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New York State
Department of
Transportation
**ENGINEERING
INSTRUCTION**

EI
07-034

Title: **STANDARD SPECIFICATIONS - SECTION 205 CONTAMINATED SOIL**

Distribution)

☐ Manufacturers (18)

☒ Local Govt. (31)

☒ Agencies (32)

☐ Surveyors (33)

☒ Consultants (34)

☒ Contractors (39)

☐ _____ (

Approved:

James F. Tynan
Director, Office of Construction

11-14-07
Date

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of 05/01/08.
- This EI does not supersede any other issuance.
- The revisions issued with this EI will be incorporated into a future update of the Standard Specifications.

PURPOSE: This EI issues a new Section 205 *Contaminated Soil* of the Standard Specifications.

TECHNICAL INFORMATION:

- This EI is being issued concurrently with EI 07-035 *Design Guidance - Contaminated Soil*.
 - The following new contract pay items are approved and available for use beginning with projects submitted for letting on or after 05/01/08:
 - 205.02nn Segregation, and Storage of Contaminated Soil
 - 205.03 Field Organic Vapor Monitoring of Contaminated Soil
 - 205.0401 Petroleum Contamination Parameter Analysis
 - 205.0402 Laboratory Analysis for Hazardous Waste RCRA Toxicity Characteristic
 - 205.0403 Laboratory Analysis for Ignitability
 - 205.0404 Laboratory Analysis for pH
 - 205.0405 Laboratory Analysis for Polychlorinated Biphenyls (PCB's)
 - 205.0406 Laboratory Analysis for Total Petroleum Hydrocarbons Gasoline Range Organics
 - 205.0407 Laboratory Analysis for Total Petroleum Hydrocarbons Diesel Range Organics
 - 205.0501nn Disposal of Contaminated Hazardous Waste Soil
 - 205.0502nn Disposal of Contaminated Non-Hazardous Waste Soil
 - 205.06nn Reuse of Contaminated Soil
 - The following pay items are disapproved:
 - 202.1201 01 Hazardous Petroleum Cont. Soil Handling, Transp. And Disposal
 - 202.1207 02 Excavation and Stockpiling of Petroleum Contaminated Soil
 - 202.120701 02 Excavation and Stockpiling of Petroleum Contaminated Soil
 - 202.1208 02 Sampling and Waste Classification of Petroleum Contaminated Soil
 - 202.1209 02 Loading, Transp. And Disposal of Non-hazardous Petroleum Cont. Soil
 - 202.120901 02 Loading, Transp. And Disposal of Non-hazardous Petroleum Cont. Soil
 - 203.0102 01 Field Organic Vapor Monitoring of Contaminated Soil
 - 203.0105 10 Segregation, Management and Storage of Contaminated Soil
 - 203.0125 10 Disposal of Contaminated Hazardous Waste Soil
 - 203.0126 10 Disposal of Contaminated Non-hazardous Waste Soil
 - 203.0192 02 Unclassified Excavation and Embankment of Contaminated Material
 - 203.120102 08 Contaminated Soil Handling, Stockpiling, Transp. And Disposal
 - 203.1210 05 Exc., Removal, Treatment and Disposal of Petroleum Cont. Soil/water
 - 203.1211 05 Removal and Disposal of Contaminated Soil and Water
 - 203.9107-09 Exc., Samp. Waste Classification, Trans. & Disposal of Metal Cont. Soil
 - 203.9501 05 Management of Cont. Non-hazardous Waste and Suspected Haz. Waste
 - 203.9502 05 Transportation and Disposal of Contaminated Non-hazardous Waste
 - 203.9701 03 Testing of Potentially Petroleum Contaminated Soil

