PROCEDURE FOR THE CONTROL AND QUALITY ASSURANCE OF TOPSOIL

GEOTECHNICAL CONTROL PROCEDURE
GCP-21

MAY 2016
GEOTECHNICAL CONTROL PROCEDURE:
PROCEDURE FOR THE CONTROL AND QUALITY ASSURANCE OF TOPSOIL

GCP-21

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

Developed by the
LANDSCAPE ARCHITECTURE BUREAU (contact: LAB Director)

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1. INTRODUCTION

1.1. PURPOSE

This Geotechnical Control Procedure (GCP-21) establishes quality control (QC), quality assurance (QA), and documentation procedures for evaluating topsoil for the New York State Department of Transportation (the “Department”).

The Department has established a Quality Assurance (QA) Program in accordance with 23 CFR 637 to ensure that the materials and workmanship incorporated into every Department contract are in conformance with approved contract documents. The QA, which is outlined in §106-10 Quality Assurance of the Standard Specifications, provides a guideline for auditing the quality of project deliverables. The QA process ensures that contractual obligations were satisfactorily met and supports the effectiveness of the QC program administered by the Contractor’s Supplier.

GCP-21 focuses on evaluating topsoil specified for use in Department contracts. The Department, however, may also require the field sampling of topsoil for design, maintenance, research and specification purposes.

This manual was developed by the Landscape Architecture Bureau which takes lead responsibility for its contents, in accordance with §713-01 “STOCKPILING, SAMPLING & TESTING” of the Department’s Standard Specifications. It supplements, but does not lessen or supersede, the conditions and requirements found in the Standard Specifications or contracts let by the Department or local sponsors. It is issued as a Geotechnical Control Procedure because the core operations, which have previously resided in Engineering Instructions, the Construction Inspection Manual and superseded versions of the Standard Specifications, have always been based on those for other granular materials, with a key focus being the processing of soil samples through the Department’s General Soils Lab.

1.2. DEFINITIONS

**Biosolids**  
(from NYSDEC): “The solid or semi-solid organic material generated by a wastewater treatment plant, resulting from the treatment of wastewater carried through sewer lines from homes and businesses to the treatment plant. Following treatment, the liquid (effluent) is typically discharged to a nearby stream and the solids (biosolids) or a product developed from the solids are removed from the treatment plant for disposal or beneficial use.” One such use is in land application, including manufactured topsoil, subject to NYSDEC regulations.

**Chain of Custody**  
The documentation process by which the Department ensures that topsoil used in a Department or Local Contract originates from an approved stockpile.
**Contractor/Supplier**

Per definitions included in the NYSDOT Standard Specifications for “Contractor” and “Material Supplier”, relating to the manufacturing and/or handling of topsoil and related materials.

**Department Representative**

(a) For stockpiles constructed to supply one or more active Department-let contracts (or those locally-let contracts/project segments for which the Department elects to perform off-site QA):

“A Department Representative” is the Engineer-in-Charge (EIC), Construction Inspector, or one of the following, as agreed by the EIC or Regional Construction Engineer (RCE) and subject to availability (Note: if the stockpile is for multiple projects in more than one Region, the EICs should coordinate and designate a lead):

- Regional Landscape Architecture/Environmental staff;
- Construction staff;
- Maintenance/Operations staff;
- Resident Engineer/ staff;

OR, if no Department personnel are available, non-Department personnel involved in the contract(s) (other than an employee of the Contractor and/or Sub-Contractor(s)) may be approved by the EIC/RCE. Examples of non-Department personnel who might be considered for approval to represent the Department include a:

- Consultant Project Engineer assigned to provide construction support;
- Construction Manager/Engineer hired by the Sponsor of a Locally-let Project;
- Licensed professional employed by the locality (e.g.: Town Engineer); or a
- Design Consultant employed by the Department or a Local Sponsor.

(b) For stockpiles constructed without reference to a specific contract:

“A Department Representative” will be the Regional Landscape Architect (RLA) or other person designated by the NYSDOT Region in which the stockpile is located, to act as a point of contact and track such stockpiles. This “Representative for non-project-specific stockpiles” must be able to use Site Manager for tracking purposes. The Region should ensure that the Landscape Architecture Bureau has current contact information for this Representative.

**Independent soil testing lab**

A nationally-recognized entity that provides soils laboratory services and is certified to perform the tests pertinent to this manual. Examples include the State land-grant agricultural colleges, such as Rutgers or Cornell University. The Department does not maintain a list.

**In situ**

Being in the original position; not having been moved or transferred to another location.
Local Contract
A locally-administered contract using federal funds which pass through the Department.

Prepared surface
A surface which is level (0-5% slope), reasonably dry, free of debris, deep ruts or holes and not subject to flooding.

Quality Assurance (QA)
Per 23 CFR 637: “All those planned and systematic actions necessary to provide confidence that a product or service will satisfy given requirements for quality.”

Quality Control (QC)
Per 23 CFR 637: “All Contractor/Vendor operational techniques and activities that are performed or conducted to fulfill contract requirements.”

