



INVITATION TO BID

Petroleum Impacted Soil Removal Project at Litchfield Center School

TOWN OF LITCHFIELD

LITCHFIELD, CONNECTICUT

The Town of Litchfield is soliciting bids in the office of the First Selectman 74 West Street Litchfield, Connecticut for a **Petroleum Impacted Soil Removal Project**.

The bid deadline is Friday November 18, 2016 at 11:00 AM. **There is a mandatory site visit on Monday November 14, 2016 at 9:00 AM at the Center School 125 West Street Litchfield, Connecticut.** Contractors are required to check into the school office upon arrival for the site visit. Questions are due November 16 at 9:00 AM by e-mail to ralex@townoflitchfield.org.

The Request for Bid documents are available on the Town of Litchfield webpage <http://www.townoflitchfield.org/>.

Contract Documents

Town of Litchfield Litchfield, CT

Petroleum Impacted Soil Removal Project
Center School
125 West Street
Litchfield, CT

CONTRACT NO: 52111

November 2016





BID FORM

Petroleum Impacted Soil Removal Project at Litchfield Center School

TOWN OF LITCHFIELD

LITCHFIELD, CONNECTICUT

To: Mr. Leo Paul, Jr.
Town of Litchfield
First Selectman's Office
74 West Street
Litchfield, CT 06759

The undersigned, having attended the Pre-Bid Meeting and having verified the quantities and conditions affecting the cost of the work, having reviewed in details the specifications (including this Bid Form, the General Conditions, the General Scope of Work, the Technical Specifications and Addenda, if applicable) as prepared by Eagle Environmental, Inc. of Terryville, Connecticut hereby proposes to furnish all labor, materials, equipment and services required for the removal of petroleum impacted soil at the Center School in Litchfield, Connecticut in accordance therewith, for the Contract Price specified below, subject to additions and deductions according to the terms of the Specifications.

A. This Bid includes Addendum numbered _____

B. The proposed Contract Price for the Base Bid is as follows:

_____ Dollars
(\$_____).

C. Unit Prices per the following schedule. Unit prices include labor, disposal, and all necessary fees. Same Unit Prices will be added to or deducted from the Contract Sum by Change Order in the event the project Scope of Work is altered.

D. Unit Prices in accordance with the following schedule will apply to this Contract. Unit prices include labor, equipment, disposal, and all necessary fees.

Item No. 1 – OFF-SITE LAWFUL DISPOSAL OF PETROLEUM CONTAMINATED SOIL

\$ _____ PER TON.

Item No. 2 – CLEAN BACKFILL MATERIAL

\$ _____ PER CY.

Item No. 3 – PAVEMENT SECTION

1-1/2” CLASS 2 (SURFACE COURSE) \$ _____ PER TON

2” CLASS 1 (BINDER COURSE) \$ _____ PER TON

12” PROCESSED AGGREGATE BASE \$ _____ PER CY

Item No. 4 – ASPHALT SIDEWALK

\$ _____ PER SQUARE FT.

Item No. 5 – LOAM AND SEEDING

\$ _____ PER CY.

F. The undersigned agrees that, if selected as the Contractor, he/she will, within ten (10) days after presentation thereof by the Owner, execute a contract in accordance with the terms of this bid.

Company Name _____ Signature _____

Company Address _____ Name _____

Title _____

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SECTION 00100 - BID SOLICITATION
GENERAL

- 1.01 PROJECT
Removal of Petroleum Impacted Soil
Former 10,000-Gallon Fuel Oil UST
Center School
Town of Litchfield
Litchfield, Connecticut
- 1.02 OWNER
Town of Litchfield
First Selectmen's Office
74 West Street
Litchfield, CT 06759
Attn: Leo Paul, Jr.
Email: paul@townoflitchfield.org
- 1.03 CONSULTANT
Eagle Environmental, Inc.
8 South Main Street, Suite 3
Primary Contact: Jeff Duigou, Vice President of Environmental Sciences
Phone: 860.589-8257
Email: jduigou@eagleenviro.com
- 1.04 DATE AND TIME BIDS DUE
Bid Due Date & Time
Date: November 18, 2016
Time: 11:00 AM

Pre-Bid Walkthrough: November 14, 2016 at 9:00 AM

Sealed Bids will be accepted at that time and date. Late bids will not be accepted. Bids shall be placed in a sealed envelope labeled "Petroleum Impacted Soil Removal Bid" and submitted to:

Attn: Leo Paul, Jr.
First Selectman
Town of Litchfield
74 West Street
Litchfield, CT 06759

1.05 PREQUALIFICATION

- A. Bids will be accepted from CT DAS prequalified Contractors to perform the work specified in the Contract Documents.

1.06 CONTRACT DOCUMENTS AVAILABLE

Contract Documents are available on the Town of Litchfield webpage
<http://www.townoflitchfield.org/>.

1.07 BID REQUIREMENTS

As stated in Section 00200 – Instructions to Bidders.

1.08 BID OPENING PROCEDURE

Bids will be received and opened publicly.

1.09 AWARD OF CONTRACT

- A. The Owner reserves the right to accept or reject any or all bids and waive irregularities and to negotiate the Contract with any Bidder.
- B. The Contract, if awarded, will be to the Bidder the Owner deems to be in his best interest.
- C. A single contract will be awarded to the Contractor for all the Work designated as the Removal of Four Underground Storage Tanks Suffield Public Schools.

END OF SECTION

SECTION 00200 - INSTRUCTIONS TO BIDDERS

PART 1 – GENERAL

1.01 PROJECT SUMMARY

- A. This project consists of the removal of petroleum impacted soil from a former 10,000-gallon fuel oil underground storage tank (UST) location at Center School in Litchfield, Connecticut. Cost associated with the excavation, loading, transportation and off-site tipping fee for the disposal of approximately 700 tons of petroleum impacted soil shall be included in the base bid.
- A. The work will consist of the following major activities:
- Mobilization
 - Conduct site preparation activities, including establishment of environmental protection measures, installation of grounded “temporary” fencing/jersey barrier to separate work area from public access and set-up of staging areas for materials and equipment, as described in these specifications. Extreme care must be taken to ensure no damage to BOE property occurs during any site activities.
 - Applying for, paying for, and securing any and all permits, notifications, waivers, etc. required from local, state, and federal agencies, and other authorities having jurisdiction over work on the Site. Contractor shall coordinate permits with the Town of Litchfield.
 - Utility terminations at the building. Coordinate the location and termination of existing utilities with the Consultant.
 - Removal of petroleum impacted soil, lawful off-site disposal of petroleum-impacted soil, backfilling excavation to grade, and site restoration (bituminous pavement and landscaping).
 - Following receipt of confirmatory soil sampling results and approval by the Owner and Consultant, backfill and compact the excavation area to match surrounding grade per Specification Section 02300 – Earthwork
 - Site Restoration
 - Demobilization.

- B. All work and demobilization shall be completed by November 26, 2016 after the notice of proceed is issued. Work will be conducted over the Thanksgiving School break November 23 through November 26, 2016.

1.02 REFERENCE STANDARDS

Items specified by reference to a Commercial Standard, Federal Specification, trade association standard, or other similar standard shall comply with the requirements for design, manufacture, and installation of the latest revision thereto in effect on the date Bids are submitted. Where specifications require a better quality than such a standard, the specifications shall govern.

1.03 EXAMINATION OF DOCUMENTS AND EXISTING CONDITIONS

- A. Upon receipt of Bid Documents verify documents are complete. Notify Consultant if documents are incomplete.
- B. Immediately notify Consultant upon finding discrepancies or omissions in the Bid Documents.
- C. Bidders shall examine the Contract Documents and visit the Site to obtain firsthand knowledge of existing conditions.

1.04 SUBMISSION OF BIDS

- A. Submit Project Bid Sheet issued with the Contract Documents in accordance with Section 00100 – Bid Solicitation. State in the bid form if unit prices will vary should actual quantities differ substantially from the estimated quantities listed, and provide alternate pricing.
- B. Bids shall conform to requirements of the Contract Documents.
- C. Written figures shall take precedence over printed figures in case of discrepancy.
- D. Indicate where noted on Bid Form all addenda included in the Bid amount.
- E. Bids must include the following:
 - 1. Completed Bid Form;
 - 2. Contractors proposed approach to complete the work in accordance with the plans and specifications, including the following:
 - a. Health and Safety issues.
 - b. Proposed work sequencing.
 - c. Approach (including means, methods, and equipment) to remove petroleum

- impacted soil and Site restoration.
 - d. Approach to dust control.
 - e. Excavated material staging, handling, stabilization, and dewatering procedures.
 - f. Any alternative approaches to undertaking the project.
3. Selection of primary off-site disposal facilities for soil disposal. Provide backup facilities for each waste category.
 4. Work hours and schedule to meet the completion date.
 5. The qualifications of the Contractor and the Contractor's personnel that would be executing the project.
 6. Copies of all training certificates, copies of qualifications of trainer providing training certificates, and a statement/letter from the trainer that he/she has provided the training to those personnel on-site.
 7. Proposed subcontractors that will be used for any on-Site work.
 8. Schedule of hourly personnel rates and equipment charges.
 9. Statement on Contractors Affirmative Action Policy.
- F. Bid must discuss any issues critical to project success from the Contractor's perspective.
- G. Bidder must complete all blank spaces.
- H. Bids shall be signed by person having legal authority to sign. Include legal name and address of business and names of all partners in partnership. Sign Bid Form as follows:
1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature.
 2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature.
 3. Corporation: Signature of duly authorized signing officers in their normal signatures. Insert the officer's capacity in which the signing officer acts under each signature. Affix the corporate seal. If the Bid is signed by officials other than the president and secretary of the company, or the president/secretary/treasurer of the company, submit a copy of the by-law resolution of their board of directors authorizing them to do so, with the Bid Form in the bid envelope.