- 203.9702 03 Exc. of Petroleum- Cont. (Non-haz.) Soil with Reuse as Emb. or Fill
- 203.9703 03 Excavation of Petroleum-contaminated (Non-hazardous) Soil with Disposal Other than as On-project Embankment or Fill
- 203.9704 04 Field Test. of Potentially Petroleum Cont. Soil/sediment During Cons.
- 203.9704 15 Field Testing of Potentially Petroleum- Cont. Soil During Const.
- 203.9705 04 Excav. of Petro-contaminated (non-hazard) Soil/sediment with Reuse as Embankment, Fill or on Site Use Within Project Limit
- 203.9705 15 Excavation of Petroleum - Contaminated (Non - Hazardous) soil with Reuse as Embnk, Fill or on Site Use in Proj Lim
- 203.9706 04 Excav of Petro-cont. (Non-Hazard) soil/sediment with Disp Other than as On-project Emb.
- 203.9707 15 Sampling and Analysis of Potentially Petroleum- Contaminated Soil
- 203.9711 04 Treatment, Transp. And Disposal of Non-haz. Petroleum Cont. Soil
- 203.9715 04 Excavation of Cont. (Non-haz.) Soil with Reuse as Emb. or Fill W/pl S
- 203.9716 04 Excavation of Contam.(Non-hazardous) soils with Disposal Other than as On-project Emb.
- 203.9718 04 Field Testing of Contaminated Soil
- 203.9801 01 Excavation and Stockpiling of Petroleum Contaminated Soil
- 203.9801 07 Screening of Potential Petroleum Contaminated Soil
- 203.9801 15 Field Identification of Potentially Petroleum Cont. Soil During Cons.
- 203.9802 01 Sampling and Waste Classification of Petroleum Contaminated soil
- 203.9802 07 Trans. And Stockpiling of Potential Petroleum contaminated Soil
- 203.9802 15 Reuse of Petroleum-contaminated (Non- Hazardous) Soil as Embank., Fill, or on Site Use
- 203.9802 99 Trans. And Stockpiling of Potential Petroleum contaminated Soil
- 203.9803 01 Loading, Trans. And Disposal of Non-hazardous Petroleum Cont. Soil
- 203.9803 15 Disposal of Petrol.contaminated (Non-hazardous) Soil Other than as On-Project Embank.
- 203.9804 15 Field Identification of Potentially Petroleum Cont. Soil During Cons.
- 203.9805 07 Disposal of Petroleum Contaminated Soil (Non-hazardous)
- 203.9805 15 Reuse of Petroleum-contaminated (Non Hazardous) Soil as Embank., Fill or on Site Use
- 203.9805 99 Disposal of Petroleum Contaminated Soil (Non-hazardous)
- 203.9806 15 Disp. Of Pet. Cont. (Non-haz.) Soil with Other than as Emb. or Fill W/pl
- 203.98070015 Sampling and Analysis of Potentially Petroleum-contaminated Soil
- 203.99 10 Removal and Disposal of Contaminated Soil
- 203.9901 06 Field Identification of Petroleum- Contaminated Soil
- 203.9903 06 Segregation and Stockpiling of Petroleum-contaminated Soil
- 203.9921 04 Transportation and Disposal of Non- Hazardous Petroleum Cont. Soil
- 203.9921 06 Disposal of Petroleum-contaminated (Non-hazardous) Soil
- 203.9921 15 Disposal of Petroleum-contaminated (Non-hazardous) Soil
- 203.9922 06 Off-site Disposal of Petroleum- Contaminated (Non-hazardous)soil
- 203.9923 06 Reuse of Pet.-cont. (Non-haz.) Soil as Emb., Fill, or Use
- 203.9942 15 Stockpiling of Industrial Contaminated Soil
- 203.9953 04 Organic Vap Monitoring, Separation, Staging Sampling, Trt, Reuse or Disposal of Non-Hazardous Petro Contaminated Soil
- 203.9953 07 Stockpiling & Disposal of Petroleum Contaminated Soil

IMPLEMENTATION: Main Office Design Quality Assurance Bureau will insert the attached standard specification shelf note into contract proposals beginning with projects submitted for the letting of 05/01/08.

TRANSMITTED MATERIALS: This EI transmits a standard specification shelf note for Section 205 *Contaminated Soil*.

CONTACT: Direct questions to Laura Greninger via e-mail at lgreninger@dot.state.ny.us or at (518) 485-5316, or to the Hazardous Waste Section of the Environmental Science Bureau (EAB) at (518) 457-5672.

CONTAMINATED SOIL
SECTION 205 CONTAMINATED SOIL

205-1 DESCRIPTION.