Single payment item
One of the topsoil payment items in the Department’s Standard Specifications in the format 610.140X (with parameters as described in §713-01) or, if approved, one payment item associated with a special specification.

Sponsor’s Designated Representative
For stockpiles constructed for one or more active, federally-aided, locally-let contracts (for which the Department has NOT elected to perform off-site QA):
The Sponsor’s Designated Representative is their full-time employee in charge of a project (i.e.: their EIC or Construction Manager), consistent with the PLAFAP (Procedures for Locally-Administered, Federally-Aided Projects) or their designee as identified and approved in the project’s Construction Management Plan, such as:
• A licensed professional employed by the locality (e.g.: Town Engineer); or
• A Design Consultant employed by the Local Sponsor.

Stockpiling of Topsoil
Placement and formation of topsoil into a temporary pile meeting the requirements of Section 2.2 of this Geotechnical Control Procedure and specifically intended for sampling, not to be confused with “storage” of topsoil.

Storage of Topsoil
The temporary placement of approved topsoil at approved locations on-site, incidental to its final placement, not to be confused with “stockpiling” of topsoil. Stripping and storing of existing topsoil from locations identified in the contract documents, under §713-01 A. Topsoil-Reuse On-Site Materials and C.1 Topsoil – On-Site Wetland Materials is a form of “storage”, not stockpiling.
1.3. QA/QC FOR TOPSOIL

The Contractor/Supplier of the topsoil assumes full responsibility for all QC activities required to produce the material to meet the specification. This includes:

- **Chain of Custody**
- **Manufacturing, Delivery and Handling of Material.** It is the responsibility of the Contractor/Supplier to ensure that the methods used to manufacture, deliver and handle the topsoil do not cause the material to become non-compliant with prevailing specifications. Examples of unacceptable changes include material contamination or particle segregation during transport.

The Department’s QA process for topsoil involves four steps*:

- Stockpiling approvals;
- Sampling;
- Testing; and
- Evaluation.

* The exceptions are §713-01 A. Topsoil – Reuse of On-Site Material and C.1 Topsoil – On-Site Wetland Materials

The procedures for each step described have been developed to ensure that the topsoil meets the material specification and that the entire topsoil stockpile is accurately represented during sampling and testing.

Deviation from the procedures described in this Geotechnical Control Procedure is not allowed without the expressed, written permission of the Director of the Landscape Architecture Bureau, in consultation with the Geotechnical Engineering Bureau.

2. STOCKPILING TOPSOIL

2.1. GENERAL

Stockpiling, the first step in the Department’s topsoil QA process, is required for all manufactured and off-site topsoil used in Department or Local contracts and activities, as well as for topsoil from on-site locations not identified in the contract documents for reuse (as §713-01 A. Topsoil – Reuse of On-Site Material and C.1 Topsoil – On-Site Wetland Materials), but which the Contractor believes contain suitable topsoil and for which permission to pursue testing has been asked of and granted by the EIC.

*NOTE: Operations related to topsoil stockpiling, sampling and handling, like any related to soil or land disturbance, must consider and respond appropriately to all applicable regulations and guidance concerning erosion and sediment control. It is especially important to ascertain whether a given stockpiling operation will require coverage under NYSDEC’s SPDES (State Pollutant Discharge Elimination System) Construction Stormwater General Permit.*
2.1.1. **Topsoil Stockpiles Constructed for One or More Specific Contract(s)**  
The intent of this option is to allow Contractors/Suppliers to form a topsoil stockpile, suitable for sampling, slated for use in one or more active Department or Local contracts. If for multiple contracts, these may be in the same or different NYSDOT Regions.

*Before forming a topsoil stockpile for multiple contracts,* the Contractor must obtain approvals from all involved EICs. Stockpiles of topsoil slated for use in multiple contracts must meet the material specifications for a single topsoil type (as described under §713-01 or a special specification) and correspond to a single topsoil payment item (e.g.: 610.1402 Topsoil-Roadside). *All of the topsoil from such a stockpile must be intended for use in approved contracts only.*

2.1.2. **Topsoil Stockpiles Constructed Without Reference to a Specific Contract**  
This option allows Contractors/Suppliers to develop a ready supply of pre-approved, stockpiled topsoil that meets the material requirements either of a single topsoil type, as described under §713-01 or a special specification, and corresponding to a unique topsoil payment item. *All of the topsoil from such a stockpile must be reserved for exclusive use in Department- or Local contracts.* The Representative for non-project-specific stockpiles for the Region in which the stockpile is proposed grants permission to construct this type of stockpile, based on conformance with all the requirements contained in this Geotechnical Control Procedure and in consultation with the Landscape Architecture Bureau.