4. Joint Venture: Signature of each party of the joint venture under their respective seals in a manner appropriate to such party as described above, similar to requirements for Partnerships.

1.05 PRODUCT SUBSTITUTION

Substitute products will be considered when request is submitted as an attachment to the Bid Form. The Bid Form must contain costs for specified products. Provide complete information on required revisions to other Work to accommodate each substitution and the value of additions to or reductions from the Bid Price, including revisions to other Work.

1.06 WITHDRAWAL OF BIDS

A Bidder may withdraw the bid at any time prior to the scheduled time for receipt of bids. After bids are opened, Bids shall remain open for acceptance and shall be irrevocable for a period of 60 days after bid closing date.

1.07 BID OPENING

Bids will be opened as stated in Section 00100 - Bid Solicitation.

1.08 INTERVIEWS

Owner may conduct post-bid opening interviews with selected Bidders at a time to be determined.

1.09 ACCEPTANCE OF BIDS

The issuance of a purchase order shall be considered as Notice of Award. The Owner anticipates notifying the successful Bidder written or orally within 10 days of bid opening.

1.10 REJECTION OF BIDS

The Owner reserves the right to reject any or all bids. Any bid, which is not submitted in accordance with the provisions of the specifications, may be rejected. Conditional bids will not be accepted.

1.11 INTERPRETATIONS

No oral interpretations of the Contract Documents will be considered valid. Should a Bidder discover discrepancies or omissions in the specifications or other documents; or

should he be in doubt as to their meaning, he shall immediately notify the Owner. The Owner will then issue addenda to all Bidders clarifying the questionable item. Such requests must be received at least five (5) days before the time of the receipt of bids.

Requests for interpretation should be submitted to Eagle Environmental, Inc.
Attn: Jeff Duigou at jduigou@eagleenviro.com.

1.12 ADDENDA

Written addenda to the specifications become a part of the Contract Documents. Should a conflict exist between specifications and addenda, the addenda shall govern. Bidders shall determine which subcontractors are affected by addenda and shall assume all responsibility for notifying their subcontractors of changes or interpretations. Work described in addenda shall be in accordance with specifications for the like items elsewhere in the scope of work and shall include all labor and materials. Bidders are requested to attach a copy of addenda to the specifications in their possession. Addenda mailed or delivered to the last known address of the Bidder not later than two days prior to the time of receipt of bids become the responsibility of the Bidder.

1.13 SUBCONTRACTORS

Contractors shall state on the Bid Form names of their subcontractors. Each subcontractor must have Consultant/Owner's approval prior execution of the Contract.

END OF SECTION

SECTION 00890 - PERMITS

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. This Section provides specific information and defines specific requirements of the Contractor regarding the preparation and acquisition of permits required to perform the work of this project. This Section also provides specific information and defines specific requirements of the Contractor regarding the termination of existing services. The permits and terminations required include, but are not limited to, those described in this Section. The Contractor shall obtain all Federal, state, and local permits for the conduct of work..
- B. The following items are addressed in this Section.
 - 1. Oil & Hazardous Materials Requirements
 - 2. Connecticut Department of Energy and Environmental Protection (CTDEEP) Permits

1.02 RELATED WORK:

- A. Section 01046 – CONTROL OF WORK
- B,. Section 01570 – ENVIRONMENTAL PROTECTION
- C. Section 02240 - DEWATERING
- D. Section 02300 – EARTHWORK

1.03 GENERAL PERMIT AND TERMINATION REQUIREMENTS:

- A. **The Contractor shall apply for, obtain, and pay for all permits and licenses required**, including but not limited to the permits listed herein. The Contractor shall also be responsible for all fees and costs associated with decommissioning and terminations of services. Costs shall be included in the contract lump sum price.

- B. The Contractor shall procure all other permits, licenses, and approvals from federal, state, and local authorities and such other agencies as may be necessary in connection with the work of this Contract.
 - C. The Contractor shall perform the work in accordance with the Contract Documents, and any applicable federal, state, and local requirements, permits, order of conditions or any applicable municipal requirements.
 - D. The Contractor shall provide all required certificates to show that the work has been completed in conformity with the permits and shall submit such Certificates of Approval to the Engineer before final acceptance of the work.
 - E. All materials and the installation thereof shall conform to the requirements of all federal, state and local laws, rules and regulations and codes pertaining thereto. Where Contract Documents conflict with any codes, rules and regulations, the laws - codes or regulations shall govern.
 - F. All legally imposed charges made by local authorities for the work of this Section involving the connection, inspection and approval services of all bureaus administering all applicable codes and regulations shall be provided hereunder at no additional expense to the Owner.
 - G. The Contractor shall coordinate with the Owner's Representative for the location and termination of existing utilities at the building, and shall field verify utility locations during the pre-bid meeting/site walk.
 - H. The Contractor shall give the proper authorities all required notices or information relating to work in his charge, pay all fees necessary to obtain all official licenses, permits and certificates, and comply with the rules of the Connecticut Department of Public Safety.
- 1.04 NPDES STORMWATER DISCHARGE AND CONSTRUCTION SITE DEWATERING PERMITS:
- A. The Contractor shall, if required, obtain a Construction Site Dewatering Permit.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01046 - CONTROL OF WORK

PART 1 – GENERAL

1.01 WORKING HOURS:

- A. Normal construction activity (typically 8.5 hours with lunch) shall take place only between the hours of 7 a.m. to 6 p.m., depending on start time, and excluding Saturdays, Sundays, and legal holidays. The Contractor work hours are subject to approval by the Town of Litchfield. Work outside the above time periods, or more than an 8.5 hour time period, will be permitted only with the written approval of the Town of Litchfield
- B. Emergency work may not be done at any time without prior permission.
- C. The Contractor must notify in writing the Owner/Owner's Representative within 10 business days of any changes to the working hours or the phasing of the work.

1.02 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall assume full responsibility for the security of the Site throughout the duration of project activities. These responsibilities shall include temporary fencing, locking gates, signs, and other measures as necessary to prevent unauthorized entry onto the Site. The Contractor shall also be responsible for the security of all his and his subcontractor's materials and equipment stored on the Site.
- B. Prior to the start of project activities, the Contractor shall notify the local police and fire departments of the project site and activities, and shall provide the police with an emergency contact person to be contacted in the event of an emergency at the Site during non-working hours.
- C. If directed by the Owner/Owner's Representative, Contractor shall move any stored items which interfere with operations of property owners.
- D. Contractor shall obtain and pay for use of additional storage or work areas if needed to perform the Work.
- E. Contractor shall limit the staging of equipment and materials to areas within the limit of work shown on the Drawings.

1.03 INTERFERENCE WITH AND PROTECTION OF STREETS

- A. The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.

- B. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.
- C. The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments in writing, with a copy to the Consultant, if the obstruction and/or closure of a street or road are necessary or if traffic control will be required. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

1.04 OPEN EXCAVATIONS:

- A. All open excavations shall be adequately secured/safeguarded by providing temporary barricades, fencing, caution signs, lights, steel plates, and other means to prevent accidents to persons and damage to property. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Consultant.

1.05 CARE AND PROTECTION OF PROPERTY:

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Owner/Owner's Representative/Consultant.

1.06 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES:

- A. The Contractor shall assume full responsibility for the protection of all building(s), structures, and utilities, public or private, including but not limited to poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by Contractor and at Contractor's expense. It is the responsibility of the Contractor to contact the owner of each structure and/or utility to develop a structure/utility stabilization support plan in accordance with the structure/utility owner's standard procedures. Any and all costs associated with preparation, coordination and implementation of this is the sole responsibility of the Contractor.

- B. The Contractor shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment with treads or wheels which are shaped so as to cut or otherwise damage such surfaces.
- D. All property damaged by the Contractor's operations shall be restored to a condition at least equal to that in which it was found immediately before work was begun. Suitable materials and methods shall be used for such restoration.
- E. Restoration of existing property and structures shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

1.07 COOPERATION WITHIN THIS CONTRACT:

- A. All firms or persons authorized to perform any work under this Contract shall cooperate with General Contractor and his Subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.

1.08 CLEANUP AND DISPOSAL OF EXCESS MATERIAL:

- A. During the course of the work, the Contractor shall keep the Site of his operations in as clean and as neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, oil stained soil/vegetation, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.
- B. In order to prevent environmental pollution arising from construction activities related to the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable federal, state, and local laws, and regulations concerning waste material disposal, as well as the specific requirements stated in this Section and elsewhere in the Specifications.

1.09 SITE SECURITY AND ON-CALL RESPONSIBILITIES

- A. During the course of the work, the Contractor shall provide and maintain security for the Site including restriction of unauthorized access to the site before, during and after working hours.

- B. The Contractor shall provide contact information to Town of Litchfield Police and Fire Departments and this contact person shall be knowledgeable of the project, authorized to act on behalf of the Contractor's company.

1.12 HAULING, HANDLING AND STORAGE OF MATERIALS

- A. The Contractor shall, at his own expense, handle and haul all materials furnished by him and shall remove any of his surplus materials at the completion of the work.
- B. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by him that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise.
- C. All removed, demolished and/or excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.
- D. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

1.13 MAINTENANCE OF FLOW

- A. The Contractor shall at his own cost, provide for the flow of sewers, water service pipes, and drains interrupted during the progress of the work, and shall immediately cart away and dispose of all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Consultant well in advance of the interruption of any flow.
- B. All existing drainage facilities including, but not limited to; brooks, streams, canals, channels, ditches, culverts, catch basins, sewer and water utilities, and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation/erosion of downstream areas in any manner whatsoever. If the Contractor damages or impairs any of the aforesaid drainage facilities, he shall repair the same within the same day at no additional cost to the Owner.
- C. At the conclusion of the work, the Contractor shall remove all silt in drainage structures caused by his operations as described in Section 01740 - Cleaning Up.