205-1.01 General. Soil contamination may include:

- Petroleum products, which may include, but are not limited to: gasoline, heating oils, diesel fuel, kerosene, jet fuel, lubricating oils, motor oils, greases, and other fractions of crude oil;
- Contaminants associated with past Manufactured Coal Gas Plant (MGP) operations;
- Other contamination by organic constituents including volatile organic compounds;
- Metal(s) such as lead, chromium, and/or other heavy metals; and/or
- Any other constituents that require specialty disposal of the soil.

Additional information regarding contaminated soil may be available in a Special Note entitled *Soil Characterization Information* and/or in a *Contaminated Materials Assessment Report*, if such Special Note and/or Report were prepared by the Department during project design.

205-1.02 Segregation and Storage. This work shall consist of segregating contaminated soil from non-contaminated soil during excavation, and the temporary storage and management of contaminated soil (pending sampling, analysis and ultimate disposition) in accordance with an accepted Contaminated Material Handling Plan.

205-1.03 Field Organic Vapor Monitoring. This work shall consist of screening soil for contamination during excavation using field vapor monitoring equipment and observations. This work shall be performed by an independent firm hired by the Contractor and completed in accordance with an accepted Field Organic Vapor Monitoring Plan.

205-1.04 Sampling and Analysis. This work shall consist of collecting soil samples and arranging for samples to be analyzed at a laboratory in accordance with an accepted Sampling Plan. The laboratory shall be accredited for the specified parameters by the New York State Department of Health (NYSDOH) under the Environmental Laboratory Approval Program (ELAP). The results of the laboratory analysis will determine or confirm the final regulatory classification of the soil for appropriate handling, transportation, treatment and disposal methods and requirements.

205-1.05 Transportation and Disposal. This work shall consist of transporting and disposing of contaminated soil, and completing any other related activities, in accordance with an accepted Disposal Plan. For shipping and disposal purposes, the regulatory classification of the soil (as either contaminated non-hazardous industrial waste or RCRA regulated hazardous waste) will be based on investigations conducted prior to award or based on the results of laboratory analysis included in this section.

205-1.06 Reuse of Contaminated Soil. This work shall consist of the reuse of contaminated soil within the contract limits as embankment, fill or other appropriate on-site use. Contaminated soil areas and reuse locations, if provided, are indicated in the contract documents or shall be determined and approved by the Department. The reuse of contaminated soil may be deemed appropriate based upon the following a) an investigation conducted prior to the contract award and/or sampling and analysis conducted during project construction and the qualification of the soil placement as a generic beneficial use determination (BUD) or b) as a site specific BUD obtained from the NYSDEC. The material must be considered suitable material as per Section 203-1.08.

205-2 MATERIALS.

205-2.01 General. As per the Contaminated Material Handling Plan, (Section 205-1.02).

205-2.02 Segregation and Storage. None Specified.

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205-2.03 Field Organic Vapor Monitoring. Field organic vapor monitoring shall be conducted using a photoionization detector (PID) with a 10.2eV or higher ultraviolet lamp. The PID shall have a minimum detection range of 0.1 ppm to 2,000 ppm and shall be calibrated with isobutylene or other appropriate calibration gas.

A flame ionization detector (FID) may be used in lieu of a PID if a written request and justification is submitted by the Contractor and approved by the Department. The FID shall have a minimum detection range of 1.0 ppm to 50,000 ppm and shall be calibrated with appropriate calibration gas.

205-2.04 Sampling and Analysis. None Specified.

205-2.05 Transportation and Disposal. None Specified.

205-2.06 Reuse of Contaminated Soil. None Specified.

205-3 CONSTRUCTION DETAILS.

205-3.01 General. Work activities shall be performed in accordance with the contract documents and with applicable Contaminated Material Handling Plan, Field Organic Vapor Monitoring Plan, Sampling Plan and/or Disposal Plan. The Contractor shall initiate any measures necessary to protect the safety and health of workers and the general public based on the potential hazards associated with the contaminated soil.