2.2. **REQUIREMENTS FOR ALL TOPSOIL STOCKPILES:**

2.2.1. **Notification:**  
The Contractor/Supplier shall notify the appropriate parties (below) of the intent to construct a stockpile a minimum of three (3) calendar days prior to beginning the construction of any stockpile. To allow sufficient time for testing, this notification must be given a minimum of twenty one (21) calendar days prior to the intended use of the material on any Department or Local contract. The parties to be notified are:

- Stockpiles for a single contract or, if approved, for multiple contracts:
  - The EIC(s), for Department-let contracts, with a copy to the Landscape Architecture Bureau.
  - The Sponsor’s Designated Representative(s), with a copy to the Regional Local Projects Liaison (RLPL), for Local contract(s).
- Stockpiles without reference to a specific contract:
  - The Representative for non-project-specific stockpile for the Region in which the stockpile is proposed (or their designee), with a copy to the Landscape Architecture Bureau.
2.2.2. **Stockpile Location:**
Sufficient access shall be provided around the entire stockpile to allow for visual inspection, sampling and the removal of material in accordance with the requirements in Sections 3.2, “Visual Inspection...” and 3.3 “Sampling Procedure...” of this Geotechnical Control Procedure.

Topsoil stockpiles for §713-01B Manufactured or Off-site Materials and §713-01C.2 Topsoil – Offsite or Manufactured Wetland Materials not using material originating on the project site shall be formed off of the project site.

In cases when the Contractor has proposed and received approval to stockpile, sample and test (for §713-01B and §713-01C.2) existing topsoil from on-site locations not designated in the contract documents, the proposed location of any stockpile on a project site must be approved by the EIC prior to stockpile formation.

2.2.3. **Stockpile Construction:**
Each stockpile shall be constructed and intended to meet the material requirements for a single topsoil material specification, as described under Standard Specification §713-01 or in a special specification, and shall correspond to a unique payment item. Stockpiles shall be:

- Constructed of unfrozen material on a prepared surface,
- Free of debris (per §713-01),
- Thoroughly mixed to a reasonably even texture throughout when visually and manually inspected,
- A minimum height of four (4) feet unless otherwise approved,
- A maximum height not exceeding the reach of the equipment employed to remove material for sampling and use and
- Shaped with uniform surfaces and stable slopes.

2.2.4. **Stockpile Volume:**
The maximum volume of a topsoil stockpile is 8000 cubic yards (CY) unless otherwise approved (see "Exceeding the maximum..." below). For contract(s) specifying a total topsoil volume in excess of 8000 CY for a single topsoil material type and payment item, multiple stockpiles will be required.

The minimum volume of a topsoil stockpile (for volumes under 8000 CY) shall be 200 CY. If the contract quantity is less than 200 CY, the Contractor/Supplier may construct a stockpile smaller than the minimum volume, but not less than the contract quantity.

**Exceeding the maximum or forming multiple stockpiles:** In rare cases, the Department may determine it to be in its best interest to allow topsoil stockpile volumes to vary from the above maximum and minimums. Under limited circumstances, this may involve a single stockpile volume exceeding the stated maximum (if the contract quantity warrants), or multiple stockpiles with volumes
below 8,000 CY (when space restrictions preclude the formation of a single large stockpile). In either case, before such stockpiles are constructed:

- The Contractor/Supplier shall submit a written justification to:
  - The EIC(s) for Department-let or Department-inspected contracts;
  - The Sponsor’s Designated Representative (with a copy to the RLPL) if locally-let;
  - The Representative for non-project-specific stockpiles for the Region in which the stockpile is proposed (with a copy to the Landscape Architecture Bureau).

The Contractor/Supplier shall only proceed after approval is obtained.

**In cases where the formation of multiple stockpiles is approved/required:**

- Each stockpile will be treated separately for sampling and testing purposes.
- The combined stockpile volume shall not be less than that needed for the contract(s).

2.2.5. **Stockpile Identification:**

Stockpiles shall be identified with at least one weather-resistant sign, placed with a sturdy support, on the stockpile. Signs shall be:

- legibly written using weather-resistant paint or marker,
- easily readable from the ground,
- 24 in. x 24 in (0.6 m x 0.6 m) (minimum sign dimensions),
- in place prior to sample collection, and
- in place continuously until the stockpile is depleted or disposed of in accordance with Section 7 of this Geotechnical Control Procedure.

*Note: If there are multiple stockpiles for one project, each stockpile shall have a sign.*

The information on the sign shall include:

- Stockpile number,
- Estimated initial volume in CY,
- Whether or not the stockpile contains composted biosolids,
- Item number,
- Contract Number(s).

*Note: If the stockpile was formed without reference to a specific contract, the Contractor/Supplier shall add the contract number(s) to the sign, prior to supplying material to a Department or Local contract.*
3. **SAMPLING OF TOPSOIL STOCKPILES**

3.1. **GENERAL**

3.1.1. **Chain of Custody of Samples:**

The Contractor/Supplier, per §713-01, is responsible for collecting, handling and testing samples from topsoil stockpiles containing biosolids. The Department is responsible for collecting, handling and testing samples from all other topsoil stockpiles as described below.

Stockpiles for one or more specific contracts: The lead contact for sampling is the EIC (or his/her representative) for the individual project or, for multiple-project stockpiles, an EIC for any of the contracts acting in consultation with all other involved EICs.

