



**ADDENDUM NO. 1
Issued May 20, 2008**

TO

**REQUEST FOR BIDS
FOR
CLOSURE OF THE CRRA WATERBURY BULKY WASTE
LANDFILL
(RFB Number FY08-EN-009)**

(RFB Issued May 1, 2008)

Note: Bidder is required to acknowledge this and all Addenda in Section 5(a) of the Bid Form.

The following is the second addendum being issued as part of the bid solicitation by the Connecticut Resources Recovery Authority ("CRRA") for the subject project. All bidders must acknowledge receipt of this addendum in the appropriate space on the Bid Form in order for the bid to be deemed responsive. This addendum is divided into several parts and reference is made to additional and revised documents being issued as part of this addendum. The bidders are responsible for completely reviewing the addendum and shall adjust their bid based upon the original Bid Documents and the changes incorporated by this addendum.

Note: Since the day of the mandatory pre-bid conference, CRRA has decided to include an alternate bid item in the Contract Documents for Contractor Supplied Cover Soil. This alternate item is included as Item 16 on the Bid Price Form and is detailed in the updated Contract Documents included with this addendum. Some of the questions asked during the mandatory pre-bid conference have been re-worded to take into account this change by CRRA.

1. QUESTIONS RECEIVED DURING PRE-BID CONFERENCE AT THE SITE ON MAY 8, 2008.

- (a) Is CRRA aware of any regulated or hazardous wastes in the landfill?**

Reply – No.

- (b) What is the source for fill materials to be used at the landfill?**

Reply – Contractor shall establish the landfill cap subgrade using the soil and bulky waste materials already on-site. The 18-inch thick cap layer will be provided either by CRRA or the Contractor as detailed in the revised contract documents. Topsoil will be provided by the Contractor as detailed in the revised contract documents.

- (c) How many bulky waste landfills has soil from Phoenix been used to close?**

Reply – CRRA is unaware of other Bulky Waste landfills that have been closed using Phoenix soil. CRRA is aware of Phoenix soil being used to cap MSW landfills. CRRA is also aware of Phoenix soil being used as daily cover in at least one other Bulky Waste landfill.

- (d) Will the CRRA-provided cap material be stockpiled onsite at the start of the job?**

Reply – In the event CRRA decides to provide cover soil for the project, it is CRRA's intention to have approximately 1/3 of the required landfill cover soil stockpiled on site prior to the contractor starting work.

- (e) In the event CRRA provides cover soil for the project, is there any guarantee for the amount of cover soil that CRRA will supply daily?**

Reply – CRRA makes no guarantee as to the amount of cover soil it will supply daily, but expects that all of the required cover soil (approximately 13,500CY in-place) will be delivered within five weeks of when deliveries begin.

- (f) What is the size of the filtration tubes that will be used for sediment and erosion control?**

Reply – Six inch tubes will be used..

- (g) What is the materials testing protocol and are there plans for on-site testing?**

Reply – The testing protocol for soils can be found in the revised specifications sections 02227, 02227A, and 02228, each of which are attached to this addendum. On site testing requirements are also outlined in those sections.

- (h) Is there a truck routing plan and how many trucks will enter and leave the site every day?**

Reply – Trucks will enter and exit the site off of Highland Avenue or Highview Street. Based on the quantity of soils required for the completion of the project, CRRA anticipates daily truck traffic to be between 20 and 50 trucks per day at the peak of construction. There is not a specific truck routing plan, but CRRA expects

any material delivered to the site by the Contractor would be routed to minimize impacts to residential areas.

(i) What are the hours of operation?

Reply – The site is currently not operated. During construction of the landfill cap, hours of work shall be limited to 7:00am to 3:00pm, Monday through Friday, unless otherwise approved by CRRA.

(j) Is there language in the contract for unforeseen or unanticipated conditions and, if so, what does it specify?

Reply – Please refer to Section 2.8 of the Agreement.

(k) Can you please double check the estimated area in the specifications for the Green Armor System?

Reply – The estimated area for the Green Armor System is 3,630 square yards. This is reflected on the revised Bid Price Form, dated 5-19-08.

(l) Will the Contractor have access to the property owned by the railroad?

Reply – Contractor should prepare its bid pricing assuming no access is allowed on the railroad property. CRRA is, however, attempting to meet with the rail property owner to discuss allowing access for its Contractor.

(m) What survey control data is available for the site?

Reply – Attached to this Addendum, and provided electronically on the website, is a plan detailing available survey control points. The Contractor will be responsible for obtaining any additional information required to perform the Work as described in the specifications.

(n) Will there be access to water onsite?

Reply – No.

(o) Are there any pending lawsuits on the landfill property?

Reply – CRRA is not aware of any pending lawsuits on the landfill property.

(p) What should be done with miscellaneous debris that may be encountered?

Reply – Incidental quantities of miscellaneous debris may be disposed of beneath the landfill cap.

2. QUESTIONS RECEIVED IN WRITING PRIOR TO 3:00PM DEADLINE ON MAY 15, 2008.

(a) Can we get a copy of the list of attendees at the prebid meeting?

Reply – A copy of the pre-bid meeting attendees list is included as part of this addendum.

- (b) **In Exhibit B, Section 01010, Part 1, paragraph 1.3.A, it refers to the CT DEP General Permit. Is this the permit as shown in TRC prepared Stormwater Pollution Control Plan Appendix A?**

Reply – Exhibit B, Section 01010, Paragraph 1.3 states the Contractor must register under CTDEP’s General Permit for the Discharge of Stormwater and Dewatering Wastewaters associated with Construction Activities. The registration form for this permit is included as Appendix A to TRC’s Stormwater Pollution Control Plan for the Waterbury Landfill.

- (c) **Is this the only permit that will be required?**

Reply – CRRA is unaware of any additional permits that are required in association with this project. However, it is the Contractor’s responsibility to determine any additional permits are required.

3. MODIFICATIONS TO THE CONTRACT DOCUMENTS

The following changes in the referenced sections are incorporated into the Contract Documents:

- (a) **Instructions to Bidders, Section 2:**

Replace the fifth line in the Table “Bids due at CRRA – Thursday, May 29, 2008,” with “Bids due at CRRA – Monday, June 2, 2008.”

- (b) **Instructions to Bidders, Section 9:**

Remove the following language from the first sentence: “Sealed bids shall be submitted no later than 3:00 p.m., Eastern Time, Thursday, May 29, 2008...”

Replace with “Sealed bids shall be submitted no later than 3:00 p.m., Eastern Time, Monday, June 2, 2008...”

- (c) **Section 5, Bid Price Form:**

Replace the “Bid Price Form” with “Bid Price Form (Revised 5-19-2008), attached to this Addendum 1.

- (d) **Exhibit B, General Requirements, Section 01010, Summary of Work:**

Replace “General Requirements, Section 01010, Summary of Work” with “General Requirements, Section 01010, Summary of Work (Revised 5-19-2008)”, attached to this Addendum 1.

- (e) **Exhibit C, Technical Specifications, Section 02220, Excavation, Backfill, and Re-Grading:**

Replace “Exhibit C, Technical Specifications, Section 02220, Excavation, Backfill and Re-Grading” with “Exhibit C, Technical Specifications, Section 02220, Excavation, Backfill and Re-Grading (Revised 5-19-2008)”, attached to this Addendum 1.

(f) Exhibit C, Technical Specifications, Section 02227, Cover Soil Material:

Replace “Exhibit C, Technical Specifications, Section 02227, Cover Soil Material” with “Exhibit C, Technical Specifications, Section 02227, Cover Soil Material (Revised 5-19-2008)”, attached to this Addendum 1.

(g) Exhibit C, Technical Specifications:

Add “Section 02227A Cover Soil Material Alternate – Contractor Supplied Cover Soil”, attached to this Addendum 1.