A. Regulatory Compliance. The Contractor shall conduct all tasks in accordance with all applicable Federal, State, County, and local regulations including, but not necessarily limited to:

- 29 CFR 1910.120 and 29 CFR 1926.65 - Hazardous Waste Operations and Emergency Response;
- 6 NYCRR 360 - Solid Waste Management Facilities;
- 6 NYCRR 364 - Waste Transporter Permits;
- 6 NYCRR 371 - Identification and Listing of Hazardous Wastes (Defines Resource Conservation and Recovery Act (RCRA) defined hazardous wastes;
- 6 NYCRR 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (*applicable to soils regulated as hazardous wastes only*);
- 6 NYCRR Part 375 - Environmental Remediation Program;
- 49 CFR 100 to 180 - USDOT Hazardous Materials Transport and Manifest System Requirements (*applicable to soils regulated as hazardous wastes only*);
- TAGM 4046* - NYSDEC (New York State Department of Environmental Conservation) Division of Hazardous Waste Remediation Technical and Administrative Guidance Memorandum (TAGM) 4046 "Determination of Soil Cleanup Levels";
- NYSDEC STARS* (Spill Technology and Remediation Series) Memo #1 for petroleum contamination constituents; and
- DER-22* - Division of Environmental Remediation Determination of Soil Cleanup Objectives for Contaminants, not in Part 375.

* Note: DER-22 will replace TAGM 4046 and components of STARS 1 when finalized.

B. Preparation of Plans and Advance Notification Letters. The Contractor shall be required to prepare one or more of the plans described below. Two (2) copies of each applicable plan shall be submitted to the Engineer for acceptance at least 30 calendar days prior to commencing work in areas identified as potentially contaminated.

Plans and notification letters shall be prepared based on the type(s) of contamination and locations identified in the contract documents. If a different type of contamination is encountered during work, and additional plans and notification letters must be written, the 30 calendar day lead time for submittals may be modified by the Engineer as appropriate.

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1. Contaminated Material Handling Plan (CMHP). If the segregation and storage item is included in the contract, a CMHP shall be prepared. The CMHP shall describe the procedures to be used to segregate contaminated soil during excavation, soil storage/stockpile procedures, and safety and health issues. The following information shall be included in the CMHP:

- Name and address of the plan preparer;
- Contract name, contract number and description;
- Describe procedures to be used to segregate contaminated soil during excavation;
- Location of intended soil stockpile, trucks, roll-off container and other storage areas;
- Describe how contaminated soil will be moved to soil storage locations;
- Describe how soil storage/stockpile locations will be prepared and managed;
- Describe how potential air quality impacts such creation of dust particulates and vapors will be minimized to protect air quality within, adjacent to or downwind from the project.
- Describe air monitoring procedures to be used during work, define action levels, and explain the response if action levels are exceeded; The protocol and procedures shall consider action levels for both work personnel and also perimeter/community action levels based on the nature of the contamination and activities conducted
- Hazardous substance evaluation - types of chemicals associated with the waste to be generated,
- Hazard assessment - physical and toxic effects associated with the waste to be generated; Personal protective clothing (PPC) and personal protective equipment (PPE) to be used or available on-site;.
- Names of key personnel, emergency contacts and phone numbers;
- List the OSHA training each worker has received. At least one worker must have completed supervisor training per 29 CFR 1910.120(E)(4);
- General and site-specific safety rules, with emergency response procedures and directions to the nearest hospital (with map);
- Decontamination procedures for personnel and equipment; and
- Disposal of contaminated PPC and PPE;

2. Field Organic Vapor Monitoring Plan (FOVMP). If the field organic vapor monitoring item is included in the contract, a FOVMP shall be prepared. The following information shall be included in the FOVMP:

- Name and address of the plan preparer;
- Name, address, experience and qualifications of the independent firm performing the field organic vapor monitoring.
- Name, address, experience and qualifications of each individual who will conduct the field organic vapor monitoring. Each individual shall be thoroughly trained in sampling protocols, organic vapor monitoring procedures, and equipment calibration procedures.
- Type(s) of organic vapor monitoring equipment to be used – model, manufacturer and details of the PID or FID equipment that will be used to conduct field organic vapor monitoring; and
- Description of the field organic vapor monitoring and calibration procedures to be used.