An alternate to the EIC or Construction Inspector may be approved based on:
- Independence from the Contractor(s) involved,
- Availability within the needed timeframe, and
- Ability to convey the samples to the Department for testing (unless otherwise directed, to the Department’s General Soils Landscape Architecture Bureau).

Stockpiles not associated with a specific contract: The lead contact for sampling is the Region’s “Representative for non-project-specific stockpiles” or their designee.

3.1.2. **Notification:**

The Contractor/Supplier shall notify the appropriate parties (below) in writing when a topsoil stockpile has been constructed and is ready to be sampled:
- For specific contract or, if approved, multiple specific contracts stockpiles:
  - The EIC(s), for Department-let contracts;
  - The Sponsor’s Designated Representative (s), with a copy to the RLPL, for locally-let contract(s);
- For Stockpiles without reference to a specific contract: The Region’s Representative for such stockpiles, with a copy to the Landscape Architecture Bureau.

Notification shall include a stockpile location map and a photo(s) of the stockpile with required signage in place.

3.1.3. **Personnel And Equipment For Sampling:**

A. A Department Representative or Sponsor’s Designated Representative, as appropriate, will direct all sampling operations.

B. The Geotechnical Engineering Bureau supplies Department-approved granular materials bags and topsoil sampling kits (standard plastic quart containers, bags, ties, labels and forms).

C. The Contractor/Supplier shall provide personnel and equipment necessary to assist the Department and/or Sponsor with sampling. If the Contractor/
Supplier repeatedly fails to provide the personnel and equipment necessary to assist in sampling, the Department may reject the stockpile and require disposal in accordance with Section 7 of this Geotechnical Control Procedure.

D. If sampling (other than biosolids) is NOT performed by a Department Representative or Sponsor’s Designated Representative, the stockpile will also be rejected.

3.2. VISUAL INSPECTION OF TOPSOIL STOCKPILES

Within **five (5) working days** of receiving the notification that a stockpile is ready for sampling, the Department Representative or Sponsor’s Designated Representative will inspect the stockpile to ensure that it visually meets the second paragraph under “Material Requirements” in §713-01.

The Department/Sponsor may reject the stockpile at this time. In such cases, samples will not be collected. The Department/Sponsor will provide written justification, indicating the basis of rejection. Photographs and/or other evidence may also be provided to support this decision. If the Department/Sponsor’s documentation details corrective measures which, if implemented, might render the stockpile acceptable, the Contractor/Supplier may attempt to implement those corrective measures and request re-sampling. Together with any such corrective measures, the Contractor/Supplier must rework and reconstruct the stockpile in a new location. Alternatively, the Contractor/Supplier may create a new stockpile.

Stockpiles which pass the visual inspection will be sampled per section 3.3 below.

3.3. SAMPLING PROCEDURE FOR STOCKPILES:

*NOTE: the number of samples required for each stockpile shall be:*

<table>
<thead>
<tr>
<th>Topsoil Stockpile Volume (CY)</th>
<th>Minimum Number of Samples Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 500</td>
<td>one</td>
</tr>
<tr>
<td>Over 500 to 1000</td>
<td>two</td>
</tr>
<tr>
<td>Over 1000 to 2000</td>
<td>three</td>
</tr>
<tr>
<td>Over 2000 to 3000</td>
<td>three</td>
</tr>
<tr>
<td>Over 3000 to 4000</td>
<td>four</td>
</tr>
<tr>
<td>Over 4000 to 8000</td>
<td>four (unless otherwise directed).</td>
</tr>
<tr>
<td>Over 8000 CY (if approved)</td>
<td>per Department written approval</td>
</tr>
</tbody>
</table>

3.3.1. **Specific Steps**

The Department Representative or Sponsor’s Designated Representative shall perform or direct the following steps:

A. A stockpile will be visually divided into approximately equal sections, based on the number of samples to be taken. For example, a stockpile that requires three samples will be visually divided in thirds.
B. Within each section, the Contractor/Supplier shall:
   1. Remove all frozen material prior to sampling;
   2. Using a sufficiently sized front-end loader, grade the topsoil from top to bottom to create a continuous slope. The material should not collapse and/or segregate;
   3. Fill the bucket of the front end loader by channeling the slope, beginning one (1) foot from the bottom and continuing to the top of the slope in one operation;
   4. Transport the sample to the sampling location, lower the bucket to the ground level and slowly empty it by rotating the bucket to form a small pile.

C. The Department’s Representative or Sponsor’s Designated Representative will collect a sample from each small pile formed by Step B by following these steps:
   1. Divide the small pile visually into four equal quadrants;
   2. From the middle third of each quadrant, obtain a small shovelful of material;
   3. Place the four shovelfuls together in one approved granular materials sample bag (supplied by the Geotechnical Engineering Bureau) or a container of sufficient size for thorough mixing;
   4. Mix thoroughly;
   5. Line a plastic quart container from a Department soil sampling kit with the supplied plastic bag and place a sufficient quantity of this topsoil mixture to completely fill the bag-lined container;
      NOTE: If the pay item for which the topsoil has been stockpiled requires Special Testing Needs (per section 5.1.3. of this GCP), involving testing outside the Department in addition to standard tests by the Department take two samples and fill two separate bag-lined containers
   6. Seal the plastic bag with the supplied twist-tie;
   7. Seal the containers, including the bagged samples;
   8. Log all sample information into “Site Manager” (or alternate appropriate Department construction/materials administration software). Samples must indicate the unique material specification for which testing is to be performed;
   9. Print and affix a label identifying the sample to the outside of the container.