(h) Exhibit C, Technical Specifications, Section 02228, Topsoil Material:

Replace “Exhibit C, Technical Specifications, Section 02228, Topsoil Material” with “Exhibit C, Technical Specifications, Section 02228, Topsoil Material (Revised 5-19-2008)”, attached to this Addendum 1.

(i) Exhibit B, General Requirements, and Exhibit C, Technical Specifications:

Throughout Exhibit B, General Requirements, and Exhibit C, Technical Specifications, wherever reference is made to “Section 02220, Excavation, Backfill and Re-Grading,” it should be changed to “Section 02220, Excavation, Backfill and Re-Grading (Revised 5-19-2008,” wherever reference is made to “Section 02227, Cover Soil Material,” it should be changed to “Section 02227, Cover Soil Material (Revised 5-19-2008,” and wherever reference is made to “Section 02228, Topsoil Material,” it should be changed to “Section 02228, Topsoil Material (Revised 5-19-2008).”

4. MANDATORY PRE-BID CONFERENCE ATTENDANCE ROSTER

A roster of those parties attending the mandatory pre-bid conference on May 8, 2008 is attached hereto.

END OF ADDENDUM NO. 1

MANDATORY PRE-BID CONFERENCE AND SITE TOUR ATTENDEE LIST PAGE 1 OF 2
CLOSURE OF THE CRRA WATERBURY BULKY WASTE LANDFILL
 Waterbury Bulky Waste Landfill, Highland Avenue and Highview Street, Waterbury, Connecticut
 10:00 a.m., May 8, 2008

Name	Company	Address	Email Address	Telephone Number	Fax Number
Aian Dayton	Dayton Construction Co., Inc.	146 Bunker Hill Road, Watertown, CT 06795	dcci@opton.net	860-274-2998	860-274-6274
Ken Hubble	Hubble Construction Corporation	73 West Chippens Hill Road, Burlington, CT 06013	N/A	860-675-7575	860-675-7585
Tony DiMeco	Tony DiMeco & Sons, Inc.	1686 Baldwin Street, Waterbury, CT 06710	ardm2003@sbcglobal.net	203-753-2620	203-756-2282
Brad Bates	R. Bates & Sons, Inc.	P.O. Box 65, Clinton, MA, 01510	rbb@rbatesconstruction.com	978-365-6657	978-365-6847
Walter Archer	Park Trucking & Contracting, LLC	326 Derby Avenue, Derby, CT 06418	wwra111@aol.com	203-736-0644	203-732-3456
Charlie Burnett	President, Highland Woods Condos	1159 Highland Avenue, Waterbury, CT 06710	N/A	203-206-9713 203-757-4914	N/A
Robert Adkins	Resident, Waterbury, CT	7 Fairview Ave, Waterbury, CT 06710	va06787@sbcglobal.net	203-558-7983	
Robert Shannon	Botticello, Inc.	321 Olcott Street, Manchester, CT	botticello2722@sbcglobal.net	860-649-3665	860-645-3320
Steve Saslafsky	McVac Environmental	481 Grand Avenue, New Haven, CT 06513	sasvac@aol.com	203-498-1427	203-498-1429

**MANDATORY PRE-BID CONFERENCE AND SITE TOUR ATTENDEE LIST PAGE 2 OF 2
CLOSURE OF THE CRRA WATERBURY BULKY WASTE LANDFILL**

Waterbury Bulky Waste Landfill, Highland Avenue and Highview Street, Waterbury, Connecticut
10:00 a.m., May 8, 2008

Name	Company	Address	Email Address	Telephone Number	Fax Number
Chris Dickman	Cisco, LLC	525 Ella Grasso Blvd, New Haven, CT 06519	cdickman@snet.net	203-752-2558	203-772-1084
Willy Wiley	Stone Construction Co, Inc.	168 Main Street South, Southbury, CT 06488	4stone@sbcglobal.net	203-264-3034	203-264-3065
Dennis Colombie	Supreme Industries	216 Bougue Road, Harwinton, CT 06791	dcolombie@supremeindustries.com	860-485-0343	860-485-0349
John Hagar	Mactec Development Corp.	2000 Day Hill Road, Windsor, CT 06095	jahager@mactec.com	330-242-3703	860-219-1147
Strati Patrakis	Standard Demolition Services, Inc.	30 Nutmeg Drive, Trumbull, CT 06611	s.patrakis@demolitionservices.com	203-380-8300	203-380-8944
Brian Smith	Earth Technology, Inc.	250 Sackett Point Road, North Haven, CT 06473	bsmith@earthtechnology.com	203-230-2040	203-230-0302
Keith Sullivan	Guerra Construction Co.	154 Christian Street, Oxford, CT	keithsullivan19@yahoo.com	203-888-5069	203-888-7191

BID PRICE FORM (REVISED 5-19-08)

Bidder will complete the Work as specified in the Contract Documents for the following lump sum and unit price costs (please use itemized table below):

Item No.	Estimated Quantity	Brief Description: Unit or Lump Sum Bid in Words	Total in Figures
LUMP SUM BID ITEMS			
1	1	Mobilization/Demobilization and Incidental Construction - Mobilize to the site and demobilize after the completion of work all labor, equipment, tools, and other incidentals not covered by other bid items required for the performance of the work for the Lump Sum Price of: dollars and cents	\$
2	1	Site Preparation - Remove vegetation within the Work Area and dispose of the material as described in Section 02110 for the Lump Sum Price of: dollars and cents	\$
3	1	Silt Fence with Hay Bales - 720 LF, furnished and installed as shown on the Contract Drawings for the Lump Sum Price of: dollars and cents	\$
4	1	Silt Fence - 900 LF, furnished and installed as shown on the Contract Drawings for the Lump Sum Price of: dollars and cents	\$
5	1	Jute Netting - 7,250 SF, furnished and installed as described in Section 06642 and as shown on the Contract Drawings for the Lump Sum Price of: dollars and cents	\$
6	1	Turf Reinforcement Mat – 3,630 SY, furnished and installed as described in Section 06642 and as shown on the Contract Drawings for the Lump Sum Price of: dollars and cents	\$
7	1	Flexible Growth Media – 9,840 SY, furnished and applied as described in Section 06642 and 02900 and as shown on the Contract Drawings for the Lump Sum Price of: dollars and cents	\$

Item No.	Estimated Quantity	Brief Description: Unit or Lump Sum Bid in Words	Total in Figures
8	1	6" Fiber Filter Tubes – 1,210 LF, furnished and installed as described in Section 06642 and as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
9	1	Stone Check Dams- 5 total, furnished and installed as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
10	1	CRRA Supplied Cover Soil – Place and compact Cover Soil provided by CRRA as described in Sections 02220 and 02227, and as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
11	1	Topsoil – Provide, place and compact topsoil as described in Sections 02220 and 02228, and as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
12	1	Hydroseeding – 16,800 SY of hydroseeding as described in Section 02900 and as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
13	1	HDPE Lined Drainage Swale – 270 LF furnished and installed as described in Section 02722 and including riprap and concrete transition into swale as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
14	1	Subbase Relocation and Regrading - Regrade and relocate approximately 20,000 cubic yards of subgrade as directed by the Engineer, as described in Section 02220, to achieve final cap subgrade within the Work Area as indicated on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$
15	1	Temporary Facilities - Provide temporary facilities as described in Section 01010 and as shown on the Contract Drawings for the Lump Sum Price of: dollars cents and	\$

Item No.	Estimated Quantity	Brief Description: Unit or Lump Sum Bid in Words	Total in Figures
N/A	N/A	TOTAL FOR CONTRACT WITH CRRA-SUPPLIED COVER SOIL (BID ITEMS #1 THROUGH #15): dollars and cents	\$
16	1	Contractor Supplied Cover Soil – Provide, place, and compact approximately 13,500 cubic yards (compacted in-place quantity) of Cover Soil as described in Sections 02220 and 02227-A, and as shown on the Contract Drawings for the Lump Sum price of: dollars and cents	\$
N/A	N/A	TOTAL FOR CONTRACT WITH CONTRACTOR SUPPLIED COVER SOIL (BID ITEMS #1 THROUGH #16 (EXCLUDING BID ITEM #10 – CRRA SUPPLIED COVER SOIL): dollars and cents	\$

Bidder affirms that the above lump sum and unit price costs represent the entire cost to complete the Work in accordance with the Contract Documents, and that no claim will be made on account of any increase in wage scales, material prices, delivery delays, taxes, insurance, cost indexes or any other rates affecting the construction industry or this Project, and that each and every such claim is hereby expressly waived by Bidder.