1.14 REJECTED MATERIALS AND DEFECTIVE WORK

- A. Materials furnished by the Contractor and condemned by the Consultant as unsuitable or not in conformity with the specifications shall forthwith be removed from the work

by the Contractor, and shall not be made use of elsewhere in the work.

- B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Consultant.
- C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Consultant, occurring previous to the final payment.

1.15 ELECTRIC SERVICE

- A. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

1.16 SITE INVESTIGATION

- A. The Contractor acknowledges that he has satisfied himself as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the drawings and specifications made a part of this contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01380 - HEALTH AND SAFETY PLAN

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. Prior to the start of work on the site, Contractor shall prepare and submit a site-specific health and safety plan that includes consideration of all known and potential hazards at the site. As used in this Section, the 'Site' refers to the area encompassed by the Contract Limit of Work. Work may not proceed at the site until the Contractor's health and safety plan has been received and reviewed by the Consultant.
- B. Site-specific health and safety procedures as specified herein are required due to potentially hazardous conditions that may be encountered during handling, sampling, treatment, removal and disposal of contaminated and/or hazardous material, specifically petroleum contaminated soil. In addition to addressing health and safety issues associated with removal of petroleum contaminated soil, the Health and Safety Plan and related items of this Section area also to address general demolition and construction activities required under this Contract.
- C. The Contractor is responsible for its workers' and Subcontractors' health and safety and the monitoring and control of dust and odor migration from the sites. Therefore, the Consultant will only review the Contractor's Health and Safety Plan for relevant content. The Contractor shall implement, maintain, and enforce these procedures during all phases of the Work associated with the description of work described in this Section.
- D. The following items are addressed in this Section.
 - 1. Preparation of a Site-Specific Health and Safety Plan
 - 2. Personal Protective Equipment
 - 3. Logs, Reports and Recordkeeping
 - 4. Equipment Decontamination
 - 5. Training Certification

1.02 RELATED WORK:

- A. Section 02300 – EARTHWORK

1.03 PREPARATION OF A SITE-SPECIFIC HEALTH AND SAFETY PLAN

- A. Prior to the start of work on the site, the Contractor shall prepare, stamp, and submit to the Consultant a site-specific Health and Safety Plan, which includes consideration of all

known and potential hazards at the site. Work may not proceed at the Site until the Contractor's Health and Safety Plan has been received by the Consultant/Owner.

- B. The Contractor shall conduct an initial survey of the sites to determine the appropriate safety procedures and level of worker safety equipment. The Contractor's Site Safety and Health Officer (SSHO) shall be present on-site throughout the duration of the Contract, shall be fully qualified and experienced to conduct his/her duties, and shall maintain a continuous hazardous materials health and safety monitoring program throughout the performance of site remediation work. It shall be the SSHO's responsibility to notify the Consultant of any deviations in the hazardous materials health and safety monitoring program.
- C. This Section describes the minimum health and safety requirements during completion of the work. The Contractor shall develop a detailed Health and Safety Plan based on all applicable regulations. Contractor shall be cognizant of the minimum health and safety plan standards set forth in 29 CFR 1910.120, 29 CFR 1926. The Health and Safety Plan shall include, but is not limited to, the following minimum requirements.
1. Identification of the Contractor's General Supervisor and Site Health and Safety Officer and their General functions and responsibilities.
 2. Lines of authority, responsibility, and communication associated with the personnel identified in Paragraph 1.04 B.1.
 3. Copies of 40-hour OSHA HAZWOPER training and Confined Space training certificates, including most current 8-hour refresher session certificates if applicable, for all personnel that will be on-site or involved in the activities for which such training is required.
 4. Comprehensive work plan that address the tasks and objectives of the project, including associated logistics and resources.
 5. Identification and analysis of the hazards and risks associated with each task/operation for the project.
 6. Contractor's standard operating procedures, including personnel training and field orientation information.
 7. Procedures for determining appropriate levels of personal protection equipment selection.
 8. Identification of personal protective equipment (including respiratory protection equipment) to be used during each task/operation of the project.
 9. Contractor's medical surveillance program.

10. Personal hygiene requirements and guidelines for project personnel.
 11. Project Site zone delineation.
 12. Site security and entry control procedures.
 13. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques to be used (including methods for maintenance and calibration of monitoring and sampling equipment).
 14. Decontamination procedures (see Specification Section 01570 – Environmental Protection for additional information).
 15. Contingency and emergency response plans and procedures.
 16. List of emergency contacts (including names, addresses, and telephone numbers).
 17. Confined space entry procedures.
 18. Procedures for minimizing electrical hazards and risks posed by overhead wires and substation electrical equipment.
 19. Methods and responsibility for updating the Health and Safety Plan, as necessary.
 20. Spill Containment Program - Develop, submit for Consultants review, and implement an Oil and Hazardous Materials Management and Spill Control Program (OHM Program) to address inventory, storage, and on-site handling of oil and hazardous materials, risk mitigation measures, and spill control and reporting procedures that will be implemented by the Contractor during construction. The OHM Program shall include complete descriptions of all methods, procedures, and Best Management Practices (BMP) proposed to insure compliance with appropriate environmental requirements of the Owner, the U.S. Environmental Protection Agency, and all others having jurisdiction.
 21. Provisions for pre-entry initial and periodic safety briefings. The Health and Safety Plan shall include site access provisions that effectively limit access to work areas to only those persons in full compliance with the requirements of the Occupational Safety and Health Administration (OSHA) and CONN OSHA.
- D. It shall be the Contractor's responsibility to immediately notify the Consultant orally and in writing within one (1) day should any unforeseen safety hazard or condition become evident during the performance of the work. In the interim, the Contractor shall take prudent action to establish and maintain safe working conditions and to safeguard employees, the public, and the environment.

1.05 PERSONAL PROTECTIVE EQUIPMENT:

- A. The personal protective equipment required to provide the appropriate level of dermal and respiratory protection shall be determined based on the results of air monitoring performed by the Contractor and the standards set forth in the Contractor's Health and Safety Plan. The Consultant may conduct duplicate air monitoring for quality control purposes. Modified Level D protection shall be the minimum requirement for all on-Site personnel.

1.06 LOGS, REPORTS AND RECORDKEEPING

- A. The Contractor shall maintain daily logs covering the implementation of the Health and Safety Plan. Contractor shall provide Consultant with copies of all logs and reports on a weekly basis.

- B. Daily Safety Logs shall include, at a minimum, the following:

1. Date.
2. Area (site-specific) checked.
3. Employees in particular areas.
4. Site visitors, name, affiliation, and purpose of site visit.
5. Equipment being utilized by the employees.
6. Protective clothing being worn by employees.
7. Protective devices being used by:
 - a. Contractor Personnel;
 - b. Visitors; and
 - c. Designated State and Federal representatives.
8. Air monitoring data, including description of area being monitored, equipment used, and a summary of the collected readings.

- C. Each Daily Safety Log shall be signed and dated by the Contractor's Site Safety and Health Officer.

- D. Employer Obligation: The Contractor shall be solely responsible for compliance with regulations of the CONN OSHA. Connecticut Department of Energy and Environmental Protection, and all Federal laws such as OSHA (29 CFR) which require chemical exposure records and medical records be maintained by employer for a specified length of time after the termination of the job.

1.07 HEALTH AND SAFETY AUDITS

- A. The Contractor shall be aware that unannounced health and safety audits will be conducted by the Owners safety representative during the work.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01570 - ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. Prior to commencement of work, the Contractor shall meet with representatives of the Consultant to develop mutual understandings relative to compliance of the environmental protection program.

1.02 RELATED WORK:

- A. Section 01562 – DUST CONTROL
- B. Section 02240 – DEWATERING
- C. Section 02300 – EARTHWORK

1.03 SUBMITTALS:

- A. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities.

PART 2 - PRODUCTS

2.01 STRAW WATTLES:

- A. The straw wattles or equivalent shall be used along the perimeter of the work area and soil stockpiles.

PART 3- EXECUTION

3.01 NOTIFICATION AND STOPPAGE OF WORK:

- A. The Consultant will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work through the Consultant until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the

Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3.02 AREA OF CONSTRUCTION ACTIVITY:

- A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

3.03 PROTECTION OF WATER RESOURCES:

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumen, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

3.04 PROTECTING AND MINIMIZING EXPOSED AREAS:

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. All disturbed vegetated areas shall be stabilized within 72 hours after final grading. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Owner's Representative/Consultant.

3.05 LOCATION OF STORAGE AREAS:

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Consultant. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Owner's Representative/Consultant.
- B. No demolition debris, excavated materials, or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment

control such as the placement of baled hay or straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.

- C. The Consultant may designate a particular area or areas where the Contractor may store materials used in his operations.

3.06 CLEARING AND GRUBBING:

- A. The Contractor shall clear and grub only on the Litchfield Board of Education land and only the area required for construction operations, as approved by the Consultant.

3.07 DISCHARGE OF DEWATERING OPERATIONS:

- A. Any water that is pumped and discharged from the excavation as part of the Contractor's water handling including water that collects on-site during storm events, shall be as specified in Section 02240 - Dewatering and in accordance with applicable federal, state and local environmental regulations and permits.
- B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.