D. Perform Step C. for each small pile at each sampling location.

E. Deliver or send all samples to the Department’s General Soils Lab unless approval in writing to deliver the samples to an alternate location has been obtained from the Landscape Architecture Bureau. Do not delay sending in samples—ideally, they should be logged in to site manager and sent to the GSL on the same day the sampling occurs.
F. The stockpile shall be reshaped with uniform surfaces and stable slopes as it was before testing, with **Stockpile Identification signs** (per 2.2.5) in place.

3.3.2. **Sampling Error**
It is the responsibility of the Contractor/Supplier to bring concerns on topsoil stockpile sampling methods to the attention of the EIC as soon as practicable. Every effort should be made to resolve potential/alleged sampling errors before or during sampling operations. If the Contractor/Supplier and the EIC cannot reach an agreement on the sampling methodology and the Contractor/Supplier maintains that a sampling error has occurred, he/she should refer to §105-14 Disputed Work and Dispute Resolution of the standard specifications for guidance and procedures on contractual disputes and dispute resolution.

3.3.3. **Adding to/Moving a Stockpile**
A. After all sampling steps per 3.3.1 have been performed on a stockpile, it shall not be modified or further reshaped prior to lab analysis, evaluation and approval.

B. Material shall not be added to a stockpile after sampling. If material is added or the stockpile is tampered with after sampling, the Department will reject the stockpile and the Contractor/Supplier shall dispose of it in accordance with Section 7 of this Geotechnical Control Procedure.

C. A stockpile may not be moved or relocated, unless the following requirements are met:
   1. The stockpile has been sampled, evaluated and approved.
   2. A written request to move a stockpile has been sent to the EIC (or, for a “non-project-specific” stockpile, to the Landscape Architecture Bureau). The request shall include an explanation as to why it is necessary or in the Department’s best interest, to move the stockpile. Work shall not proceed without written permission.

   The relocated stockpile shall:
   - Consist *only* of material from the approved stockpile being moved. No other material shall be added to the relocated stockpile nor shall the stockpile being moved be added to an existing topsoil supply, and
   - Be constructed in accordance with the requirements of Sections 2.2.2 through 2.2.5 of this Geotechnical Control Procedure.

   The Department may elect to observe the operation at the source, the new location or both, and to inspect the relocated stockpile to verify that it has been constructed properly.
4. FIELD SAMPLING OF EXISTING TOPSOIL IN SITU (non-stockpiled)

4.1. GENERAL

This procedure is recommended to be followed when the Department wishes to sample and test existing topsoil in situ (naturally-occurring topsoil in its natural or original position) within the NYSDOT Right-of-Way (ROW). In situ topsoil is NOT stockpiled. Examples of reasons for such testing (in order of expected likelihood) include:

- **Testing during design**: This is recommended any time an RLA, a Consultant under the direction of (or in coordination with) an RLA, or a Sponsor’s Designated Representative desires to specify a payment item for the re-use of onsite topsoil. Sampling and testing is required to determine the suitability of the topsoil for its intended re-use and/or to assess the appropriateness of applying fertilizer or other soil amendments.

- **Testing for maintenance and operations**: A Department Residency may need specific in situ topsoil information to: assess the soil for suitable seed mixes, verify the need for soil amendments, determine the appropriate action to take in an area where desirable plant material chronically underperforms, etc.

- **Testing for research**: The Department works with universities across the state on federal and state-funded research. Research projects that involve test plots and carefully controlled conditions often require in-depth knowledge of the existing topsoil’s chemical, physical and biological composition.

- **Testing during construction**: This may be necessary if there is a need for information on suspect in situ soils during construction. For example: it is suspected that a concrete washout has compromised a planting area, potentially inhibiting or even compromising the establishment of specified plant materials.

4.2. FIELD SAMPLING PROCEDURE

4.2.1. **Field Sampler**

Topsoil samples should be taken, as appropriate, by the Department staff requesting the test results. Recommended “Field Samplers” are as follows:

- **During design**: The RLA or designee for Department-let contracts; and the Sponsor’s Designated Representative, for locally-let contracts.

- **For Maintenance and Operations**: The Maintenance Environmental Contact (MEC) or designee.

- **For research**: The Principal Investigator (PI) or designee.

- **During construction**: the EIC, Construction Environmental Contact (CEC) or designee.