Name of Bidder (Firm):	
Signature of Bidder Representative:	
Name (Type/Print):	
Title:	
Date:	

SECTION 01010 (REVISED 5-19-08)

SUMMARY OF WORK

PART 1 - GENERAL

1.1 Related Documents

- A. Contract Documents and general provisions of the Contract, including General and Supplementary Conditions and other Technical Specifications, apply to this Section.

1.2 Work Covered By Contract Documents

- A. The Project is entitled, "Closure of the CRRA Waterbury Bulky Waste Landfill". The Landfill, as shown on the Contract Drawings, will be regraded, capped, and landscaped. The work involves surveying, mobilization and establishing temporary facilities, establishing sediment and erosion controls, preparation of the site, preparing the grades, constructing the surface cap and drainage structures, placing topsoil, and landscaping.
- B. The Contractor shall include in its bid all items required in order to carry out the intent of the Work as described, shown, and implied in the Contract Documents.
- C. It shall be the Contractor's responsibility upon discovery to immediately notify CRRA in writing, of errors, omissions, discrepancies, and instances of non-compliance with applicable codes and regulations within the documents. Any additional costs arising from the Contractor's failure to provide such notification shall be borne by the Contractor.
- D. The Contractor shall include in his bid all items required in order to carry out the intent of the Work as described, shown, and implied in the Contract Documents.

1.3 Work Sequence

- A. Contractor shall register under the CTDEP General Permit for Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities. Contractor shall pay all fees associated with the preparation of the registration application and the application itself.
- B. The Contractor shall mobilize all equipment, labor, tools, materials, and incidentals to the site. Temporary facilities may include a construction trailer and sanitary facilities. The Contractor shall demobilize following the completion of work and shall restore all storage areas to their condition prior to commencing work.
- C. CRRA may obtain all or a portion of the cover soil required for the 18 inch thick

cover layer and in such case shall arrange for transport of this material to the site. Contractor shall include in its bid an alternate price in which it provides cover soil (Bid Item 16). Based on its own ability to obtain cover soil, CRRA may elect to provide all, a portion, or none of the cover soil. Contractor shall note that CRRA shall consider the price difference between Bid Items 10 and 16 to be the cost to the Contractor to provide cover soil.

Contractor shall obtain all topsoil required for the 6 inch thick topsoil layer and shall arrange for transport of this material to the site. Contractor shall be responsible for the onsite handling of soil and topsoil after it has been transported to the site and dumped near stockpile areas.

- D. Prior to mobilization to the site the Contractor shall have all property boundaries and limits of the surface cap construction determined and staked in the field by a licensed land surveyor. The Contractor may use the existing topographic survey data for initial surface elevations. After the boundaries have been marked, the Contractor shall mobilize to the site and prepare the site for construction by installing sediment and erosion controls as shown on the Contract Drawings. Following this, the Contractor shall prepare the site for construction by clearing the area of cap construction as marked in the field of all vegetation. Wastes generated during clearing may be chipped and disposed of onsite. Wastes not chipped must be transported offsite for disposal.
- E. The Contractor shall complete the grading of the subgrade within the cap area as shown on the Contract Drawings. Prior to initiating construction of the landfill cap, the Contractor shall perform a survey to determine that the subgrade elevations have been achieved. The Contractor shall be responsible for regrading the surface and the relocation of subgrade material on the site. The Contractor shall also be responsible for determining that all waste materials beyond the southern property boundary have been removed and placed within the cap area. All grades prior to construction of the landfill cap shall be no greater than 33%, nor less than 4%.
- F. The Contractor shall place and compact 18 inches of cover soil on the subgrade in accordance with the provisions of the Contract Documents. At CRRA's discretion, CRRA or Contractor shall obtain the cover soil and arrange for transport to stockpile areas at the site. The Contractor shall be responsible for handling of cover soil once it has been dumped near the stockpile area. Contractor shall be responsible for providing laboratory testing of cover soil as outlined in these contract documents.
- G. The Contractor shall construct surface water drainage control structures in accordance with the provisions of the Contract Documents. The Contractor shall provide a final as-built survey of the surface drainage control structures showing topography and spot elevations, prepared and sealed by a Connecticut licensed surveyor. Copies of all field notes shall accompany the as-built survey.
- H. The Contractor shall provide place and compact 6 inches of topsoil as specified in

the Contract Documents. Contractor shall be responsible for providing all physical and chemical testing of topsoil as outlined in these contract documents.

- I. The Contractor shall place surface erosion control materials, turf reinforcement mat and jute matting, and fiber filter tubes, in accordance with the provisions of the Contract Documents. Vegetation shall be established by applying the flexible growth media mixed with the specified grass seed mixture to the areas indicated on the Contract Drawings. Areas not indicated as requiring flexible growth media can be hydroseeded with the specified grass seed mixture. The Contractor shall ensure that vegetation is established by maintaining sediment and erosion controls and water as necessary until the work is accepted by CRRA. The Contractor shall provide a final as-built survey of the final surface grades showing topography and spot elevations, prepared and sealed by a Connecticut licensed surveyor. Copies of all field notes shall accompany the as-built survey.
- J. Contractor shall employ dust control measures as necessary to prevent dust. In no case shall dust be allowed to migrate beyond property line of site. Dust control measures may include but not be limited to the use of water, calcium chloride, or other surface treatment measures.
- K. Contractor shall document all CQA activities required by the contract documents and provide such documentation to CRRA at its request.

1.4 Miscellaneous Provisions

A. Examination of the Site:

- 1. It is not the intent of the Contract Documents to show all existing conditions.
- 2. Contractor should investigate and satisfy itself as to the conditions affecting the work, including but not restricted to those bearing upon transportation, handling, and storage of materials, availability of labor, water, electric power, uncertainties of weather, roads or similar physical conditions of the ground, and facilities needed preliminary to and during the prosecution of the Work. Any failure by the Contractor to acquaint itself with the available information shall not relieve it from the responsibility for estimating properly the difficulty and cost of successfully performing the Work.

B. Decontamination of Vehicles

- 1. The Contractor shall be responsible for decontaminating vehicles used in construction. Dry decontamination methods will be allowed if sufficient to prevent tracking of soil and other materials offsite. If any tracking of soil or other materials occurs off-site, Contractor shall promptly clean such areas.

1.5 Contractor Use Of Premises

- A. General: The Contractor shall have full access to the Work Area. There are no

operations at the facility that might interfere with the cap construction.

- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
1. The Contractor shall confine his operations, including storage or materials, supplies, equipment, and incidentals to the areas specified in the Contract Documents.
 2. Existing access roads and drives are to be kept free and clear at all times. All deliveries for the project are to enter the Waterbury Landfill property between 7 AM and 3 PM, Monday through Friday. All Contractors are to check all roadways for accessibility and clearances for deliveries of all large material and equipment. Only designated areas shall be used for parking and storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 3. The Contractor shall be responsible for keeping the work area clean and shall pick up rubbish and debris generated by the Contractor and shall promptly remove the material from the site.
 4. Contractor's daily access to the site shall be as indicated on the Contract Documents. Parking for the Contractor's employees shall be limited to an area designated by CRRA and the Contractor may be required to provide identification stickers for all vehicles.
 5. Special precautions shall be taken to protect all drainage systems near the Work Area. Prevent any and all sediment, debris, or other materials from getting into these systems. Should any sediment, debris, or other materials get into these systems or if any damage occurs to them, the Contractor shall immediately contact CRRA. The Contractor shall be fully responsible for all costs associated with additional cleaning and repairs caused by neglecting to protect the drainage systems.
 6. No signs, other than those approved by CRRA, shall be visible on the premises.
 7. Contractor shall contact Call-Before-You-Dig prior to starting construction. Contractor shall protect all utilities that may be affected by the work.

1.6 Work Site Location

- A. CRRA Waterbury Landfill
Corner of Highland Avenue and Highview Street
Waterbury, CT

PART 2 - PRODUCTS

None

PART 3 - EXECUTION

None

END OF SECTION

SECTION 02220 (REVISED 5-19-08)
EXCAVATION, BACKFILL AND RE-GRADING

PART 1 - GENERAL

1.1 Description

A. Scope:

1. The Contractor shall provide all labor, materials, tools, equipment, tests and incidentals required to perform all excavating, backfilling, compaction, and regrading of earth materials and solid waste as shown, specified, and required for the purpose of constructing the landfill cap, drainage structures, embankments, grading, and other facilities required to complete the Work in every respect.
2. All of the necessary excavation, backfilling and compaction of soil material and solid waste to achieve the landfill cap subgrade contours as shown on the Contract Drawings.
3. All temporary means needed to maintain the site in a continuously dewatered condition.
4. All necessary testing of materials as required in the Contract Documents.
5. All necessary preparation of subgrade for the landfill cap, pavements, roadways, soil and fill material, erosion control geosynthetics is included.
6. All necessary preparation required to repair displaced and eroded soil materials on subgrade, general fill layers, and vegetative layer prior to final acceptance is included.
7. All temporary means needed to prevent discharge of sediment to water courses due to dewatering systems or erosion during construction are included. Such means are included in the Stormwater Pollution Control Plan attached to these Contract Documents.
8. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition.
9. For Bid Item 10, CRRA shall be responsible for all necessary earthwork required to load and transport Cover Soil Material, as defined herein; and unload near stockpiles. The Contractor shall be responsible for placing and

compacting subgrade and the landfill cap materials. All necessary earthwork that is designated as the responsibility of the Contractor is included.

If CRRA selects the Alternate Bid Item 16 instead of Bid Item 10, Contractor shall be responsible for all necessary earthwork required to load and transport Cover Soil Material, as defined herein; and unload near stockpiles. The Contractor shall be responsible for placing and compacting subgrade and the landfill cap materials. In this case, Contractor is also responsible for all physical and chemical testing of the Cover Soil. All necessary earthwork that is designated as the responsibility of the Contractor is included.

10. All necessary earthwork required to cut, fill and grade existing grade to within 1-inch of specified subgrade.
11. All necessary earthwork required to excavate, load and temporarily stockpile on-site soil material; unload, place, compact and grade the subgrade material, embankment fill, structural fill, cover soil, and topsoil is included.

B. Related Sections:

1. Section 02227(Revised 5-19-08), Cover Soil Material
2. Section 02227A, Cover Soil Material Alternate, Contractor Supplied Cover Soil
3. Section 02228(Revised 5-19-08), Topsoil
4. Section 02900, Turf Establishment and Landscaping

C. General:

1. The Contractor shall be required to excavate waste material and temporary soil cover from the site as directed by the Engineer and use the same as compacted backfill to achieve the landfill cap subgrade contours shown on the Contract Drawings.
2. Contractor is required to use Cover Soil Material provided by CRRA, or, supplied by Contractor if alternate Bid Item 16 is chosen, to achieve final landfill cap configuration.
3. All Topsoil will be obtained, tested, and transported to the site by the Contractor.
4. Fill materials and their respective applications include, but are not limited to the following:

Fill Material	Application
Cover Soil	Layer overlying Subgrade
Topsoil	Vegetative Layer
Relocated Wastes	Cap Subgrade

5. Prior to mobilization to the site to construct the landfill cap, the Contractor shall perform a survey of the Work Area to determine areas that will require cut or fill to achieve the final subgrade surface grade. The Contractor will be responsible for regrading the surface of the Work Area to achieve this final grade. It may be necessary for the Contractor to move large amounts of fill to achieve the final grades. Payment will be made on a lump sum basis. Contractor will determine means and methods to achieve final grades. All grades prior to placement of subbase shall be no greater than 33%, nor less than 4%. Contractor shall remove all visible pieces of metal within the waste material layer prior to placement of subbase.
 6. The Contractor shall provide a final as-built survey of lines and grades showing topography and spot elevations prepared and sealed by a Connecticut licensed surveyor for finished grades. Copies of all field notes shall accompany the as-built surveys and shall be submitted prior to the request for payment.
 7. Contractor's test field data must indicate compliance with the Contract Documents in order to be accepted. The data must be presented to and accepted by the Engineer prior to placement of the next lift. Contractor must assist the Engineer in doing periodic conformance testing while the work is in progress. The field data must be certified and sealed by a Connecticut licensed Professional Engineer. The Owner reserves the right to have the Engineer present to observe performance of testing or collection of test samples to be submitted by the Contractor. The Contractor must notify the Owner prior to performing any testing or collecting test samples such that the Engineer can be present for the Work. Test data will not be accepted without the notification to the Owner prior to performance of tests or collection of samples.
- D. The Contractor shall maintain open access to roads at all times during landfill cap construction. The Contractor shall not block the existing roads at any time. If access needs to be temporarily blocked during construction, the Contractor shall provide written notice to CRRA at least one week prior to needing to block this access.

1.2 Quality Assurance

A. Tests:

1. The services of a qualified testing laboratory shall be engaged by the Contractor to make tests and determine acceptability of the fill or material as listed below. The Contractor will be responsible for onsite testing of compaction based on the test data obtained by the Contractor or CRRA as indicated herein.
2. Required Tests:

- a. Topsoil from Off-Site - Perform one test for every 3000 cubic yards of material used, or portion thereof:

- 1 Total Organic Content,
- 2 Gradation-ASTM D 422,
- 3 Priority Pollutant Semivolatile Organic Compounds (SVOCs)-EPA Method 8270,
- 4 Priority Pollutant Volatile Organic Compounds (VOCs)-EPA Method 8260,
- 5 Priority Pollutant Metals-EPA Method 6010 (Hg Method),
- 6 Pesticides-EPA Method 8081,
- 7 PCBs-EPA Method 8082,
- 8 Herbicides-EPA Method 8151.

All environmental test results shall be in conformance with the criteria for Residential Direct Exposure Criteria (RDEC) and Class GB Groundwater Pollutant Mobility Criteria (GBPMC) of the CTDEP's Remediation Standard Regulations (RSRs), 22a-133k-1 to k-3 of the Regulations of Connecticut State Agencies.

Total Organic Content of Topsoil shall be between 5% and 15%.

Topsoil shall be free of stones larger than 1-1/4 inches.

Topsoil must demonstrate minimum interface friction angle of 29 degrees as per ASTM D 3080.

- b. Cover soil material provided by CRRA shall be tested (sampled at a rate of one every 3,000 cubic yards or portion thereof) by contractor for: Modified Proctor Density ASTM D 1557. In-place compaction, ASTM D 1556, ASTM D 6398-07, and Depth Test Hole.