3.08 DUST CONTROL:

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. The Contractor shall implement engineered controls to control the emission of fugitive dust as required by the Owner's Representative/Consultant. Dust Control products and procedures shall be implemented as described in Section 01562 – Dust Control at no additional cost to the Owner.

END OF SECTION

SECTION 01740 - CLEANING UP

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. The Contractor must employ at all times during the progress of his work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon request by the Consultant provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Consultant.

1.02 RELATED WORK:

- A. Section 01046 – CONTROL OF WORK
- B. Section 01570 – ENVIRONMENTAL PROTECTION

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 DAILY CLEANUP:

- A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.
- B. Upon written notification by the Consultant, the Contractor shall within 24 hours clean up those areas, which in the Consultant's opinion are in violation of this section and the above referenced sections of the specifications.
- C. If in the opinion of the Consultant, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

3.02 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

- A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

3.03 REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

- A. On or before completion of the work, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools and machinery or other construction equipment furnished by him; shall remove all rubbish from any grounds which he has occupied; shall remove silt fences and hay bales used for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by his operations in a neat and satisfactory condition.

3.04 RESTORATION OF DAMAGED PROPERTY:

- A. The Contractor shall restore or replace, when and as required, any property damaged by his work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Owner's Representative/Consultant.

3.05 FINAL CLEANUP:

- A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off of the premises. Before acceptance, the Owner's Representative/Consultant shall approve the condition of the site.

END OF SECTION

SECTION 01770 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers administrative and procedural requirements for closing out the project, including, but not limited to:
 - 1. Project as-built documents
 - 2. Final Cleaning
 - 3. Closeout Procedures
 - 4. Final Completion
 - 5. Correction/Warranty Period
- B. Closeout checklist to be completed by the Consultant.

1.02 RELATED WORK:

- A. General Requirements in their entirety.

1.03 AS-BUILT DOCUMENTS:

- A. Contractor shall maintain on site, separate from the documents used for construction, one set of the documents listed below, and as construction progresses, shall legibly record on these documents all changes made during construction.
 - 1. Specifications.
 - 2. Addenda.
 - 3. Change Orders and other Modifications to the Contract.
 - 4. Reviewed product data and samples.
 - 5. Written interpretations and clarifications.
 - 6. Field Orders.
 - 7. Field test reports properly verified.
- B. The completed set of marked-up as-built documents shall be submitted to the Consultant with the final Application for Payment. OWNER shall incorporate mark-ups into their files. As-built documents shall include surveyed coordinates, including depth/elevation, of all utility cut/cap/abandonment locations. Utility terminations to be shown on the As-Built Documents include, but are not limited to, the location of all former and electrical and product supply lines to the USTs and the building.

1.04 CHECKOUT AND CERTIFICATIONS:

- A. Prior to checkout and certifications the following tasks shall be completed:

1. Construction shall be complete. For this purpose, completion of construction is defined as follows:
 - a. The Contractor has completed the removal and lawful off-site disposal of petroleum impacted soil, backfilling excavation to grade, and site restoration (bituminous pavement and landscaping) in conformance with the Contract Specifications.
2. All shop tests shall be complete and approved test results submitted to the Consultant. All shop drawings shall have final approval.

1.05 FINAL CLEANING:

- A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
 1. Clean the site, including landscape development areas of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to smooth, even textured surfaces.
 2. Remove waste and surplus materials, rubbish, fencing equipment, temporary utilities and construction facilities from the site, unless otherwise required by the Consultant.
 3. Comply with requirements of Section 01740 – Cleaning Up.

1.06 CLOSEOUT PROCEDURES:

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and is complete in accordance with Contract Documents and ready for Owner's Representative/Consultant's inspection.
- B. Accompany Owner's Representative/Consultant on inspection to verify conformance with the Contract Documents. Prepare a punch list of work items that have been determined by inspection to not conform to Contract Documents. Punch list items shall include work items that are missing, incomplete, damaged, incorrect items, or improperly installed or constructed. The Contractor shall correct the punch list deficiencies by re-work, modifications, or replacement, as appropriate, until the items conform to the Contract Documents. The initial punch list shall be produced by the Contractor, with copies to the Owner's Representative/Consultant. When the Contractor has reduced the number of deficient items to a reasonable level, the Owner's Representative/Consultant will develop a definitive punch list for the use of the Contractor.
- C. Provide submittals to Owner's Representative/Consultant that are required by governing or other authorities.

- D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The Contractor shall submit the following documents prior to Final Application for Payment:
1. Waste shipment manifests and shipping records.
 2. Records of quantities/weights of materials shipped off-site, including all contaminated materials to disposal facilities, construction and demolition debris to recycling and/or disposal facilities, and all recycling reuse materials.
 3. All sampling data, including copies of the analytical laboratories reports with corresponding chains-of-custody and summary tables of the data.
 4. All other records or documents as necessary (i.e., personnel monitoring records, injury reports, etc.).
 5. Any remaining releases, waivers, warranties/guarantees, and all other data required by the Contract Documents.

1.07 FINAL COMPLETION:

- A. Prior to final completion, the following tasks shall be completed:
1. All items in the punch list shall be completed.
 2. All Contract closeout documentation shall be submitted to and accepted by the Consultant.

1.08 CORRECTION/WARRANTY PERIOD:

- A. During the correction period, the Contractor shall correct all deficiencies in equipment and materials.
- B. During the warranty period, the Contractor shall perform all corrective work on warranty deficiencies.
- C. Corrective work will be identified by the Owner's Representative/Consultant, as appropriate. The Contractor will be notified of the item(s) requiring corrective work.
- D. The Contractor shall begin work on all corrective work within ten days of being notified of the deficiency by the Owner's Representative/Consultant and shall then work continuously until the deficiency is corrected. Upon completion of the corrective work, the Contractor shall submit a letter report to the Owner's Representative/Consultant describing the deficiency and the corrective action that was taken.
- E. The Contractor shall coordinate all corrective work with the Owner's Representative/Consultant.

1.11 COMPLETION CHECKLIST:

- A. When the project has been fully completed, Final Payment can be approved.

PROJECT COMPLETION CHECKLIST

Owner _____ Job No. _____

Project _____

As part of the project closeout, all items listed below must be checked off as being complete or otherwise accounted for. The person verifying completion of the item shall list the completion date and his/her initials.

Project Closeout Checklist		
	Date Completion Verified	Verified by
AS-BUILT DOCUMENTS HANDED OVER		
1. Contract Drawings		
2. Specifications		
3. Addenda		
4. Change Orders/Contract Modifications		
5. Reviewed Shop Drawings, Product Data and Samples		
6. Written Interpretations/Clarifications		
7. Field Orders		
8. Field Test Reports		

Project Closeout Checklist		
	Date Completion Verified	Verified By
FINAL CLEANING		
1. All Construction Facilities Removed		
2. All Construction Debris Removed		
3. All Areas Swept/Cleared		
CLOSEOUT PROCEDURES		
1. Written Certification Submitted that Work is Ready for Owner & Consultant Inspector		
2. Inspection by Owner, Consultant, Contractor completed		
3. Punch List of Nonconforming Items Prepared		
4. Documents Required by Governing or Other Authorities Submitted (List Them)		
5. Final Application for Payment Received		
11. Other Required Releases and Waivers Submitted (List Them)		
12. Permits Submitted (List Them)		
FINAL COMPLETION		
1. All Items in Punch List Completed		
2. All Other Required Documentation Submitted (List It)		
CORRECTION/WARRANTY PERIOD		
1. Correction Period Start Date: _____ End Date: _____		
2. Specific Warranties Provided; <u>Item</u> _____ <u>Warranty Period</u> _____		

Full name of persons signing their initials on this checklist:

PETROLEUM IMPACTED SOIL REMOVAL PROJECT
CENTER SCHOOL
125 WEST STREET LITCHFIELD, CT

TOWN OF LITCHFIELD
November 2016

END OF SECTION

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. The Contractor shall make excavations for the removal of underground storage tanks and associated structures. The Contractor shall also backfill and compact such excavations to the extent necessary, shall furnish the necessary material to restore site conditions, and shall make miscellaneous earth excavations and do miscellaneous grading to the complete the work a specified herein.

1.02 RELATED WORK:

- A. Section 00890 – PERMITS
- B. Section 01570 – ENVIRONMENTAL PROTECTION
- C. Section 02240 – DEWATERING

1.03 REFERENCES:

American Society for Testing and Materials (ASTM)

ASTM	C136	Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM	D1556	Test Method for Density of Soil in Place by the Sand Cone Method.
ASTM	D1557	Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop.
ASTM	D2922	Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 SUBMITTALS:

- A. Soil material test reports and samples of all materials proposed for the project. Soil material test reports shall be from a qualified testing company indicating and interpreting the test results for conformance of the proposed materials with the requirements of this Section. No material shall be shipped until a certificate or other identifying data, assuring compliance with these specifications, has been received and approved by the Owner's Representative/Consultant.

1.05 PROTECTION OF EXISTING PROPERTY:

- A. The work shall be executed in such manner as to prevent any damage to facilities at the site and adjacent property and existing improvements, such as but not limited service utility lines, structures, bench marks, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.
- B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing roads, sidewalks, and curbs damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at his own cost, existing benchmarks, observation wells, monuments, and other reference points, which are disturbed or destroyed.
- C. Buried drainage structures and pipes, observation wells and piezometers, including those which project less than eighteen inches (18") above grade, which are subject to damage from construction equipment shall be clearly marked to indicate the hazard. Markers shall indicate limits of danger areas, by means which will be clearly visible to operators of trucks and other construction equipment, and shall be maintained at all times until completion of project.