3. Sampling Plan. If a sampling and analysis item is included in the contract, a Sampling Plan must be prepared. The following information shall be included in the Sampling Plan:

- Name and address of the plan preparer;
- Name, address, telephone number, and ELAP certification number of the proposed NYSDOH ELAP accredited laboratory;
- Name, address, experience and qualifications of each individual who will collect soil samples. Each individual shall be thoroughly trained in sampling protocols, handling and chain of custody procedures, and laboratory requirements.
- List of all laboratory tests required by the disposal/treatment facility

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- Describe the sample collection and handling procedures to be used; and
- Sampling schedule or a description of the sampling frequency to be used to facilitate prompt disposal of stored soil.

If sampling and analysis items are not included in the contract, a separate Sampling Plan is not required, and the Contractor shall perform any soil sampling and analysis required under the disposal item.

4. Disposal Plan. If a disposal item(s) is included in the contract, a Disposal Plan shall be prepared. The following information shall be included in the Disposal Plan:

- Name and address of the plan preparer;
- Name of disposal/treatment facility, address, telephone number and contact person;
- Copy of applicable permits and/or licenses held by the disposal/treatment facility;
- EPA Identification Number and/or State Facility Identification Number issued to the disposal/treatment facility;
- Method(s) of disposal/treatment that will be used;
- Signed letter from the disposal/treatment facility stating it is authorized under law to accept the type of waste being generated, their intent to accept the contaminated waste generated by this contract, and a list of the laboratory tests required by the facility;
- Name of waste transporter, address, telephone number and contact person;
- EPA Identification Number and/or State Transporter Identification Number issued to waste transporter; and
- Copies of all waste transporter permits and/or license plate numbers for vehicles that will be used for transport of waste from the site to the intended disposal/treatment facility;

If a sampling and analysis item(s) is not included in the contract, the following information shall be included in the Disposal Plan for any sampling and analysis that will be conducted:

- Name, address, telephone number, and ELAP certification number of the proposed NYSDOH ELAP accredited laboratory.
- Name, address, experience and qualifications of each individual who will collect soil samples. Each individual shall be thoroughly trained in sampling protocols, handling and chain of custody procedures, and laboratory requirements.
- List of all laboratory tests required by the disposal/treatment facility;
- Describe the sample collection and handling procedures to be used; and
- Sampling schedule or a description of the sampling frequency to be used to facilitate prompt disposal of stored soil.

5. Advance Notification Letters (Letters). At least 10 calendar days prior to commencing work in contaminated areas, the Contractor shall prepare and submit Advance Notification Letters, (Letters) to the Engineer, the appropriate NYSDEC Regional Office (Environmental Remediation, Spill Prevention and Response), and the local fire department. The Letters shall include the dates that work will occur in contaminated areas, work locations, soil storage/stockpile locations, and the name, field office address and phone number of the Engineer. The Contractor shall provide the Engineer with a copy of the Letters sent to the NYSDEC and fire department.

205-3.02 Segregation and Storage. The Contractor shall have an accepted CMHP prior to commencing work within potentially contaminated soil areas. Contaminated soil areas are identified in the contract documents. Soil determined to be contaminated (by PID/FID screening or observation) shall be segregated from non-contaminated soil and stored pending sampling, analysis and disposal. If feasible, soil with significantly higher PID/FID head space readings and soil exhibiting unusual visual or odor characteristics shall be segregated from other contaminated soil. The Contractor shall notify the Engineer immediately if soil is discovered that appears to contain unknown contaminants or soil that varies significantly from the type of contamination identified in the contract documents. The Department

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will determine the preliminary regulatory classification of the suspect soil and will determine how the soil is to be managed.

