8015M	X[5]	X[5]	Additional As Required	X[5]	X	X[5]	N/A
PCBs	USEPA 8082 or 8080A			Additional As Required		X	X[5]	N/A

Adapted from Department of Toxic Substances Control's Information Advisory Clean Imported Fill Material dated October 2001.

Notes:

(1) All analysis should be performed in accordance with USEPA SW-846 methods. A standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results must accompany all analytical reports;
(2) Acceptable commercial land use excludes any commercial use that generates revenue from manufacturing, repair/restoration, maintenance/cleaning, or the storage/transport of hazardous materials;
(3) Existing homogeneous engineered fill. Fill containing waste or debris or that is heterogeneous is not acceptable for off-site reuse.
(4) Include when Hexavalent Chromium analysis required by USEPA method 7199
(5) Analysis required by Alameda County Department of Environmental Health;

Abbreviations:

USEPA -United States Environmental Protection Agency
N/A – Not Acceptable for off-site re-use
PLM – Polarized Light Microscopy
OSHA – Occupational Safety and Health Administration Testing Method Number
SIM – Selected Ion Monitoring
VOCs – Volatile Organic Compounds
SVOCs – Semi-Volatile Organic Compounds
PAHs – Poly Aromatic Hydrocarbons
TPH – Total Petroleum Hydrocarbons as reported for gasoline range, diesel range, and motor oil range
PCBs – Polychlorinated Biphenyls;

Table 1b
Minimum Required Analyses for Characterization of Fill Material for Off-Site Reuse for Receiving Facilities Located within Zone 7 Water Agency Jurisdictional Boundaries

		Current and Historic Land Use At or Within 500 Feet of Fill Source Area			Current and Historic Land Use at Parcel(s) Containing Fill Source Area			
Laboratory Analysis[1]	**Analytical Method**	Major Roadway or Freeway	Mining Area or Rock Quarry	Regulated Cleanup Site and RECs	Agricultural	Residential / Acceptable Commercial[2]	Existing Historic Engineered Fill[3]	Industrial / Unacceptable Commercial
California Title 22 Metals [4]	USEPA 6010B and/or USEPA 7471A	X (Lead Only)	X	Additional As Required	X	X	X[5, 6]	N/A
Asbestos	PLM or OSHA 191		X (PLM)	Additional As Required		X (OSHA 191)	X[5, 6]	N/A
pH	USEPA 9045D		X	Additional As Required			X[5, 6]	N/A
Pesticides	USEPA 8141A; and USEPA 8151A; and USEPA 8081A or 8080A	X[6]	X[6]	Additional As Required	X	X[6]	X[5, 6]	N/A
VOCs	USEPA 8260B with collection by USEPA 5035			Additional As Required		X	X[5, 6]	N/A
SVOCs & PAHs	USEPA 8270C SIM	X (PAHs Only)		Additional As Required		X	X[5, 6]	N/A
TPH	USEPA 8015M	X[5, 6]	X[5, 6]	Additional As Required	X[5, 6]	X	X[5, 6]	N/A
PCBs	USEPA 8082 or 8080A			Additional As Required		X	X[5, 6]	N/A

Adapted from Department of Toxic Substances Control's Information Advisory Clean Imported Fill Material dated October 2001.

Notes:

(1) All analysis should be performed in accordance with USEPA SW-846 methods. A standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results must accompany all analytical reports;
(2) Acceptable commercial land use consist excludes any commercial use that generates revenue from manufacturing, repair/restoration, maintenance/cleaning, or the storage/transport of hazardous materials;
(3) Existing homogeneous engineered fill. Fill containing waste or debris or that is heterogeneous is not acceptable for off-site reuse.
(4) Include when Hexavalent Chromium analysis required by USEPA method 7199
(5) Analysis required by Alameda County Department of Environmental Health;
(6) Analysis required by Zone 7 Water Agency

Abbreviations:

USEPA -United States Environmental Protection Agency
N/A – Not Acceptable for off-site re-use
PLM – Polarized Light Microscopy
OSHA – Occupational Safety and Health Administration Testing Method Number
SIM – Selected Ion Monitoring
VOCs – Volatile Organic Compounds
SVOCs – Semi-Volatile Organic Compounds
PAHs – Poly Aromatic Hydrocarbons
TPH – Total Petroleum Hydrocarbons as reported for gasoline range, diesel range, and motor oil range
PCBs – Polychlorinated Biphenyls;

Table 2a

Minimum Required Sample Density and Spacing for In Situ (Pre-excavation) Characterization of Proposed Fill Material Sources for Receiving Facilities Located outside of Zone 7 Water Agency's Jurisdictional Boundaries