1.06 DRAINAGE:

- A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff will not adversely affect construction procedures or cause excessive disturbance of underlying natural ground or abutting properties.
- B. Water removed from on-site excavations shall be handled in accordance with Section 02240 – Dewatering.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. BACKFILL MATERIALS:

1. Controlled Fill:

Controlled fill shall consist of sound tough, durable particles of crushed or uncrushed gravel, free from soft, thin elongated or laminated pieces, and organic matter and other deleterious substances; graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
3 ½ -inch	100
¾-inch	50-100
No. 4	25-80
No. 200	0-15

2. Structural Fill:

Structural fill shall be composed of clean crushed stone, crushed or screened gravel, or a combination of such materials, free of rubbish, brick ice, snow, tree stumps, roots, clay and organic matter, and other deleterious or organic material; graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
4-inch	100
3-inch	90-100
¾-inch	25-90
No. 4	0-30
No. 200	0-5

B. PROCESSED GRAVEL:

1. Processed gravel shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50.
2. The gradation shall meet the following requirements:

<u>Sieve Designation</u>	<u>Percentage Passing</u>
3-in.	100
1 ½-in.	70-100
¼-in.	50-85
No. 4	30-60
No. 200	0-10

3. The approved source of bank-run gravel material shall be processed by mechanical means. The equipment for producing crushed gravel shall be of adequate size with sufficient adjustments to produce the desired materials. The processed material shall be stockpiled in such a manner to minimize segregation of particle sizes. All processed gravel shall come from approved stockpiles.

C. TRAP ROCK

1. Trap rock shall consist of inert material that is hard, durable crushed gray Basalt (angular stone) stone, free from loam and clay, surface coatings, and other deleterious materials, meeting the following gradation requirements:

<u>Sieve Designation</u>	<u>Percentage Passing</u>
1-in.	100
¾ in.	90-100
½ in.	20-55
3/8 in.	0-15
No. 4	0-5

PART 3 - EXECUTION

3.01 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION:

- A. Contractor shall take the necessary steps to avoid disturbance of subgrade during excavation and filling operations, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials, dewatering and other acceptable control measures.
- B. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with processed gravel in paved areas and controlled fill in landscaped areas of the Site. Costs of removal and replacement shall be borne by the Contractor.
- C. The Contractor shall place a minimum of 12-inch layer of special bedding materials and crushed stone wrapped in filter fabric over the natural underlying soil to stabilize areas which may become disturbed as a result of rain, surface water runoff or groundwater seepage pressures, all at no additional cost to the Owner. The Contractor also has the option of drying materials in-place and compacting to specified densities.

3.02 EXCAVATION

A. GENERAL:

1. The Contractor shall perform all work of any nature and description required to accomplish the work as shown on the Drawings and as specified.
2. Excavations of building foundations and associated subgrade components, unless otherwise required by the Consultant, shall be carried only to the depths and limits shown on the Drawings. If unauthorized excavation is carried out below required subgrade and/or beyond minimum lateral limits shown on Drawings, it shall be

backfilled with approved material and compacted to 95 percent maximum density at no additional costs to the Owner.

3. Side slope excavations must not exceed the angle of repose of the material encountered; otherwise shore and brace where sloping is not possible either because of space limitations or the stability of the material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling by benching, shelving or bracing.
4. The Contractor shall follow a construction procedure, which permits visual identification of stable natural ground. Where groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the Contractor's chosen method of dewatering and which will allow visual observation of the bottom and backfill in the dry.

3.03 BACKFILL PLACEMENT AND COMPACTION:

A. GENERAL:

1. The Contractor shall reuse clean materials excavated for the removal of each UST as backfill in the general area where it was excavated prior to importing additional backfill materials to the Site.
2. Prior to backfilling, the Contractor shall compact the exposed natural subgrade to the densities as specified herein.
3. After approval of subgrade by the Consultant, the Contractor shall backfill the UST excavations to match surrounding grade.
4. The Contractor shall place backfill as specified in 3.01 B. at the bottom of the excavation in continuous horizontal layers, not to exceed eight (8) inches in uncompacted lifts, and compact to a 90% maximum density unless otherwise required by the Owner's Representative/Consultant. The degree of compaction shall be based on maximum dry density as determined by ASTM Test D1557, Method C. In landscaped areas, controlled fill shall be placed to an elevation of minus four (4) inches and compacted in accordance with Section 02329. In paved areas, processed gravel shall be placed and compacted to the pavement subbase elevation.
5. Compaction testing will be performed by the Contractor. Testing shall be performed by certified testing agency acceptable to the Owner's Representative/Consultant. If test results indicate work does not conform to specification requirements, the Contractor shall remove or correct the defective work by re-compacting where appropriate or replacing as necessary and approved by the Consultant, to bring the work into compliance, at no additional cost to the Owner.

6. Where horizontal layers meet a rising slope, the Contractor shall key each layer by benching into the slope.
7. In-place compacted density testing shall be conducted in randomly selected locations as follows:
 - a. A minimum of one test every three (3) lifts of backfill, unless material/proctor changes and then a new test will be performed as required by the Consultant.
 - b. Density shall be performed using ASTM D 1557.

END OF SECTION

SECTION 02745 - PAVING

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall furnish all labor, materials and equipment and shall replace the pavements as indicated on the drawings and as herein specified.

1.02 RELATED WORK:

- A. Section 00890, PERMITS
- B. Section 02300, EARTHWORK
- C. Section 02631, PRECAST MANHOLES AND CATCH BASINS

1.03 SYSTEM DESCRIPTION:

A. GENERAL

The type of pavement system to be utilized on this project is as follows:

TYPE 1. PERMANENT TRENCH PAVEMENT

PAVEMENT SCHEDULE

A. TYPE 1. PERMANENT TRENCH PAVEMENT

Areas shall be paved with 2" of Class 1 Bituminous Concrete (binder course) pavement on 12" of Gravel Base, as soon as practicable after compaction of trench backfill. Binder Course pavement shall be followed by 1-1/2" of Class 2 Bituminous Concrete (surface course) pavement. The surface course shall be installed only with the approval of the Consultant.

1.04 REFERENCES

The following standards form a part of these specifications and indicate the minimum standards required:

American Society for Testing and Materials (ASTM)

ASTM D1557 Test for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 Pound Rammer and 18-Inch Drop

State of Connecticut Department of Transportation (CT DOT)

Form 816 Standard Specifications for Roads, Bridges and Incidental Construction

4.06 Bituminous Concrete (Recycle or Crushed Glass Option)

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six sets of complete job mix formula shall be submitted to the Consultant at least two weeks before any of the work of this section is to begin.

PART 2 - PRODUCTS

2.01 GRAVEL BASE:

- A. Gravel base shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials.
- B. Gradation requirements for gravel base shall be as specified in Article M.05.01 Processed Aggregate Base and Pavement Surface Treatment.

2.02 BITUMINOUS CONCRETE PAVEMENT:

- A. Bituminous concrete pavements shall consist of Classes 1 and 2 Bituminous Concrete.
- B. Bituminous concrete mixtures shall be within the composition limits of binder courses, top courses and surface treatment, in accordance with Article M.04.02 Mix Design and Job Mix Formula, with constituents that conform to Table A, below.

TABLE A

PERCENT BY WEIGHT PASSING SIEVE DESIGNATION

Standard Sieves	Class 1	Class 2
2 in	-	-
1 in	100	-
¾ in	90-100	-
½ in	70-100	100

Standard Sieves	Class 1	Class 2
3/8 in	60-82	90-100
1/4 in	-	-
No.4	40-65	55-80
No.8	28-50	40-64
No.30	10-32	16-36
No.50	6-26	8-26
No.200	3-8	3-8
PG Binder Content, %	5-6.5	5-8

* Percentages shown for aggregate sizes are stated as proportional percentages of total aggregate for the mix.

- C. The joint sealant shall be a hot poured rubberized emulsified asphalt sealant, meeting the requirements of Article M.04.01 Joint Seal Material.
- D. The tack coat shall be an asphalt emulsion, RS-1, conforming to Article M.04.01 Bituminous Concrete Materials.

2.03 PAVEMENT MARKINGS:

- A. Pavement markings shall conform to the requirements of Section 12.09 Painted Pavement Markings.
- B. The mixture of the marking material shall be within the composition limits for reflectorized pavement markings as described in the DOT Specifications as follows:
 - 1. Fifteen-minute dry paint – M.07.20.
 - 2. Hot applied fast-drying paint – M.07.21.
- C. Application of the glass beads to be used as reflector material on the striping shall conform to Section 12.09 Painted Pavement Markings and Article M.07.30 Glass Beads.

PART 3 - EXECUTION

3.01 GENERAL:

Paving courses required for the project shall be as specified herein. Pavement thicknesses specified are measured in compacted inches. If a pavement course thickness exceeds 2-1/2 compacted inches, the course shall be installed in multiple lifts with each lift not exceeding 2-1/2 compacted inches in thickness.

3.02 GRAVEL BASE:

- A. The gravel base to be placed under pavement shall consist of gravel evenly spread and thoroughly compacted. Depths of the subbase shall be as shown on the drawings.
- B. The gravel shall be spread in layers not more than 4-inches thick, compacted measure. All layers shall be compacted to not less than 95 percent of the maximum dry density of the material as determined by ASTM D1557 Method C at optimum moisture content.

3.03 PERMANENT BITUMINOUS PAVEMENT:

- A. The bituminous paving mixture, equipment, methods of mixing and placing, and the precautions to be observed as to weather, condition of base, etc., shall be in accordance with Section 4.06 Bituminous Concrete.