The Contractor shall not store contaminated soil for more than 40 calendar days, with this time limit beginning on the first day soil is placed in a stockpile, truck-bed or roll-off container. If the Engineer approves additional storage time for soil determined to be contaminated non-hazardous industrial waste, the Contractor shall also request approval from NYSDEC for any storage greater than 60 calendar days. If the Engineer approves additional storage time for soil determined to be RCRA regulated hazardous waste, the Contractor shall also obtain approval from NYSDEC for any storage greater than 90 calendar days. Contaminated soil may be placed in stockpiles, trucks or roll-off containers as follows:

A. Stockpiles. The Contractor shall prepare and maintain stockpiles as follows:

1. Preparation of Stockpile Areas.

- The area shall be graded to provide positive drainage away from intended stockpile locations.
- All stones, roots, debris and other objects that may puncture polyethylene ground protection shall be removed.
- The ground surface where soil will be stockpiled shall be covered with a minimum of 0.25 millimeter (10-mil) or 2 layers of 0.15 millimeter (6-mil) polyethylene sheeting, or an equivalent material. All seams shall be overlapped and sealed to prevent the leaching of contaminants.
- Stockpile locations shall be within the right-of-way and accepted by the Engineer prior to use.

2. Stockpile Protection.

- At the end of each work day, contaminated soil stockpiles shall be completely covered with a minimum of 0.25 millimeter (10-mil) or 2 layers of 0.15 millimeter (6-mil) polyethylene sheeting, or an equivalent material. All seams shall be overlapped and sealed to prevent the leaching of contaminants.
- Stockpile covers shall be weighted or secured by appropriate means to prevent tearing or removal by weather conditions.
- Stockpiles shall be labeled, signed, fenced or otherwise secured (as needed) at the end of each work day.

3. Maintenance.

- Stockpile covers, site grading, signing and security measures shall be properly maintained for the duration of storage.
- Damaged covers and other protections shall be repaired or replaced by the Contractor within 24 hours after notification. If this work is not satisfactorily completed within 24 hours, no further stockpiling shall be allowed until such work is completed.

B. Trucks or Roll-off Containers. The Contractor shall prepare and maintain trucks and roll-off containers as follows:

- The interior of truck-beds and roll-off containers shall be lined with 0.25 millimeter (10-mil) or 2 layers of 0.15 millimeter (6-mil) polyethylene sheeting, or an equivalent material. All seams shall be overlapped and sealed to prevent the leaching of contaminants.
- At the end of each work day, trucks and roll-off containers storing soil shall be completely covered with waterproof tarpaulins. Tarpaulins shall be placed over the top of the truck bed or container (rather than over the soil inside) and shall extend over the sides to prevent water accumulation and the evaporation of contaminants.
- Tarpaulins shall be weighted or secured by appropriate means to prevent tearing or removal by climatic conditions.
- Trucks and roll-off containers shall be labeled, signed, fenced or otherwise secured (as needed) at the end of each work day.
- Trucks, roll-off containers and tarpaulins shall be properly maintained for the duration of soil storage.

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- Damaged tarpaulins and protections shall be repaired or replaced by the Contractor within 24 hours after notification. If this work is not satisfactorily completed within 24 hours, no further soil storage shall be allowed until such work is completed.
- Trucks and roll-off containers storing contaminated soil shall be located as described in CMHP.

205-3.03 Field Organic Vapor Monitoring. The Contractor shall hire an independent firm to perform field organic vapor monitoring in accordance with the accepted FOVMP. The individual conducting the monitoring, hereafter referred to as the Field Monitor, shall be experienced and thoroughly trained in sampling protocols, organic vapor monitoring procedures, and equipment calibration procedures. The Field Monitor shall screen potentially contaminated soil during excavation using field vapor monitoring equipment (PID/FID) and visual observations. Based on the screening results, the Field Monitor shall direct the Contractor on the proper segregation of the material.

Field organic vapor monitoring shall be conducted when working in the contaminated soil areas identified in the contract documents, or whenever unusual or suspicious soil conditions based on visual or odor evidence are encountered during excavation. The Contractor or Field Monitor shall notify the Engineer immediately if soil is discovered that appears to contain unknown contaminants or soil that varies significantly from the type of contamination identified in the contract documents. (For health and safety reasons, personnel shall not evaluate odor by placing soil directly to the nose or by inhaling vapors from grab or bag samples).