4.2.2. **Notification**:

Before obtaining samples from the field, the Field Sampler should, as a courtesy, contact the General Soils Lab to inform them that samples will be forthcoming, and to indicate the quantity of samples being sent, the reason for the testing, anticipated testing parameters and turnaround (timeframe) needed.
4.2.3. **Specific Steps:**
Regardless of the size of the area to be tested, the most challenging step for in situ topsoil sampling is determining the appropriate number and distribution of sample locations that accurately represent the existing soil. A laboratory cannot improve the accuracy of non-representative samples. It is recommended that each in situ sample be a composite of several small core specimens (as described below) for efficiency in sampling/testing. Where conditions are relatively uniform, a minimum of two composite samples per acre should suffice,

A *suggested* in situ topsoil sampling procedure is as follows (modifications or an alternative to this procedure, may be needed in special areas, such as the Adirondacks, where soils are particularly thin – for instance, the default depth may be only a few inches rather than 6”):
A. Plan how the area is to be sampled before beginning.
B. Visually divide the area into sections based on defining variables such as:
   - Known or observed (variations in color/texture) soil types;
   - Different topography;
   - Observed or known past plant communities supported;
   - Different past usage (crops, sports field, fill area etc.);
   - Note any obvious anomalies such as bare patches, (assuming these are to be sampled to learn the cause).
   - Do not sample areas with known hazardous material(s) contamination.
   - If the presence of hazardous material is not known but is suspected, do not sample without ascertaining that the area poses no hazard.

C. Within each section:
   1. Dig or probe to determine the average depth of the existing topsoil layer. If this is neither feasible nor expeditious, use a default of six inches (6”);
   2. Use a random-number generating technique such as those described in ASTM D3665 (American Society for Testing and Materials) to determine the suitable frequency and horizontal distribution of core specimens required for each composite sample;
   3. Remove surface debris, stones, etc. from sample areas;
   4. Collect as many core specimens as determined appropriate for a given composite sample (avoiding anomalies) and place them in a Department granular materials sample bag or other suitably-sized container;
      - Typically, 5 to 15 core specimens per composite sample should suffice.
      - Don’t take an excessive number of core specimens when topsoil conditions are obviously uniform.
      - Take core specimens no deeper than the depth of the topsoil layer or approximately up to 6” (a T-shaped metal hand probe works best, which would yield approximately a 1” diameter core; an alternative is a hand shovel)
   5. Thoroughly mix the composite sample;
6. Line a plastic quart container from a Department soil sampling kit with the supplied plastic bag and place a sufficient quantity of this composite sample to completely fill the bag-lined container,
7. If testing of anomalies is desired, collect core specimens where the anomalies occur and keep them separate from the section composite sample(s). For each anomaly, collect a sufficient quantity of soil to completely fill the Department’s standard bag-lined container as above;
10. Seal each container’s plastic bag with the supplied twist-tie;
11. Seal all containers, including the bagged samples;
12. Log all sample information into “Site Manager” (or alternate appropriate Department construction/materials administration software). Include any “Remarks” as appropriate to indicate testing parameters (chose only from among those available - typically pH, organic matter (OM), texture and if needed, Nitrogen, Phosphorous and/or Potassium (“NPK”) content);
13. Print and affix a label identifying the sample to the outside of the container. Keep careful track of sampling locations and label samples in a logical, meaningful manner;
14. Deliver or send all samples to the Department’s General Soils Lab unless approval in writing to deliver the samples to an alternate location has been obtained from the Landscape Architecture Bureau.

5. EVALUATING (TESTING) TOPSOIL

NOTE: An initial visual inspection is a part of evaluating topsoil for Department use. This visual inspection pertains to the suitability of the stockpile for sampling and is described in Section 3.2 of this Geotechnical Control Procedure.

5.1. GENERAL

5.1.1. Handling of Samples
- The General Soils Lab performs topsoil testing (with the exception of stockpiles containing composted biosolids and special cases, below) for:
  o Department-let contracts and
  o Local contracts for which the Department is required (or elects) to provide QA oversight, or other activities.
- For Local contracts when the Department is NOT providing QA oversight, Sponsors are encouraged (but not required) to use the General Soils Lab, which will receive and process samples for Local contracts the same as for Department-let contracts.
- For samples received by the General Soils Lab for testing, the Lab conducts all of the Department’s soil testing following internal Department testing guidance. Results of the topsoil test(s) (material acceptance or rejection) are logged into Site Manager and thereby made immediately available electronically to the appropriate approving party such as
  o The EIC(s) or designated representative
- The RLA or designated representative,
- The RLPL or Sponsor’s Designated Representative(s) (with copy to the RLPL),
- The Regional Representative for non-project-specific stockpiles,
- Field Sampler with a copy to the RLA.
Others with access to Site Manager can also view the results as soon as they are entered.

The Geotechnical Engineering Bureau retains electronic copies of all results of tests it has conducted, per laboratory policy.