- c. Cover Soil from off-site. Contractor shall obtain the cover soil and perform all necessary physical and chemical testing on the material. Perform one test for every 3,000 cubic yards of material used, or portion thereof for the following:

- 1 Gradation-ASTM D 422,
- 2 Hydraulic Conductivity-ASTM D 5084,
- 3 Direct Shear-ASTM D 3080,
- 4 Density-ASTM D 1557,
- 5 Priority Pollutant Semivolatile Organic Compounds (SVOCs)-EPA Method 8270,
- 6 Priority Pollutant Volatile Organic Compounds (VOCs)-EPA Method 8260,
- 7 Priority Pollutant Metals-EPA Method 6010 (Hg Method),
- 8 Pesticides-EPA Method 8081,

- 9 PCBs-EPA Method 8082,
- 10 Herbicides-EPA Method 8151.

All environmental test results shall be in conformance with the criteria for Residential Direct Exposure Criteria (RDEC) and Class GB Groundwater Pollutant Mobility Criteria (GBPMC) of the CTDEP's Remediation Standard Regulations (RSRs), 22a-133k-1 to k-3 of the Regulations of Connecticut State Agencies.

Cover Soil must meet the following physical requirements:

1 Cover Soil must **EITHER** have a maximum hydraulic conductivity of 1×10^{-5} cm/sec when compacted within 3% of optimum moisture at 90% maximum density per ASTM D 1557, **OR**; Cover Soil must have a minimum of 15% of fines passing the #200 sieve.

2 Cover Soil must have the following grain size distribution:

Sieve #	% Passing
3-inch	100
1-inch	85-100
#10	50-100
#40	20-85
#200	15-40

3 Cover Soil must demonstrate a minimum internal angle of friction of 30 degrees per ASTM D 3080.

- d. In-place Density testing using ASTM D 6938-07b, Density of Soil and Water Content in Place by Nuclear Methods.
- e. Depth Test Hole.

B. Permits and Regulations:

- 1. Contractor shall obtain all necessary permits for work.
- 2. Contractor shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction and any other permits required for this project.
- 3. Contractor shall comply with the CTDEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.

C. Reference Standards: Comply with applicable provisions and recommendations of the following except as otherwise shown or specified.

1. ASTM D 1556, Density of Soil in Place by the Sand-Cone Method.
2. ASTM D 6938-07, Density and Water Content of Soil in Place by Nuclear Methods.

1.3 Submittals

A. Test Reports:

1. Submit six (6) copies of the following reports directly to the Engineer from the testing service:
 - a. Required topsoil test data as per 1.2(A)(2)(a) and (b)
 - b. Compliance testing during construction.
 - c. Field density tests.
2. Testing shall conform to the requirements as indicated in the specific material specification sections.

B. Registration under CTDEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities. CRRA has provided a Stormwater Pollution Control Plan which addresses temporary means needed to prevent discharge of sediment to water courses because of dewatering systems or erosion and off-site removal and disposal of all water that has contacted exposed solid waste material as a result of construction activities. The Contractor shall be required to comply with all provisions of the approved plan.

1.4 Job Conditions

- A.** Existing Structures: Shown on the Drawings are certain surface and underground structures adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of the Contractor. The Contractor shall explore ahead of the required excavation to determine the exact location of all structures. They shall be supported and protected from injury by the Contractor. If they are damaged, broken or injured, they shall be restored immediately by the Contractor at his expense. Contractor shall contact Call-Before-You-Dig prior to beginning construction.
- B.** Existing Utilities: Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.
1. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the Engineer immediately for directions as to procedure. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

2. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.
- C. Use of Explosives:
1. The use of explosives will not be permitted.
- D. Protection of Persons and Property: Barricade open excavations occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
1. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- E. Dust Control: Contractor shall conduct all of his operations and maintain the area of his activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. Calcium chloride shall be used to control serious or prolonged dust problems, subject to approval of Engineer.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

- A. Not Applicable.

2.2 Soil Materials

- A. Cover Soil:

1. Cover soil shall be used where shown and specified, including, but not limited to subgrade preparation of access roads.
2. Cover soil in accordance with Section 02227 or 02227A, as applicable.

- B. Topsoil:

1. Topsoil shall be placed where shown or specified or directed by Engineer.
2. All Topsoil will be obtained, tested, and transported to the site by the Contractor. The Owner reserves the right to have the Engineer observe the loading of Topsoil from the source identified by the Contractor. The Contractor shall notify the Owner prior to any loading of Topsoil and materials will not be accepted if this prior notification is not provided.
3. See Section 02900 "Turf Establishment and Landscaping" for full specifications.

PART 3 - EXECUTION

3.1 Inspection

- A. Engineer will examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Contractor of conditions he may find that are detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.

3.2 Site Preparation

- A. Vegetation will be cleared from the work area. Contractor will grade the subbase surface to achieve grades as shown on the Contract Drawings prior to construction of the landfill cap. The Contractor will excavate excess subgrade material and temporary cover soil to achieve the subgrade contours and place the excavated in areas requiring fill. The excavated material used as backfill shall be compacted in loose lifts not exceeding 12 inches thickness with four passes of a vibratory roller.

3.3 Excavation

- A. Contractor shall perform all excavation required to complete the Work as directed by the engineer. Excavations shall not require drilling and blasting.
- B. Material Storage: Stockpile satisfactory excavated materials in approved areas, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
 - 1. Locate and retain soil materials at locations indicated on Contract Drawings.
 - 2. Contractor shall ensure temporary erosion & sediment control measures are in place in accordance with the Contract Drawings and the Stormwater Management Plan.

3.4 Unauthorized Excavation

- A. All excavation outside the lines and grades shown, and which is not approved by the Engineer, together with the removal and disposal of the associated material shall be at the Contractor's expense. The unauthorized excavation shall be filled and compacted with select backfill by the Contractor at his expense. Any damage, disturbance, or settlement that occurs as a result of the Contractor's stockpiling of material or equipment on site shall be the responsibility of the Contractor to repair and/or supply additional materials to compensate for settlement caused by the Contractor's actions.

3.5 Grading

- A. General: Uniformly grade areas within limits of grading under this Section,

including adjacent transition areas. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Compaction:

1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

3.6 Field Quality Control

A. Quality Control Testing During Construction:

1. Contractor shall establish and maintain a 50 foot grid for control of field density testing.
2. Compaction testing shall be performed by contractor on a 50 foot grid in the presence of the Engineer.
3. Compaction testing shall be performed according to ASTM D 6938-07, Density of Soil and Moisture Content in Place by Nuclear Methods.
4. Compaction testing shall be presented and accepted by the Engineer prior to placement of the next lift. Fill Compaction test results on the 50 foot grid interval to be signed and stamped by a professional engineer licensed in the State of Connecticut prior to submission to the Engineer.
5. Field compaction testing shall be included in each of the bid items. Field compaction testing for additional compacted backfill and structural fill shall be included in the respective bid items.

PART 4 - RE-GRADING MEASUREMENT AND PAYMENT

A. Method of Measurement

1. The Contractor shall re-grade the landfill as necessary to meet the pre-cap subgrade elevations depicted on the drawings.

B. Basis for Payment

1. The Contractor will be paid at the contract lump sum price for "Sub Base Re-Location and Re-Grading". The price shall include all labor, equipment, materials and tools incidental to the excavation, relocation, regrading, placement, covering, and compaction of waste material and temporary cover soil to achieve the landfill cap subgrade shown on the Contract Drawings.