B. BINDER COURSE (CLASS 1) PAVEMENT:

- 1. Immediately prior to installing the binder course, the trimmed edges shall be made stable and unyielding, free of loose or broken pieces and all edges shall be thoroughly broomed clean. Contact surfaces of trench sides, curbing, manholes, catch basins, or other appurtenant structures in the pavement shall be painted thoroughly with a uniform coating of asphalt emulsion (tack coat), just before any mixture is placed against them.
- 2. The binder course shall be repaired as necessary to maintain the surface of the pavement until placement of the permanent overlay. If required, the Contractor shall place a leveling course before placing the permanent overlay.

C. TOP COURSE (CLASS 2)

- 1. The top course shall be placed over the trench or full width as shown on the drawings or as specified.
- 2. Prior to placement of the top course, the entire surface over which the top course is to be placed, including against curbs, gutters and castings, shall be broom cleaned and tack coated.

3. Top course pavement placed over trenches may be feathered to meet existing paved surfaces, if approved by the Consultant.
4. Prior to placing full width top course, keyways shall be cut in all intersecting streets.

3.04 PAVEMENT PLACEMENT:

- A. Unless otherwise permitted by the Consultant for particular conditions, only machine methods of placing the pavement shall be used. The equipment for spreading and finishing shall be mechanical, self-powered pavers, capable of spreading and finishing the mixture true to line, grade, width and crown. The mixtures shall be placed and compacted only at such times as to permit proper inspection and checking by the Consultant.
- B. After the paving mixtures have been properly spread, initial and intermediate compaction shall be obtained by the use of steel wheel rollers having a weight of not less than 10 tons. Vibratory roller, if used, shall be of a self-propelled type specifically designed for the compaction of bituminous concrete. It shall be equipped with a spread control device and set to prevent the roller from traveling in excess of 2 1/2 mph (220 fpm) while operating in vibratory mode, and 5 mph (440 fpm) while operating in the static mode.
- C. Final rolling of the top course or surface treatment pavement shall be performed by a steel wheel roller weighing not less than 10 tons at a mix temperature and time sufficient to allow for final smoothing of the surface and thorough compaction.
- D. Immediately after placement of top course or surface treatment pavement, all joints between the existing and new top course or surface treatment pavements shall be sealed with joint sealant.
- E. Where there is no backing for the edges of the curb-to-curb pavement, the Contractor shall provide a gravel transition. The gravel transition shall be installed immediately after the pavement is placed, shall be feathered and extend a minimum of 18 inches, and shall be compacted using the same equipment as for pavement compaction. The gravel shall be uniformly graded material meeting the requirements of Article M.02.04 Gravel Shoulders.
- F. When required by the Consultant, the Contractor shall furnish and install additional paving to provide satisfactory transition for driveways and walkways impacted by a new curb-to-curb pavement installation. The transition installation will be considered incidental to the curb-to-curb pavement installation.

3.05 ADDITIONAL PAVING:

- A. If the Consultant determines that the existing bituminous concrete pavement on (local) streets is thicker than the permanent pavement specified herein, the Contractor may be required to install additional Class 1 bituminous concrete to obtain the depth of the existing pavement.
- B. If for the installation of full width paving, the Consultant determines that the existing road surface requires additional leveling pavement, then the Contractor shall install additional Class 2 bituminous concrete to bring the section to proper line and cross section. Additional paving required to restore the proper line and cross section of binder course installed by the Contractor which has become rough and uneven shall be urnished and installed at the expense of the Contractor.

3.06 RAISING AND ADJUSTING CASTINGS:

- A. In areas of permanent top course paving, existing municipally-owned catch basin and manhole castings and valve boxes shall be raised to the proper grade where required by the Consultant.
- B. Castings owned by private utilities shall be raised by their own forces. The Contractor shall be responsible for coordinating this work.
- C. The method of adjusting these castings shall be as follows: Cut around catch basin or manhole castings a minimum of 8-inches from casting. Excavate and if required rebuild up to 12-inches of masonry below the bottom of the casting. Backfill with suitable material and compact to bottom of casting. Place high, early strength cement or bituminous concrete collar, as directed, to approximately 1½-inches below the raised casting grade. Masonry work shall conform to Section 02631, PRECAST MANHOLES AND CATCH BASINS.
- D. In some areas, raising of castings may not be required. Where required by the Consultant, castings not to be raised shall have at least 12-inches of bituminous concrete pavement chipped and removed around the casting. New bituminous concrete pavement shall be placed and compacted around such castings to approximately 1-1/2-inches below the top of the casting. The overlay course shall then be sloped down to the level of the casting.
- E. The method of raising valve boxes shall be as follows: Cut around valve box a minimum of 8-inches from valve box. Excavate as required and raise the valve box. Pour high early strength cement or bituminous concrete collar, as directed, to approximately 1-1/2-inches below the top of the valve box.
- F. Castings, which need to be raised or adjusted to complete permanent curb to curb paving, shall be done immediately prior to paving.

3.11 PAVEMENT MARKINGS:

- A. The Contractor shall replace all pavement markings removed or covered-over in carrying out the work, and as required by the Consultant, no sooner than 48 hours after completion of permanent pavement. The markings shall be 4-inches wide, white or yellow, single or double lines as required.
- B. When required by the Consultant, the Contractor shall provide painted or plastic temporary markings on temporary pavement at no additional cost to the Owner.

3.12 PAVEMENT REPAIR:

- A. If required in the contract or if permanent pavement becomes rough or uneven, permanent pavement patches and trenches shall be repaired and brought to grade utilizing "infrared" paving methods following completion of the construction.
- B. The Contractor performing the work shall use care to avoid overheating the pavement being repaired.
- C. Pavement repair shall extend a minimum of 6-inches beyond all edges of the pavement patch to assure adequate bonding at the pavement joints.

END OF SECTION

SECTION 026113 - EXCAVATION, HANDLING, TRANSPORTATION AND DISPOSAL OF
EXCAVATED MATERIALS

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Furnish all labor, materials, equipment, and incidentals necessary to properly excavate, segregate, handle, dewater, stabilize, load, transport and dispose of excavated soil/sediment materials located within the Limit of Work. Work covered by this Section shall include furnishing, operating, and maintaining equipment decontamination stations for the duration of excavation activities and dismantling, disposing of decontamination stations at project completion. Decontamination stations shall be capable of eliminating the dispersion of dust and mud caused by vehicles exiting the site.
- B. The Contractor shall perform disposal characterization sampling and analytical testing of the excavated material as required by the permitted disposal facility at no additional cost to the Owner.
- C. The Owner will be the Generator and will sign all disposal facility waste profiles and Hazardous Waste Manifests (manifest) as the Generator. All paperwork required for work under this Section shall be prepared by the Contractor and approved by the Owner's Representative/Consultant.
- D. The Contractor shall coordinate truck traffic (staging, queuing, and transportation) with the Town of Litchfield Police Department prior to the start of excavation.

1.02 RESPONSIBILITIES

- A. The Contractor shall perform the following:
 - 1. The Contractor shall perform all disposal characterization sampling of all material to be disposed of.
 - 2. The Contractor shall be responsible for the submitting to the Owner's Representative/Consultant the daily logs summarizing excavating activities.
 - 3. The Contractor shall identify and provide a list of proposed treatment, recycling, and disposal facilities for all excavated material to be reviewed and approved by the CONSULTANT and OWNER prior to shipment of excavated materials.
 - 4. The Contractor shall be responsible for dewatering excavated material to reduce the weight/moisture content as necessary to meet or exceed treatment/recycling/ disposal facility acceptance criteria.
 - 5. The Contractor shall stabilize, as necessary, the excavated soil/sediment with materials that do not increase the weight of the sediment by more than 10 percent.
 - 6. The Contractor shall be responsible for transporting excavated material to the approved soil/sediment treatment/recycling/disposal facility.
 - 7. The Contractor shall furnish, operate and maintain equipment decontamination stations for the duration of excavation and soil disposal work.
 - 8. The Contractor shall develop and implement site-specific emergency response and health and safety protocols and procedures.
 - 9. For each shipment of material transported to a treatment/recycling/disposal facility, the

Contractor shall demonstrate to the Owner's Representative/Consultant that he has selected the least costly means of disposal. This demonstration shall be made prior to shipment.

10. The Contractor shall be responsible for submitting weight slips, completed manifests and other shipping documents to the Owner's Representative/Consultant within fourteen (14) calendar days of shipment to a treatment/recycling/disposal facility.
11. The Contractor shall advise the Owner's Representative/Consultant at least three working days in advance of the schedule for off-site disposal of excavated material.
12. The Contractor shall prepare the necessary documents to transport and dispose of excavated material. These documents include, but are not limited to waste profiles and manifests.
13. The Contractor shall submit the executed transportation and disposal documents to the appropriate local, state and federal agencies as well as the Owner's Representative/Consultant.
14. The Contractor shall provide an environmental field technician to oversee the loading of excavated material into transport vehicles for off-site disposal.
15. The Contractor shall keep records, including daily logs and photographs, of all waste streams, stockpiles, and excavated materials for the purposes of tracking points of origin.
16. The Contractor shall develop and implement dust/odor control measures and air monitoring.

C. Owner's Responsibilities:

1. The Owner will review and approve the proposed facilities selection of off-site treatment/recycling/disposal facilities.
2. The Owner will be the designated Generator for excavated material identified for off-site treatment/recycling/disposal.
3. The Owner will review and approve all paperwork and manifests.
4. The Owner's Representative/Consultant will perform visual inspection of excavated soil to evaluate the limits of excavation.