5.1.2. **Testing Outside the Department**

The default for topsoil testing is the General Soils Lab, however:

- For Local contracts, when the Department is **NOT** providing QA oversight, the Sponsor may elect to have topsoil samples tested by an independent soil testing lab in lieu of submitting them to the General Soils Lab.
- For Department-let contracts, if the Region has a strong justification (see below), they can request that topsoil sample(s) be sent directly to and processed by an independent soil testing lab.
  - An example of a strong justification would be when the contract for which sampling is to be done has such a highly-accelerated schedule or other extenuating circumstances that allowing the standard processing time for the General Soils Lab might jeopardize the contract.
  - The request and justification must be clearly documented in writing to the Landscape Architecture Bureau, with a copy to the General Soils Lab.
  - The Region can only proceed with such testing **after obtaining written approval from the Landscape Architecture Bureau**
  - If the Landscape Architecture Bureau **does not approve** the request, the Region must send samples to the General Soils Lab, who will proceed with testing. The Region **may not** proceed with outside testing.

5.1.3. **Special Testing Needs**

- Testing for parameters beyond pH, organic matter content and gradation can be requested, however, the General Soils Lab may or may not be able to perform a given test.

  *If the General Soils Lab HAS the capability to perform the test*, note that more time for processing will likely be required than for samples without such tests. In such cases, the General Soils Lab may elect to (or a Region may request that they) send back the test results for the "standard" topsoil material requirements (pH, organic matter content and gradation) first, to ensure that the topsoil passes on basic soil testing parameters, before conducting additional tests. If a topsoil sample fails for gradation, for instance, there is no longer a need to test the sample for additional parameters.

  *If the General Soils Lab does not typically have the capability to perform a required test*, samples must be sent to an independent soil testing lab by the Contractor at no additional cost to the Department (unless otherwise specified
in the contract documents), with results furnished to the EIC. This may entail taking two samples at each sample location, one for the General Soils Lab and one for outside testing. Contact the Landscape Architecture Bureau to discuss options such as whether permission can be granted to perform all required tests at an independent soil testing lab.

- The processing of samples requiring hydrometer tests (to determine the 2 micron particle size, which indicates the clay content) may take longer than those without that requirement, especially if the General Soils Lab has received a large quantity of such samples to process. This is due to the lab requirements of that test. If the Region’s time constraints are critical, the General Soils Lab may elect to perform a single hydrometer test on a composite sample, after each sample for a given project has been individually tested for pH, organic matter content and all non-hydrometer gradations.

5.2. RESULTS—ACCEPTANCE/REJECTION

5.2.1 Stockpile Acceptance:

- If all topsoil samples from a given stockpile meet all applicable testing parameters, the EIC/Sponsor (for contract-specific stockpiles) will notify the Contractor/Supplier that the topsoil stockpile has been "accepted". For stockpiles constructed without reference to a specific project, the Regional Representative for non-project-specific stockpiles (for the Region in which the stockpile is located) will notify the Contractor/Supplier.

- Duration of approval: Approval of a stockpile is in effect for one year from the initial approval. One-year extensions can be granted by the Department, however, the Department reserves the right to visually inspect or retest the stockpile prior to granting an extension.
  - If no topsoil is drawn from a stockpile constructed without reference to a specific contract before the approval time period has elapsed (one-year), the Contractor/Supplier may submit a written request to the Regional Representative for non-project-specific stockpiles (for the Region in which the stockpile is located) for permission to sell all or part of the approved material for use on non-Department contracts. Reasonable requests will be granted. Material withdrawn from the stockpile must be documented using the appropriate Department software form. After the approval time period lapses, the “Duration of approval” paragraph, above, is in effect.

5.2.2 Stockpile Rejection:

- Qualified rejection based on testing (for topsoil stockpiles formed for one or more active Department or Local contracts only): Topsoil stockpiles that fail to meet the pH and/or organic matter material requirements ONLY may be amended “in place”, meaning the stockpile may be reworked in its original location prior to transport to a project location. The EIC/Sponsor’s Designated Representative will notify the Contractor/Supplier of the topsoil testing results and inform them that a plan can be submitted to amend the
topsoil stockpile in place. The procedure for amending a topsoil stockpile in place is found in §713-01 TOPSOIL, Topsoil Testing of the Standard Specifications.

- The RLA is available to assist the EIC in reviewing the test results and/or plans obtained by Contractors for amending topsoil stockpiles deficient in pH and/or organic matter.
- If the Contractor/Supplier chooses to create a new stockpile, new sampling and testing is required.

- **Rejection based on testing:** Stockpiles for which any topsoil samples fail to meet the gradation and/or special test requirements (other than organic matter content or pH) will be rejected by the Department. The EIC/Sponsor will notify the Contractor/Supplier and inform them of the rejection and the requirement to dispose of the stockpile in accordance with Section 7 of this document.