END OF SECTION

SECTION 02227 (REVISED 5-19-2008)

COVER SOIL MATERIAL

PART 1 - GENERAL

1.1 Description

A. Scope:

1. The work to be performed under this Section shall include materials, all labor, tools, equipment, and testing for placing, grading, and compacting Cover Soil as shown on the Contract Drawings or as otherwise directed by the Engineer.
2. All necessary testing of materials as required in the Contract Documents.
3. The Contractor's field test data shall indicate compliance with the Contract Documents in order to be accepted. The field data shall be certified by the Engineer.
4. All soil layer thicknesses referenced in this Section represent the installed compacted thickness.
5. Items listed in Section 02220(revised 5-19-08), Part 1 - General, 1.1 Description also apply.
6. The landfill cap shall consist of 18 inches of cover soil and 6 inches of topsoil placed and compacted on top of the subgrade. Requirements for cover soil are specified within this section. Section 02228(revised 5-19-08) provides the requirements for topsoil.

B. Related Sections:

1. Section 02220(revised 5-19-08), Excavation and Backfill and Regrading
2. Section 02228(revised 5-19-08), Topsoil

1.2 Quality Assurance

A. Tests:

1. CRRA shall obtain the cover soil and perform all necessary chemical testing on the material. The Contractor shall assume that cover soil stockpiled on site is suitable for use. Contractor shall perform laboratory density testing as per ASTM D 1557 for every 3,000 cubic yards of cover soil used.

2. In-place Density testing using ASTM D 6938-07b, Density of Soil and Water Content in Place by Nuclear Methods.
 3. Depth Test Hole
- B. Permits and Regulations:
1. The Contractor shall obtain all necessary permits for work.
 2. The Contractor shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- C. Reference Standards: Comply with applicable provisions and recommendations of the following except as otherwise shown or specified.
1. Modified Proctor Density Test ASTM D 1557
 2. ASTM D 6938-07b, Density of Soil and Water Content in Place by Nuclear Methods.

1.3 Submittals

- A. Test Reports:
1. Submit six (6) copies of the following reports directly to Engineer from the testing service, with copy to the Contractor:
 - a. Laboratory density tests
 - b. Field density tests.
 2. Testing shall conform to the following as a minimum.
 - a. Laboratory density tests:
 - (1) Cover Soil material: The Contractor shall conduct one (1) test every 3,000 cubic yards or portion thereof using ASTM D 1557.
 - b. Field density tests:
 - (1) Cover Soil material: For both 9 inch lifts, the Contractor shall perform density testing on a 50 foot grid. A Troxler Nuclear Moisture-Density gauge shall be used for all field density tests. Test locations shall be tied into a site grid system 50 foot square. Test reports shall note the grid location point and lift for each test. The Contractor shall establish and maintain grid points for each lift of material placed.
 - c. Depth Test Hole:

- (1) Cover Soil Material: for both nine (9) inch lifts, the Contractor shall hand excavate test holes on a 50 foot grid to confirm the in-place depth of cover soil. Test locations shall be tied into a site grid system 50 foot square. Test reports shall note the grid location point and lift for each test. The Contractor shall establish and maintain grid points for each lift of material placed.
- B. CRRA has prepared a Stormwater Pollution Control Plan in accordance with the CTDEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities. This plan shall address temporary means needed to prevent discharge of sediment to water courses because of dewatering systems or erosion and off-site removal and disposal of all water that has contacted exposed solid waste material as a result of construction activities.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

- A. Not Applicable.

2.2 Cover Soil

- A. Cover Soil
1. Cover Soil material shall be obtained by CRRA and CRRA will be responsible for chemically testing the material to determine its suitability for use. The Contractor may assume that Cover Soil material delivered to the site meets the specified requirements. Contractor shall perform grain size and density testing as prescribed herein.

PART 3 - EXECUTION

3.1 Installation

- A. The Engineer or his representative will examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Contractor of conditions that the Contractor may encounter that are detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Cover material shall be placed on all areas as shown on the Drawings or as directed by the Engineer and as described in these Specifications. The thickness of each lift prior to compaction of the cover material shall be no greater than twelve (12) inches. Total compacted thickness of the cover material shall be as shown on the Contract Drawings. Compaction of the Cover Soil material shall be accomplished by suitable compaction equipment, subject to approval by the Engineer.

- C. The cover material shall be placed and compacted as necessary to achieve the required permeabilities and shear strength. The cover material shall be compacted to 90 percent of the Modified Proctor Density. The moisture content of the material shall be maintained within 3 percent of optimum moisture. Contractor shall not work wet cover material that cannot support equipment. Contractor shall perform density testing as prescribed herein.
- D. If changes in the material occur, the Engineer shall verify the material is from an approved source and the Engineer may require additional testing. If the material is not from an approved source or if the material is determined to not be acceptable by the Engineer, the Contractor shall be notified that the material is not approved.
- E. The thickness of the in-place cover material will be checked after the completion of the work on a grid pattern not to exceed 50-foot by 50-foot by digging, by hand, with a shovel in the presence of and as directed by the Engineer. The size of the test hole shall not be less than one-foot in diameter. Measurements shall be made perpendicular to the slope. The Contractor shall be responsible for digging holes in the cover material to allow for the measurements to be taken by the Engineer. After measurements have been made, the Contractor shall backfill the holes with cover material, and hand tamp.
- F. The Contractor shall be responsible to repair damage to the cover material between testing and acceptance.
- G. All soil samples are to be obtained under the direction of the Engineer.
- H. Final acceptance of cover material is dependent on:
 - 1. Satisfying the minimum requirement of thickness from the selected alternative as shown on the Contract Drawings measured perpendicular to the slope.
 - 2. Cover material meeting all the physical/analytical properties listed in Section 02227.
- I. Any damage, disturbance, or settlement that occurs as a result of the Contractor's stockpiling of material or equipment on site shall be the responsibility of the Contractor to repair and/or supply additional materials to compensate for settlement caused by the Contractor's actions.

3.2 Cover Soil

- A. Cover Soil
 - 1. Quality Control Testing:
 - a. The Engineer shall perform quality control testing during construction. This testing is in addition to all other tests required to be conducted by

the Contractor.

- b. The Engineer shall collect representative samples from each material source of Cover Soil for testing at a frequency determined by the Engineer.

END OF SECTION

SECTION 02227A
COVER SOIL MATERIAL ALTERNATE – CONTRACTOR
SUPPLIED COVER SOIL

PART 1 - GENERAL

1.1 Description

A. Scope:

1. The work to be performed under this Section shall include materials, all labor, tools, equipment, and testing for providing, placing, grading, and compacting Cover Soil as shown on the Contract Drawings or as otherwise directed by the Engineer.
2. All necessary testing of materials as required in the Contract Documents.
3. The Contractor's field test data shall indicate compliance with the Contract Documents in order to be accepted. The field data shall be certified by the Engineer.
4. All soil layer thicknesses referenced in this Section represent the installed compacted thickness.
5. Items listed in Section 02220(revised 5-19-08), Part 1 - General, 1.1 Description also apply.
6. The landfill cap shall consist of 18 inches of cover soil and 6 inches of topsoil placed and compacted on top of the subgrade. Requirements for cover soil are specified within this section. Section 02228(revised 5-19-08) provides the requirements for topsoil.

B. Related Sections:

1. Section 02220(revised 5-19-08), Excavation and Backfill and Regrading
2. Section 02228(revised 5-19-08), Topsoil

1.2 Quality Assurance

A. Tests:

1. The services of a qualified testing laboratory shall be engaged by the Contractor to make tests and determine acceptability of the fill or material as

listed below. The Contractor will be responsible for onsite testing of compaction based on the test data obtained by the Contractor.