1.03 SUBMITTALS:

- A. Submit to the Owner's Representative/Consultant, for review, and in accordance with the requirements of the general specifications, the information required by Paragraph 1.04 B., no more than one (1) calendar day after issuance of the Notice to Proceed:
- B. The Contractor shall submit the following information in an Excavated Materials Management Plan (EMMP):
 1. A schedule detailing the proposed sequence of work.
 2. The Contractor shall develop a stockpile disposal characterization sampling program to facilitate the direct loading of excavating material following dewatering.
 3. All pertinent information relating to the transport of excavated material. The information, at a minimum, shall include:
 - a. Name and address of all transporters.
 - b. Transporter identification number (USEPA) and expiration date.

- c. Proof of permit, license, or authorization to transport excavated material in all affected states.
 - d. Details of containers to be used for transporting excavated material. Refer to Paragraph 2.01 B. of this Section.
 - e. Dust control measures.
 4. The Contractor shall identify each waste stream and propose an appropriate permitted disposal facility that will accept the excavated material. The Contractor shall submit to the Owner's Representative/Consultant, approvals or letters of intent and facility information for each facility proposed, within 14 calendar days of issuance of the Notice to Proceed. For each facility, the Contractor shall submit the following information:
 - a. General Information
 - i. Facility Name
 - ii. Facility Address
 - iii. Name of Contact Person
 - iv. Title of Contact Person
 - v. Telephone Number of Contact Person
 - vi. Permit Number
 - b. The Contractor shall provide information from the facility specifying the volume of material that can be accepted from the site on a weekly and a total basis.
 - c. The Contractor shall provide written confirmation from the facility that they are permitted to accept and will accept the classified material of the general quality and quantity described by these Specifications.
 - d. The Contractor shall provide a listing of all current and valid facility permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and management of the soils or materials specified in this contract.
 - e. The Contractor shall submit a complete list of the disposal facility's permitted allowable contaminant levels and physical characteristic requirements for excavated material, and list any required regulatory approvals for individual waste streams.
 5. Location, name, address and pertinent information for any proposed off-site primary and secondary temporary storage location.
- C. Laboratory results for all samples collected and/or analyzed by the Contractor shall be tabulated and compared to applicable permitted facility acceptance standards by the Contractor and subsequently submitted to the Owner's Representative/Consultant within 2 working days of receipt. The results shall include all Chain-of-Custody forms and all documentation provided by the laboratory.

1.04 REFERENCES:

- A. All regulations cited and those of other governing agencies in their most recent version are applicable. This Section refers to many requirements found in these references, but in no way is intended to cite or reiterate all provisions therein or elsewhere. It is the Contractor's responsibility to know, understand, and abide by all such regulations and common practices. Other provisions contained in these references may from time to time during the execution of this Contract be enforced by the Owner's Representative/Consultant. In the event of a conflict, the most stringent regulations shall govern. The following documents and/or publications are made part of this Section by reference herein:
1. "Hazardous Waste Operations and Emergency Response", Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120.
 2. "General Regulations for Hazardous Waste Management", EPA, 40 CFR 260.
 3. "Regulations for Identifying Hazardous Waste, Hazardous Waste Generators and Hazardous Waste Transporters", EPA, 40 CFR 261, 262 and 263.
 4. "Standards for Management of Specific Hazardous Wastes and Facilities", EPA, 40 CFR 266.
 5. Local regulations governing dust control, soil handling, and health & safety (see Section 312500, Erosion and Sediment Controls).
 6. Connecticut Hazardous Waste Management Regulations (22a-149 (c) 100 through 119, and 22a-454-1).
 7. Connecticut Regulations for Solid Waste Management (22a-208a-1(a), 22a -209-1, and 22a-209-3; 22a-209-18 and 22a-209d-1).
 8. Connecticut Air Pollution Regulations (22a-174-1 through 44 and 22a-174-200).
 9. Connecticut "Remediation Standard Regulations" 22a-133k-1 through 22a-133k-3.
 10. Connecticut "Contaminated Soil and/or Sediment Management (Staging and Transfer" General Permit (DEP-SW-GP-001).
 11. Connecticut "Groundwater Remediation Wastewater Directly to Surface Water" General Permit (DEP-PERD-GP-020).
 12. Connecticut "Groundwater Remediation Wastewater to a Sanitary Sewer" General Permit (DEP-WD-GP-007).
 13. Connecticut "Stormwater and Dewatering Wastewaters from Construction Activities" (DEP-PERD-GP-105).

1.05 DEFINITIONS:

- A. Excavated Material: All soil/sediment excavated from within the Limit of Work.
- B. Excavated Debris: All asphalt, brick, concrete, rock, trash and all other debris material excavated from within the Limit of Work.

1.06 PERMIT REQUIREMENTS:

- A. The Contractor shall obtain (i.e. submit, pay for, and acquire) all Federal, State, and local permits required for the transport and disposal of excavated material. The Contractor shall adhere to all permit requirements.

1.07 DISPOSAL/RECYCLING FACILITY VENDORS

- A. The Contractor shall propose primary and secondary facility vendors for the following:
1. Sediment/Soil Disposal/Recycling in accordance with all state and federal requirements.
 2. Solid Waste/Debris Disposal in accordance with all state and federal requirements.
 3. Liquid disposal in accordance with all state and federal requirements.

PART 2 – PRODUCTS

2.01 GENERAL:

- A. All Contractor personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection for this Work as indicated in Section 013529 – Health and Safety Plan.
- B. Containers used for hauling the excavated material shall be constructed of steel, in good condition and designed for the intended purpose of safe, secure storage of hazardous material during loading and transport to an approved facility. The containers shall have a secure cover, which will prevent a release of material from truck during transportation. The container and covers shall be approved by the Owner's Representative/Consultant prior to mobilization of trucks/containers. The containers shall be approved by and labeled in accordance with the U.S Department of Transportation (DOT). The containers shall be sift proof and water resistant in accordance with the DOT regulations.

2.02 STOCKPILE SHEETING:

- A. Nylon-reinforced polyethylene (NRPE) or 20-mil (minimum) polyethylene sheeting shall be used for stockpiling.
- B. NRPE sheeting shall conform to the following specifications:
1. The membrane shall be manufactured of new, first quality product designed and manufactured specifically for the intended use.
 2. The material shall be 10-mil polyethylene reinforced with a non-woven grid of high strength nylon cord.
 3. The material shall be ultra-violet resistant and cold crack resistant to -40 degrees Fahrenheit.
 4. The materials shall be manufactured in a minimum 12-foot seamless width. Labels on the roll shall identify the thickness, length width and manufacturer's mark number.

2.03 EQUIPMENT AND VEHICLE DECONTAMINATION PAD

- A. A decontamination pad shall be constructed of reinforced concrete or bituminous concrete to withstand an HS-20 loading. The decontamination pad shall be of minimum length to accommodate one 18-wheel dump truck, and a minimum area to accommodate the largest piece of equipment to be used in the excavation. The pad shall have a six-inch containment berm and provisions for collection, storage and disposal of decontamination water.

2.04 DEWATERING PAD

- A. Dewatering shall be performed by stockpiling excavated saturated soil/sediment on a 10-mil NRPE or a 20-mil (minimum) HDPE lined and bermed pad to facilitate gravity drainage of water to a lined collection sump.

2.05 EQUIPMENT STAGING AREAS

- A. Equipment staging areas shall be constructed of 8-oz. non-woven geotextile fabric over existing ground surface followed by 12 inches of compacted base course.

PART 3 – EXECUTION

3.01 GENERAL:

- A. The Contractor shall handle and convey all materials to perform site work described in this Contract.
- B. The Contractor shall perform disposal characterization sampling and analytical testing of the excavated material as required by the permitted disposal facility at no additional cost to the Owner.
- C. Based upon all analytical results, transport and dispose of the excavated material as specified in this Section.
- D. The Owner shall have final approval over all disposal options.

3.02 DEWATERING/STABILIZATION

- A. Contractor shall dewater excavated material to reduce the weight/moisture content and to meet treatment/recycling/disposal facility acceptance criteria (e.g., paint filter test). Soil/sediment dewatering shall be performed by stockpiling excavated soil on a HDPE lined and bermed pad in accordance with Paragraph 2.04. Collected water shall be conveyed to a surface water or sanitary sewer under the applicable Connecticut General Permit for the project. The Contractor is responsible to determining and obtaining the applicable General Permit based on site construction activities.
- B. The Contractor shall stabilize, if necessary, the excavated material to pass the paint filter test for transport. Stabilization agents shall not be allowed which significantly increase the weight of the material.

- C. The Contractor shall perform any additional disposal characterization sampling and analytical testing of the excavated material as required by the permitted disposal facility at no additional cost to the Owner.
- D. Based upon all analytical results, transport and dispose of the excavated material as specified in this Section.
- E. The Owner shall have final approval over all disposal options.

3.03 STOCKPILE DISPOSAL CHARACTERIZATION SAMPLING:

- A. The Contractor shall be responsible for sampling and characterizing stockpiles of dewatered excavated material for the purpose of obtaining approvals from the disposal facility(ies). The Contractor shall provide the Owner's Representative/Consultant with a minimum of 2 working days notice prior to sampling and shall not sample unless Owner's Representative/Consultant's approval is received.
- B. Submit a copy of all chemical analyses and a tabulated summary of the data (Excel format) to the Owner's Representative/Consultant within 2 working days of receipt of the laboratory report.
- C. Take samples in such a manner as not to cause any cross-contamination. All sampling equipment shall be decontaminated between usage.
- D. All analyses shall be performed by a laboratory certified for such analyses by the State in which the material is to be disposed of and in accordance with the disposal facility operating permit requirements.
- E. The Owner's Representative/Consultant may stop the Contractor's work in a particular location at any time in order to have samples taken and analyzed. If necessary, the Contractor shall assist the Owner's Representative/Consultant in collecting samples. The work shall not resume in that area until required by the Owner's Representative/Consultant. Stoppage of work for this reason, or until laboratory results are delivered to the Owner's Representative/Consultant, shall not be a cause for the Contractor to request additional compensation or an extension of time to the Contract or to other intermediate Contract deadlines.
- F. The Contractor shall not backfill an excavation until the Owner's Representative/Consultant has given approval to do so.