Requirements	Size of Contiguous Fill Source	Minimum Lateral Sample Distribution	Minimum Vertical Sample Distribution
(1) Additional lateral sample locations may be required to address identified RECs; (2) Additional samples must be collected from fill material that exhibits signs of potential contamination (*e.g.*, strong odor, staining, presence of sheen or free product, stressed vegetation in the vicinity, elevated response from photo-ionization detector); (3) Fill source area cannot be located on parcel(s) with historic industrial or unacceptable commercial land uses or parcel(s) associated with regulated environmental cleanup sites unless approved by regulatory oversight agency; (4) Samples that are collected, but not planned for analysis must be submitted with the samples planned for analysis under chain of custody to an appropriately certified analytical laboratory. The samples that are not planned for analysis must remain on hold with the laboratory until ACDEH has issued a determination regarding the suitability of fill material for import and released the un-analyzed samples for disposal; (5) When contaminants associated with surface deposition (e.g. pesticides, asbestos, and lead) are required to be evaluated, ACDEH requires the following additional samples be collected from each sample location: One sample from 0 to 6 inches bgs, One sample from 6 inches to 2 feet bgs, One sample from 2 feet to 3 feet bgs. One of these samples must be selected for analysis for each sample location; (6) If groundwater is encountered, ACDEH requires the following additional samples be collected and analyzed: One sample per Sample Location from immediately above the saturated fill material (i.e., the capillary fringe); One groundwater sample must be collected and analyzed for each boring, excavation, or dewatering well in which groundwater is encountered. (7) If dewatering will be conducted to support excavation below an existing water table, ACDEH requires that historically saturated fill material be samples after dewatering is in effect. (8) Composite sampling may or may not be appropriate, depending on the quality and homogeneity of the source/borrow area and compounds of concern.	≤2.0 acres	**4** sample locations. **AND** Sample Locations must be distributed throughout the fill material source area.	**1** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.
	≥2.0 acres <4.0 acres	**1** sample location per 0.5 acre. **AND** Sample Locations must be distributed throughout the fill material source area.	**1** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.
	≥4 acres <10.0 acres	**8** sample locations. **AND** Sample Locations must be distributed throughout the fill material source area.	**1** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.
	≥10.0 acres	**8** sample locations. **AND** Sample Locations must be distributed throughout the fill material source area.	**4** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.

Table 2b

Minimum Required Sample Density and Spacing for In Situ (Pre-excavation) Characterization of Proposed Fill Material Sources for Receiving Facilities Located within Zone 7 Water Agency's Jurisdictional Boundaries

Requirements	Size of Contiguous Fill Source	Minimum Lateral Sample Distribution	Minimum Vertical Sample Distribution
(1) Additional lateral sample locations may be required to address identified RECs (2) Additional samples must be collected from fill material that exhibits signs of potential contamination (*e.g.*, strong odor, staining, presence of sheen or free product, stressed vegetation in the vicinity, elevated response from photo-ionization detector) (3) Fill source area cannot be located on parcel(s) with historic industrial or unacceptable commercial land uses or parcel(s) associated with regulated environmental cleanup sites unless approved by regulatory oversight agency; (4) Samples that are collected, but not planned for analysis must be submitted with the samples planned for analysis under chain of custody to an appropriately certified analytical laboratory. The samples that are not planned for analysis must remain on hold with the laboratory until ACDEH has issued a determination regarding the suitability of fill material for import and released the un-analyzed samples for disposal; (5) When contaminants associated with surface deposition (e.g. pesticides, asbestos, and lead) are required to be evaluated, ACDEH requires the following additional samples be collected from each sample location: One sample from 0 to 6 inches bgs; One sample from 6 inches to 2 feet bgs; and One sample from 2 feet to 3 feet bgs. One of these samples must be selected for analysis for each sample location; (6) If groundwater is encountered, ACDEH requires the following additional samples be collected and analyzed: One sample per Sample Location from immediately above the saturated fill material (i.e., the capillary fringe); One groundwater samples must be collected and analyzed for each boring, excavation, or dewatering well in which groundwater is encountered. (7) If dewatering will be conducted to support excavation below an existing water table, ACDEH requires that, historically saturated fill material be samples after dewatering is in effect. (8) Composite sampling may or may not be appropriate, depending on the quality and homogeneity of the fill material and compounds of concern.	≤2.0 acres	**8** sample locations. **AND** Sample Locations must be distributed throughout the fill material source area.	**1** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.
	≥2.0 acres <4.0 acres	**1** sample location per 0.25 acre. **AND** Sample Locations must be distributed throughout the fill material source area.	**1** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.
	≥4 acres <10.0 acres	**16** sample locations. **AND** Sample Locations must be distributed throughout the fill material source area.	**1** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.
	≥10.0 acres	**16** sample locations. **AND** Sample Locations must be distributed throughout the fill material source area.	**4** sample collected and analyzed per sample location. **AND** **1** sample collected and analyzed for every 5 feet bgs. **AND** **1** sample collected from each layer exhibiting different geological characteristics or lithology encountered.