2. Required Tests:

a. Cover Soil from off-site. Contractor shall obtain the cover soil and perform all necessary physical and chemical testing on the cover soil. Perform one test for every 3,000 cubic yards of cover soil used, or portion thereof for the following:

- 1 Gradation-ASTM D 422,
- 2 Hydraulic Conductivity-ASTM D 5084,
- 3 Direct Shear-ASTM D 3080,
- 4 Density-ASTM D 1557,
- 5 Priority Pollutant Semivolatile Organic Compounds (SVOCs)-EPA Method 8270,
- 6 Priority Pollutant Volatile Organic Compounds (VOCs)-EPA Method 8260,
- 7 Priority Pollutant Metals-EPA Method 6010 (Hg Method),
- 8 Pesticides-EPA Method 8081,
- 9 PCBs-EPA Method 8082,
- 10 Herbicides-EPA Method 8151.

All environmental test results shall be in conformance with the criteria for Residential Direct Exposure Criteria (RDEC) and Class GB Groundwater Pollutant Mobility Criteria (GBPMC) of the CTDEP's Remediation Standard Regulations (RSRs), 22a-133k-1 to k-3 of the Regulations of Connecticut State Agencies.

Cover Soil must meet the following physical requirements:

- 1 Cover Soil must **EITHER** have a maximum hydraulic conductivity of 1×10^{-5} cm/sec when compacted within 3% of optimum moisture at 90% maximum density per ASTM D 1557, **OR**; Cover Soil must have a minimum of 15% of fines passing the #200 sieve.
- 2 Cover Soil must have the following grain size distribution:

Sieve #	% Passing
3-inch	100
1-inch	85-100
#10	50-100
#40	20-85
#200	15-40

3 Cover Soil must demonstrate a minimum internal angle of friction of 30 degrees per ASTM D 3080.

- b. In-place Density testing using ASTM D 6938-07b, Density of Soil and Water Content in Place by Nuclear Methods.
- c. Depth Test Hole.

B. Permits and Regulations:

- 1. The Contractor shall obtain all necessary permits for work.
- 2. The Contractor shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

C. Reference Standards: Comply with applicable provisions and recommendations of the following except as otherwise shown or specified.

- 1. Modified Proctor Density Test ASTM D 1557
- 2. ASTM D 6938-07b, Density of Soil and Water Content in Place by Nuclear Methods.

1.3 Submittals

A. Test Reports:

- 1. Submit six (6) copies of the following reports directly to Engineer from the testing service, with copy to the Contractor:
 - a. Laboratory density tests
 - b. Field density tests.
- 2. Testing shall conform to the following as a minimum.
 - a. Laboratory physical and chemical tests:
 - (1) Cover Soil: The Contractor shall conduct one (1) test every 3,000 cubic yards or portion thereof using the test methods outlined in 1.2 of this Section.
 - b. Field density tests:
 - (1) Cover Soil: For both 9 inch lifts, the Contractor shall perform density testing on a 50 foot grid. A Troxler Nuclear Moisture-Density gauge shall be used for all field density tests. Test locations shall be tied into a site grid system 50 foot square. Test reports shall note the grid location point and lift for each test. The

Contractor shall establish and maintain grid points for each lift of cover soil placed.

c. Depth Test Hole:

- (1) Cover Soil: for both nine (9) inch lifts, the Contractor shall hand excavate test holes on a 50 foot grid to confirm the in-place depth of cover soil. Test locations shall be tied into a site grid system 50 foot square. Test reports shall note the grid location point and lift for each test. The Contractor shall establish and maintain grid points for each lift of cover soil placed.

- B. CRRA has prepared a Stormwater Pollution Control Plan in accordance with the CTDEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities. This plan shall address temporary means needed to prevent discharge of sediment to water courses because of dewatering systems or erosion and off-site removal and disposal of all water that has contacted exposed solid waste material as a result of construction activities.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

- A. Cover Soil must not have previously been treated through chemical, biological, thermal, or other processes..

2.2 Cover Soil

- A. Cover Soil
 1. Cover soil shall be obtained by Contractor, who will be responsible to provide all physical and chemical testing required to demonstrate its suitability for use.
 2. Soils previously treated to reduce or remove pollution are not acceptable for use as Cover soil.

PART 3 - EXECUTION

3.1 Installation

- A. The Engineer or his representative will examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Contractor of conditions that the Contractor may encounter that are detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.

- B. Cover soil shall be placed on all areas as shown on the Drawings or as directed by the Engineer and as described in these Specifications. The thickness of each lift prior to compaction of the cover soil shall be no greater than twelve (12) inches. Total compacted thickness of the cover soil shall be as shown on the Contract Drawings. Compaction of the cover soil shall be accomplished by suitable compaction equipment, subject to approval by the Engineer.
- C. The cover soil shall be placed and compacted as necessary to achieve the required permeabilities and shear strength. The cover soil shall be compacted to 90 percent of the Modified Proctor Density. The moisture content of the cover soil shall be maintained within 3 percent of optimum moisture. Contractor shall not work wet cover soil that cannot support equipment. Contractor shall perform density testing as prescribed herein.
- D. If changes in the cover soil occur, the Engineer shall verify the cover soil is from an approved source and the Engineer may require additional testing. If the cover soil is not from an approved source or if the cover soil is determined to not be acceptable by the Engineer, the Contractor shall be notified that the cover soil is not approved.
- E. The thickness of the in-place cover soil will be checked after the completion of the work on a grid pattern not to exceed 50-foot by 50-foot by digging, by hand, with a shovel in the presence of and as directed by the Engineer. The size of the test hole shall not be less than one-foot in diameter. Measurements shall be made perpendicular to the slope. The Contractor shall be responsible for digging holes in the cover soil to allow for the measurements to be taken by the Engineer. After measurements have been made, the Contractor shall backfill the holes with cover soil, and hand tamp.
- F. The Contractor shall be responsible to repair damage to the cover soil between testing and acceptance.
- G. All soil samples are to be obtained under the direction of the Engineer.
- H. Final acceptance of cover soil is dependent on:
 - 1. Satisfying the minimum requirement of density and thickness as outlined herein and shown on the Contract Drawings.
 - 2. Cover soil meeting all the physical/analytical properties listed in Section 02227A.
- I. Any damage, disturbance, or settlement that occurs as a result of the Contractor's stockpiling of cover soil or equipment on site shall be the responsibility of the Contractor to repair and/or supply additional cover soils to compensate for settlement caused by the Contractor's actions.

3.2 Cover Soil

A. Cover Soil

1. Quality Control Testing:

- a. The Engineer shall perform quality control testing during construction. This testing is in addition to all other tests required to be conducted by the Contractor.
- b. The Engineer shall collect representative samples from each material source of cover soil for testing at a frequency determined by the Engineer.

END OF SECTION

SECTION 02228 (REVISED 5-19-2008)

TOPSOIL MATERIAL

PART 1 - GENERAL

1.1 Description

A. Scope:

1. The Contractor shall provide and place topsoil as shown on the Contract Drawings.

B. Related Sections:

1. Section 02220, Excavation and Backfill and Regrading.
2. Section 02900, Turf Establishment and Landscaping.

C. General:

1. Contractor shall obtain material from off-site sources and perform the necessary testing.

1.2 Quality Assurance

A. Tests:

1. The services of a qualified testing laboratory shall be engaged by the Contractor to make tests and determine acceptability of the fill or material as listed below. The Contractor will be responsible for onsite testing of compaction based on the test data obtained by the Contractor.
2. Required Tests:
 - a. Topsoil from Off-Site - Perform one test for every 3,000 cubic yards of material used, or portion thereof:
 - 1 Total Organic Content,
 - 2 Gradation-ASTM D 422,
 - 3 Direct Shear-ASTM D 3080
 - 4 Priority Pollutant Semivolatile Organic Compounds (SVOCs)-EPA Method 8270,
 - 5 Priority Pollutant Volatile Organic Compounds (VOCs)-EPA Method 8260,
 - 6 Priority Pollutant Metals-EPA Method 6010 (Hg Method),
 - 7 Pesticides-EPA Method 8081,
 - 8 PCBs-EPA Method 8082,
 - 9 Herbicides-EPA Method 8151.