The Field Monitor shall calibrate the PID/FID on a daily basis prior to starting field work and shall determine a background measurement. Excavated soil shall be tested with the PID/FID at intervals that will ensure the soil is being properly assessed for contamination. The PID/FID will be used to take head space readings from bag samples with the soil temperature at least 10°C (50°F). The Field Monitor shall maintain detailed and legible field notes indicating work locations, nature of work being performed, PID/FID head space readings, time of readings, pertinent measurements, visual and odor observations, quantities of both contaminated and non-contaminated soils excavated at each location, storage/stockpile locations, work hours, weather conditions, and any unusual conditions encountered. The Contractor shall provide the Engineer with a copy of all field notes within 5 work days from their recording.

The segregation threshold established below (25ppm) is based on gasoline being the predominant contaminant. If a different contaminant(s) is present or suspected, a different segregation threshold may need to be established. Alternative segregation thresholds may be designated in the contract documents.

PID/FIDs detect and measure gas concentrations (specifically volatile organic compounds); they do not quantify or identify the contaminants in the soil. Therefore, PID/FID readings can not determine specific contaminant concentrations within the soil.

Segregate soil as follows:

A. Non-Contaminated Soil. Soil with PID/FID head space readings less than 25 ppm and exhibiting no other evidence of contamination (visual or olfactory evidence) shall be considered non-contaminated. Unless further analysis is performed for confirmation of the non-contaminated soil, this soil will be considered uncontaminated.

B. Contaminated Soil. Soil with PID/FID head space readings equal to or greater than 25 ppm and/or soil exhibiting other evidence of contamination (visual or olfactory evidence) shall be considered contaminated. This soil shall be segregated from non-contaminated soil and placed in stockpiles or containers. If sampling and analysis provisions are included for the segregated soil, the results of laboratory analysis will be used to determine its regulatory classification. If feasible, soil with significantly higher PID/FID head space readings and soil exhibiting unusual visual or odor characteristics shall be segregated from other contaminated soil.

205-3.04 Sampling and Analysis. The Contractor shall have an accepted Sampling Plan prior to commencing work within potentially contaminated areas. Sampling shall be conducted by individuals thoroughly trained in sampling protocols, handling and chain of custody procedures, and laboratory requirements. Accepted sampling practices shall be used to obtain representative composite sample(s)

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and/or grab sample(s) as required for the specific analyses to be completed. Representative samples shall be collected from stored soil as soon as possible after excavation. Soil shall be taken from a depth greater than 0.3 meters within the stockpile. Each composite sample shall include a minimum of four sample points. Grab samples shall be collected in a manner so as to best characterize the extent of contamination of the soil in question and best characterize the extent of contamination of the pile. If any soil areas are present with field indications of contamination discretely different than the other areas (i.e., significantly elevated PID/FID readings, staining, etc.), the area may require a separate sample and EIC shall be alerted to approve additional sample and analysis. Analyses shall be completed at a NYSDOH ELAP accredited laboratory that is certified to perform the required tests. Analyses shall be completed within 10 work days of sample collection. The Contractor shall provide the Engineer with a copy of all reports within 2 work days of their receipt from the laboratory.

Soil shall not be added to any stockpile, truck or roll-off container after its contents have been sampled. If soil is added after sampling, or sampled soil is otherwise tampered with, the Contractor shall re-sample the soil at no additional cost to the State.

Conduct specified analyses as follows:

A. Petroleum Contamination Parameter Analysis. Samples shall be analyzed for petroleum contamination constituents (total constituent analysis) in accordance with NYSDEC Spill Technology and Remediation Series (STARS) Memo #1 using USEPA Method 8260 for volatile organics and methyl t-butyl ether (MTBE) and USEPA Method 8270 for base/neutrals.

B. Hazardous Waste RCRA Toxicity Characteristic Analysis. Samples shall be analyzed for Hazardous Waste RCRA Toxicity Characteristics Leaching Procedure (TCLP) constituents. Analysis shall be for full TCLP constituents on the sample extract as prepared by USEPA Method 1311.

C. Ignitability of Solids Analysis. Samples shall be analyzed for ignitability by USEPA Method 1030.

D. pH of Soil and Waste. Samples shall be analyzed for pH measurement by USEPA Method 9045.

E. Polychlorinated Biphenyls (PCB) Analysis. Samples shall be analyzed for PCBs by USEPA Method 8082.

F. Total Petroleum Hydrocarbons (TPH) Analysis. Samples shall be analyzed for petroleum hydrocarbons, USEPA Method 8015, gasoline range organics (GROs) and/or diesel range organics (DROs).