Table 3

Minimum Required Sample Density and Spacing for Stockpile (Post-Excavation) Characterization of Proposed Fill Material Sources for Receiving Facilities

Requirements	Size of Fill Source	Minimum Number of Fill Material Samples to be Collected
(1) Top Soil (0 to 6 inches bgs) and near surface soil (6 inches to 3 feet bgs) must be stockpiled separately if sampling for contaminants associated with surface deposition (e.g. pesticides, asbestos, and lead) (0-6 inches below ground surface) is required; (2) 4-point composite samples may be used in lieu of discrete samples for analysis other than VOCs and SVOCs, however, the total number of samples must be preserved; (3) VOC and SVOC samples are to be collected from fill material at least 1 foot into the stockpile;	$\leq$1,000 yd^3	**1** sample collected and analyzed per 250 cubic yards of stockpiled fill material.
	>1,000 yd^3 & <5,000 yd^3	**4** samples collected and analyzed for first 1,000 cubic yards **AND** **1** sample for each additional 500 cubic yards.
	$\geq$5,000 yd^3	**12** samples collected and analyzed for first 5,000 cubic yards **AND** **1** sample for each additional 1,000 cubic yards.

ATTACHMENT A

Proposed Fill Material Source Characterization Summary Form

Proposed Fill Material Source Characterization Summary Form

Associated APN	Phase 1 ESA or PEA Conducted	Undeveloped	Agricultural	Residential	Acceptable Commercial (1)	Unacceptable Commercial (2)	Industrial	Existing Historic Fill	Regulated Environmental Cleanup Site (3)	Major Roadway / Freeway (3)	Mining Area or Rock Quarry (3)	Cell ID	Excavation Width (feet)	Excavation Length (feet)	Excavation Depth (feet)	Number of Soil Layers Identified	Stockpile ID	Stockpile Volume (yd^3)	Soil Pit	Quarry	Construction Site	Stockpile Yard	Recycling Facility	Soil	Aggregate (sand and/or gravel)	Crushed Asphalt	Crushed Concrete	Construction Debris	Unknown	Property within jurisdiction of Zone 7	Property within jurisdiction of ACWD	Property outside Zone 7 or ACWD jurisdiction	Permitted TSDF	California Title 22 Metals	Asbestos	pH	Pesticides	VOCs	SVOCs	PAHs	TPH	PCBs
	Historic Land Use and identification of RECs (check all that apply)											In-situ [e.g. Unexcavated] Fill Source Information (if applicable)					Stockpiled Fill Source Information (if applicable)		Fill Source Classification (check all that apply)					Fill Type (check all that apply)					Fill Destination (check all that apply)					Minimum Required Sampling[4]/ Actual Number of samples collected								
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Are RECs, CRECs, or HRECs associated with any parcels? If so, what parcels, and what are the associated COCs?	
If Fill Source Area is a regulated environmental cleanup site, provide case identification information and regulatory oversight agency soil export requirements	

Notes:

(1)	Commercial activities that do not meet the Unacceptable Commercial criteria. Typically, Acceptable Commercial facilities are retail, restaurants or service providers (professional, legal, integrated technology, etc..).
(2)	Commercial activities that generate revenue through or that significantly involve manufacturing, repairing, restoring, or providing maintenance services or the transport, storage, and disposal of hazardous materials.
(3)	Land use at or within 500 feet of the parcel(s) containing the fill source
(4)	Does not include additional sampling that may be required by the regulatory oversight agency overseeing the environmental cleanup site where the fill source is located
*	Fill inappropriate or not proposed for off-site reuse at this time and must be disposed of at a permitted TSDF. Please consult with a permitted TSDF for sampling requirements for acceptance by the TSDR.
ACWD	Alameda County Water District
APN	Assessors Parcel Number
AR	As required by accepting permitted TSDR
CRECs	Controlled Recognized Environmental Condition as defined in ASTM E1527-13
HREC	Historic Recognized Environmental Condition as defined in ASTM E1527-13
REC	Recognized Environmental Condition as defined in ASTM E1527-13
TSDF	Treatment, Storage, or Disposal Facility, defined as a "Designated Facility" in Title 22, Section 66260.10 of the California Code of Regulations.
Zone 7	Zone 7 Water Agency