- **Rejection based on non-compliance:** The Department may reject a stockpile at any time before, during or after testing based on non-compliance with the requirements and/or the intent of the requirements described in this Geotechnical Control Procedure. In such cases, the Department will notify the Contractor/Supplier via a letter, with a copy to the Director of the Landscape Architecture Bureau.
6. USE OF APPROVED TOPSOIL

6.1. TOPSOIL STOCKPILE APPROVED FOR ONE OR MORE SPECIFIC CONTRACTS

Only stockpiles that have been tested and approved, as noted above, shall be used as sources of topsoil material for Department contracts. Stockpiled topsoil material may be used only for the material specification (and corresponding payment item) for which the test results indicate full compliance. Once the EIC authorizes a Contractor/Supplier to draw material from the stockpile, the Contractor/Supplier is required to provide the EIC with written documentation no later than three (3) working days after the material is taken out of the stockpile of the contract "D" number(s) the quantity of material removed from the stockpile and the date the material was taken. The EIC will enter this into Site Manager or other appropriate current Department software.

Approval of a topsoil stockpile will not relieve the Contractor/Supplier from the responsibility of properly installing, in its intended position, a material which conforms to all of the material specification requirements for the topsoil pay item. If the EIC or representative observes a material being placed on-site that appears not to conform to the specification requirements or observes visual differences in the material, the EIC or representative may obtain quality assurance samples and submit them to the General Soils Lab for evaluation. These samples may be taken at any location where topsoil has been placed. Testing results from these samples not conforming to the specification requirements may be the basis for rejection, removal and disposal of the material.

6.2. TRANSFER OF STOCKPILES APPROVED FOR A SPECIFIC CONTRACT

The Department may allow a Contractor to use topsoil from a stockpile approved for use under one contract on a second contract.

- Proposals to move topsoil into the Adirondack Park from outside the Park’s boundary (aka the “Blue Line”) should be discouraged, to avoid introducing non-native or invasive species.
- Transfers involving any other locations with special ecological needs should only be considered for very restricted applications such as when there are no other sources available.

Appropriate transfers of material from one contract to another can be considered on both Department or Local contracts according to the following procedure:

1. The Contractor requesting the transfer shall submit the following to the EIC for the project from which the transfer is proposed:
   - The location and number of the stockpile,
   - The present owner of the material, including address,
   - The contract "D" number for which the stockpile was approved,
   - The contract "D" number of the project to which the topsoil is to be transferred,
   - The estimated total quantity of material in the stockpile,
   - The quantity of material to be used in the "new" contract,
• The payment item for the topsoil (must be the same payment item for both contracts), and
• Concurrence from the EIC for the project to which the topsoil is proposed to be transferred,

2. If the EIC for the project from which the transfer is proposed concurs with the Contractor’s proposal, the EIC will submit the request and supporting information to the Regional Construction Engineer (RCE). Copies of the request and supporting information should be supplied to the Landscape Architecture Bureau, Regional Construction Environmental Coordinator (CEC) and the RLA.

3. The CEC and/or RLA should screen the request for any potential environmental concerns related to the transfer and share these concerns with the RCE.

4. The RCE will review and may discuss the impact of transferring topsoil from the stockpile with all involved EICs, the CEC and/or RLA.
   • This may include a review of records from the stockpile to determine the quantity of topsoil used, the quantity of topsoil remaining, and the initial estimate of the quantity evaluated in the stockpile. If the review uncovers discrepancies in the quantity of stockpile material evaluated, the request for transfer of approval may be denied.

5. The RCE will notify each involved EIC regarding his/her final determination on the stockpile transfer request. If the request is approved, the EICs will notify the Contractor/Suppliers in writing, including the location and number of the stockpile, a list of the previous contracts using the stockpile and all appropriate restrictions.

6. The involved EICs shall make the necessary entries in Site Manager to keep all electronic records and tracking consistent and up-to-date.

7. The EIC of the contract receiving the transfer will monitor and verify the quantity of stockpile material actually used on the contract.

6.3. **TOPSOIL STOCKPILE APPROVED WITHOUT REFERENCE TO A CONTRACT**

**Before using material from a stockpile approved for use without reference to a specific contract,** the EIC must verify with the Regional Representative for non-project-specific stockpiles that the stockpile has been approved (This will typically have been entered into Site Manager). Once the EIC authorizes a Contractor/Supplier to draw material from the Stockpile, the Contractor/Supplier is required to provide the EIC with written documentation, no later than three (3) working days after the material is taken out of the stockpile, of: the contract "D" number(s); the quantity of material removed from the stockpile; and the date the material was taken. The EIC will forward this information to the Regional Representative for non-project-specific stockpiles, who will enter it into Site Manager.
7. **DISPOSAL OF STOCKPILES**

Material from a rejected or expired stockpile may be disposed of or may be used in the construction of another stockpile. Stockpiles rejected because of deleterious or hazardous material shall not be used in the construction of another stockpile. If requested by the Contractor/Supplier, material from an expired stockpile that does not contain hazardous material may, with approval of the Regional Representative for non-project-specific stockpiles, be reshaped to remove surface growth, cleaned of any debris, remixed, if necessary, to provide a consistent texture and be re-evaluated.

8. **DOCUMENTATION**

All documentation of and recordkeeping for topsoil sampling and testing is electronic, using “Site Manager” (or alternate appropriate, current Department construction/materials administration software). All entry forms and a Quick Reference Guide for topsoil, including all specific information required, can be accessed through Site Manager.