205-3.05 Transportation and Disposal. The Contractor shall have an accepted Disposal Plan prior to the transportation and disposal of contaminated soil. Contaminated soil shall not be transported until all sampling and analysis, as required by the Department or by the Disposal facility, have been performed and laboratory reports have been provided and accepted by the Department.

A. Transportation Off Site.

1. For the duration of transportation, roll-off containers and truck beds shall be completely covered with secured waterproof tarpaulins to prevent water infiltration, evaporation of contaminants and spillage of contaminated soil.
2. The Contractor shall take immediate action to remedy any situation involving a release of contaminated soil during loading or while in transit.
3. Contaminated soil shall not be combined with material from any other source.
4. Contaminated soil shall be transported in vehicles with valid Waste Transporter permits for New York State (and other required permits/licenses from any other states as applicable). The Contractor shall provide a copy to the Engineer of the waste transporter permit documenting that

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the transporter is authorized to transport waste to the intended disposal/treatment facility. The Contractor shall complete any required shipping papers, labeling, placarding, and weighing/load measurements and shall provide copies of required documentation to the Engineer.

5. Contaminated soil that is determined to be a regulated hazardous waste per the criteria of 6 NYCRR Part 371 shall be shipped with a hazardous waste manifest to a treatment/disposal facility permitted to accept the waste. The Contractor shall complete all required manifests, labeling, placarding, land disposal restriction notifications, and other requirements for shipping and tracking hazardous wastes and shall provide copies of required documentation to the Engineer. The Engineer will provide the Contractor with the EPA Identification Number(s) issued to the Department as the hazardous waste generator and will sign the generator certification statements.

B. Disposal/Treatment. Contaminated soil shall be disposed of by the methods and procedures described in the accepted Disposal Plan. Soil characterization information, field identification and confirmation laboratory analyses, if included in the contract, will be used to determine appropriate classification and category of soil for disposal. Each category of surplus or waste soil shall be handled and disposed of based upon its characterization in accordance with the requirements outlined in §107-10 *Managing Surplus Material and Waste* for the following categories:

- Uncontaminated Soil;
- Contaminated Non-hazardous Industrial Waste; or
- Hazardous Waste regulated by 6 NYCRR Part 371

Soils characterized as contaminated as Hazardous Waste or as Non-hazardous Industrial Waste shall be disposed of and paid for per the items 205.0501 and 205.0502 respectively.

Contaminated soil shall be transported to a disposal/treatment facility within 40 calendar days from the start of storage. The Contractor shall complete under this item any soil sampling and analysis required by the disposal/treatment facility that is not specifically included in the contract.

C. Documentation. The Contractor shall provide the Engineer with copies of all receipts from the disposal/treatment facility which indicate the actual quantity of waste received within 2 work days of receipt from the facility. For soil determined to be RCRA regulated hazardous waste, the Contractor shall also provide the Engineer with the appropriate copies of each signed manifest within 2 work days of receipt. Any manifest discrepancies, including the need for exception reporting, shall be reported immediately to the Engineer and shall be resolved by the Contractor.

205-3.06 Reuse of Contaminated Soil. The Contractor shall place contaminated soil as embankment, fill or other appropriate on-site use as determined and approved by the Department, and in accordance with the contract documents. Only appropriate soils placed in appropriate locations as included in the contract documents shall be reused.

205-4 METHOD OF MEASUREMENT.

205-4.01 General. (Vacant)

205-4.02 Segregation and Storage. The work under segregation and storage will be measured for payment on a lump sum basis.

205-4.03 Field Organic Vapor Monitoring. The quantity for payment will be in hours of field organic vapor monitoring performed, measured to the nearest one-half hour.

205-4.04 Sampling and Analysis. The quantity to be measured for payment will be the number of soil samples analyzed as included in the contract documents.

205-4.05 Transportation and Disposal. The quantity to be measured for payment will be in metric tons of contaminated soil transported to a disposal/treatment facility, measured to the nearest 0.1 metric