All environmental test results shall be in conformance with the criteria for Residential Direct Exposure Criteria (RDEC) and Class GB Groundwater Pollutant Mobility Criteria (GBPMC) of the CTDEP's Remediation Standard Regulations (RSRs), 22a-133k-1 to k-3 of the Regulations of Connecticut State Agencies.

Total Organic Content of Topsoil shall be between 5% and 15%.

Topsoil shall be free of stones larger than 1-1/4 inches.

Topsoil must demonstrate minimum interface friction angle of 29 degrees as per ASTM D 3080.

1.3 Submittals

A. Test Reports:

1. Submit six (6) copies of the following reports directly to the Engineer from the testing service:
 - a. Required topsoil test data as per 1.2(A)(2)(a) and (b)
2. Testing shall conform to the requirements as indicated in the specific material specification sections.

PART 2 - PRODUCTS

2.1 Soil Materials

A. Topsoil:

1. Topsoil shall be placed where shown or specified or directed by Engineer.
2. All Topsoil will be obtained, tested, and transported to the site by the Contractor. The Owner reserves the right to have the Engineer observe the loading of Topsoil from the source identified by the Contractor. The Contractor shall notify the Owner prior to any loading of Topsoil and materials will not be accepted if this prior notification is not provided.
3. See Section 02900 "Turf Establishment and Landscaping" for full specifications.

PART 3 - EXECUTION

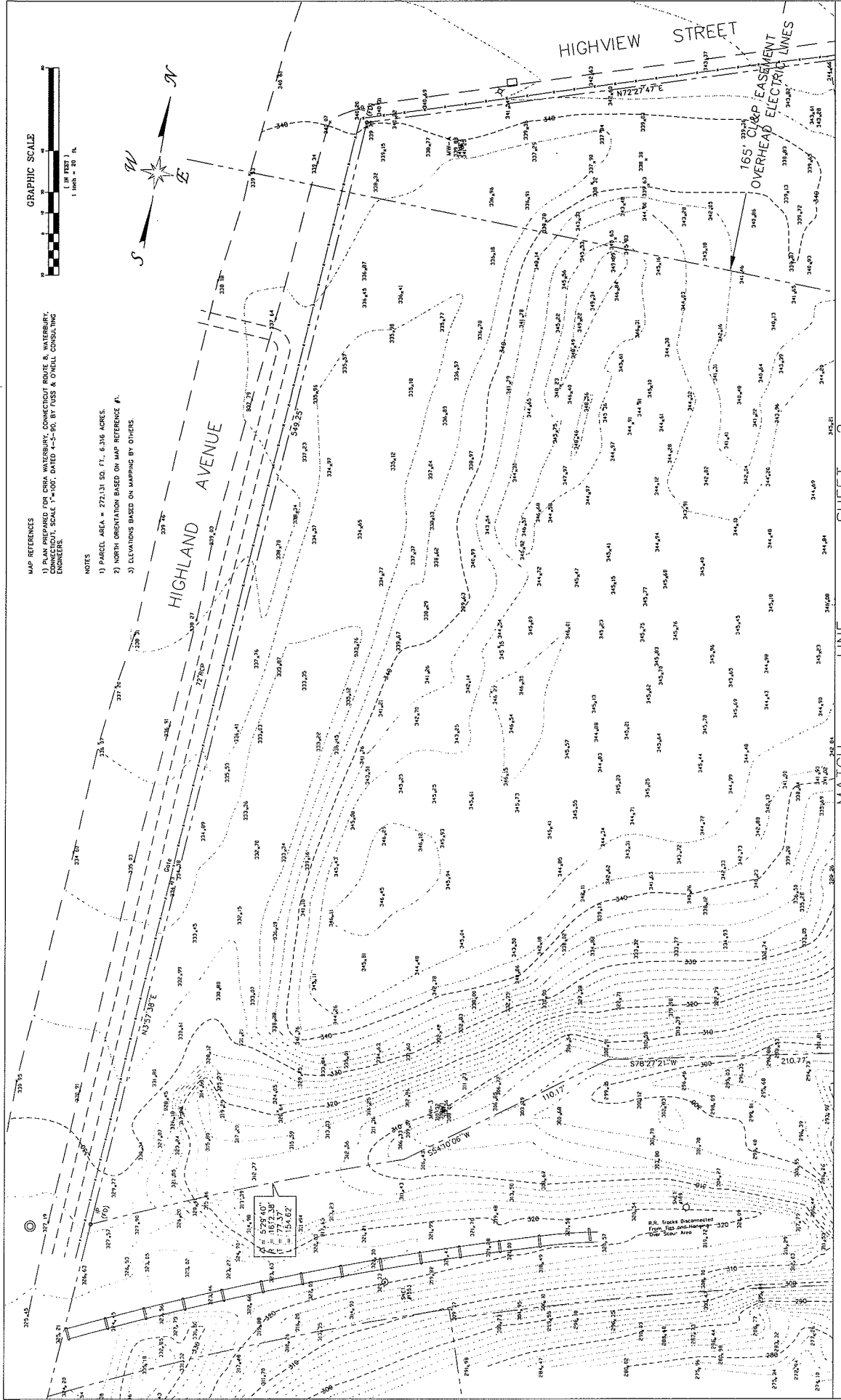
3.1 Placing

- #### **A. ENGINEER will examine the areas and conditions under which Topsoil placing is**

to be performed and notify the Contractor of conditions he may find that are detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner. Placing of Topsoil shall conform to the requirements of Section 02220.

- B. The thickness of the in-place Topsoil material will be checked after the completion of the work on a grid pattern not to exceed 50-foot by 50-foot by digging, by hand, with a shovel in the presence of and as directed by the Engineer. The size of the test hole shall not be less than one-foot in diameter. Measurements shall be made perpendicular to the slope. The Contractor shall be responsible for digging holes in the Topsoil to allow for measurements to be taken by the Engineer. After measurements have been made, the Contractor shall backfill the holes with cover material, and hand tamp. Test locations shall be tied into a site grid system 50 foot square. Test reports shall note the grid location point and lift for each test. The Contractor shall establish and maintain grid points for each lift of material placed.

END OF SECTION



GRAPHIC SCALE
1" = 20' FT.
1:2000 = 20' FT.

MAP REFERENCES
1) PLAN PREPARED FOR ORA WATERBURY, CONNECTICUT ROUTE 8, WATERBURY, CT, SCALE 1"=100', DATED 4-5-50, BY FOSS & ORELL CONSULTING ENGINEERS.
2) NORTH ORIENTATION BASED ON MAP REFERENCE #1.
3) ELEVATIONS BASED ON MAPPING BY OTHERS.

NOTES
1) PARCEL AREA = 272.131 SQ. FT., 6.316 ACRES.
2) NORTH ORIENTATION BASED ON MAP REFERENCE #1.
3) ELEVATIONS BASED ON MAPPING BY OTHERS.

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Land Surveyors - Engineers - Environmental Consultants

PREPARED FOR CONNECTICUT RESOURCE RECOVERY AUTHORITY

WATERBURY LANDFILL
HIGHLAND AVENUE & HIGHVIEW STREET
WATERBURY, CONNECTICUT

TOPOGRAPHIC SURVEY

DATE: 12-20-06
BY: [Signature]
CHECKED BY: [Signature]
SCALE: 1"=20'
JOB NO.: 26-350
DRAWING NUMBER: 24-DTOP-06
SHEET: 1 OF 2

DATE: 12-20-06
BY: [Signature]
CHECKED BY: [Signature]
SCALE: 1"=20'
JOB NO.: 26-350
DRAWING NUMBER: 24-DTOP-06
SHEET: 1 OF 2

MATCH LINE SHEET 2