3.04 TEMPORARY STOCKPILING OF EXCAVATED MATERIALS:

- A. All excavated material shall be stored in a secure manner to prevent exposure to humans and the environment.
- B. Stockpiled or consolidated excavated material shall not be placed near sensitive human health receptors such as public and private water supply wells or sensitive environmental receptors.
- C. All excavated material stored at the site of generation or at a temporary storage location shall be placed entirely on sheeting as defined in Section 2.02, and shall be covered at the end of each day's work with the same material or so as to minimize the infiltration of precipitation, volatilization of

contaminants and erosion of the stockpile. Any sheeting used shall be properly secured and possess the necessary physical strength to resist tearing by the wind and other elements.

- D. The stockpiles shall be bermed around the edges to minimize infiltration of stormwater or exfiltration of leachate.
- E. Any failure of materials or procedures used in employing the base layer or cover layer shall be immediately repaired, replaced or re-secured so as to minimize precipitation infiltration, volatilization and erosion/runoff of the excavated material.
- F. Movement and/or aeration of excavated material shall be limited to those activities that are necessary to manage such stockpiles.
- G. Disposal of material that is contaminated as a result of careless handling or use of unauthorized procedures shall be at the Contractor's expense. Delays of Work resulting from temporary storage of excavated material, regardless of the classification, shall be at no additional cost to the Owner.
- H. Excavated material shall be disposed off site within 90 calendar days of excavation.
- I. The Contractor shall segregate excavated material into stockpiles no greater than 500 cubic yards.
- J. The stockpiles shall be clearly labeled and securely barricaded from contact with workers and the general public.

3.05 MANAGEMENT OF EXCAVATED MATERIAL

- A. The Contractor shall provide a soil management system to manage material between excavation, stockpiling, sampling, testing and final disposition.
 - 1. Include in the system the identification of the source of material (i.e., station, offset), depth, date of excavation and stockpile identification and location.
 - 2. Submit to the Owner's Representative/Consultant for review the management plan. This plan shall include all proposed daily log sheets.
 - 3. Provide to the Owner's Representative/Consultant, on a daily basis, copies of field records documenting the location of stockpiled material in the system and stockpile identification data.
 - 4. Each stockpile shall be identified with a suitable weatherproof sign attached to a stake driven into each pile.

3.06 DEBRIS DECONTAMINATION:

- A. As required by designated disposal facilities, the Contractor shall be responsible for decontaminating any debris shown to be contaminated by sampling at no additional cost to the Owner. The decontamination means and methods shall be included in the EMMP submitted to the Owner's Representative/Consultant 14 calendar days after issuance of Notice to Proceed.

3.07 DISPOSAL FACILITY CATEGORIES:

- A. The Contractor shall transport the material for off-site reuse, recycling, or disposal at a permitted facility based on the following categories:
 - 1. Non-RCRA Out-of-State Lined Landfill Material: Excavated material that meets the destination state's solid and hazardous waste regulations and the receiving facility's operating permit(s). This includes material shipped for reuse as daily cover, intermediate cover, and pre-cap contouring material or material shipped for disposal. This also includes material designated as a "special solid waste".
 - 2. In-State Recycling or Thermal Desorption Facility Material: Excavated material that meets the CT criteria for recycling or thermal desorption and the receiving facility's operating permit(s).
 - 3. RCRA Landfill Material: Excavated material that contains a listed or characteristic hazardous waste according to the state and federal regulations listed in Paragraph 1.04 of this Section.
- B. Material shall be transported under a Uniform Hazardous Waste Manifest.
- C. Material shipped to any recycling/disposal facility shall meet the selected facility's chemical and physical acceptance criteria. Selected facilities shall be established, fully operational, appropriately insured, and be operating in compliance with all applicable local, state, and federal regulations.

3.08 WEIGHT AND MEASUREMENT:

- A. The Contractor shall provide certified tare and gross weight slips for each load received at the accepted Facility and these shall be attached to each returned manifest.

3.09 WASTE PROFILES AND MANIFESTS:

- A. The Contractor shall prepare and submit to the Owner's Representative/Consultant for review all waste profile applications and questionnaires, and coordinate with disposal facilities and all Federal and State Environmental Agencies.
- B. The Contractor shall prepare all Hazardous Waste Manifests and shipping records with all applicable analytical backup, notification, and control forms.
- C. The Contractor shall also provide certified tare and gross weight slips for each load received at the designated facility which shall be attached to each returned manifest.
- D. The Contractor shall furnish all Generator copies of the Hazardous Waste Manifest to the Owner for submittal to the appropriate regulatory agencies and to retain for the Owner's records.
- E. The Contractor shall submit to the Owner's Representative/Consultant, prior to receiving progress payment, documentation certifying that all materials were transported to, accepted, and disposed of, at the selected disposal facility. The documentation shall include the following, as a minimum.

1. Documentation shall be provided for each load from the site to the disposal facility, including all manifests and any other transfer documentation as applicable.
2. All documentation for each load shall be tracked by the original manifest document number that was assigned by the Owner's Representative/Consultant at the site.

F. EPA ID number shall be provided by the Owner.

3.10 TRANSPORT OF EXCAVATED MATERIAL/DEBRIS:

- A. The Contractor shall not be permitted to transport materials off-site until all storage, disposal, or recycling facility documentation has been received, reviewed, and approved by the Owner's Representative/Consultant.
- B. The Contractor shall transport materials from the site to the storage, disposal, reuse or recycling facility in accordance with all United State Department of Transportation (DOT), USEPA, and applicable state and local regulations.
- C. The Hauler(s) shall be licensed in all states affected by transport.
- D. The Contractor shall be responsible for ensuring that free liquid is properly transported. "Wet material" shall not be loaded for transport. The Contractor shall dewater "wet material", and properly dispose of dewatering in accordance with local, state, and federal regulations. The Contractor shall dispose of any free liquids that may result during transportation at no additional cost to the Owner.
- E. All excavated material transported upon public roadways shall be covered to minimize fugitive dust, and where necessary truck tire and undercarriage decontamination shall be employed to minimize tracking of soils onto public roadways.
- F. The Contractor shall coordinate truck traffic (staging, queuing, and transportation) with the Town of Suffield Police Department prior to the start of excavation.

3.11 DISPOSAL:

- A. Dispose of excavated materials at an approved facility in accordance with all federal, state and local regulations.
- B. The Contractor shall perform analyses on the material as necessary to fulfill any disposal testing requirements of the approved Facility.
 1. The Contractor shall bear all costs incurred in sampling and analyses for those tests required by the facility in excess of those performed by the Owner's Representative/Consultant.
 2. The Contractor shall submit a copy of all sampling analyses to the Owner's Representative/Consultant within two (2) calendar days of receipt of the laboratory report.

Analytical data shall be kept confidential, distributed to the Owner's Representative/Consultant only.

- C. The Contractor shall provide to the Owner's Representative/Consultant copies of all weight slips, both tare and gross, for every load weighed and disposed of at the approved facility. The slips shall be tracked by the original manifest document number that was assigned by the Owner's Representative/Consultant at the site. The Owner's Representative/Consultant shall make progress payments after receipt of these weight slips.

END OF SECTION

32 91 19 LOAMING AND SEEDING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section covers all labor, materials, and equipment necessary to do all loaming, seeding and related work as indicated on the drawings and as herein specified. All lawns disturbed by the Contractor's operations shall be repaired as herein specified.

1.02 QUALITY ASSURANCE:

- A. For a particular source of loam, the Engineer may require the Contractor to send approximately 10 pounds of loam to an approved testing laboratory and have the following tests conducted:
 - 1. Organic concentration
 - 2. pH
 - 3. Nitrogen concentration
 - 4. Phosphorous concentration
 - 5. Potash concentration
- B. These tests shall be at the Contractor's expense. Test results, with soil conditioning and fertilizing recommendations, shall be forwarded to the Engineer.

1.03 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. Six sets of information detailing the seed mixes, fertilizers, mulch material, slope protection material (if required) and origin of loam shall be submitted to the Engineer for review.
- B. Three sets of test results shall be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. LOAM:
 - 1. Loam shall be a natural, fertile, friable soil, typical of productive soils in the vicinity, obtained from naturally well-drained areas, neither excessively acid nor alkaline, and containing no substances harmful to grass growth. Loam shall not be delivered to the

site in frozen or muddy condition and shall be reasonably free of stumps, roots, heavy or stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter.

2. The loam shall contain not less than 4 percent or more than 20 percent organic matter as determined by the loss of weight by ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F.

B. LIME:

Lime shall be standard commercial ground limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide), and 50 percent of the material must pass through a No. 100 mesh sieve with 98 percent passing a No. 2 mesh sieve.

C. FERTILIZER:

Fertilizer shall be commercial fertilizer, 10-10-10 fertilizer mixture containing at least 40 percent of organic nitrogen. It shall be delivered to the site in the original sealed containers, each showing the manufacturer's guaranteed analysis. Fertilizer shall be stored so that when used it will be dry and free flowing. No fertilizer shall be used which has not been marketed in accordance with State and Federal Laws, relating to fertilizers.

D. MULCH:

1. Materials to be used in mulching shall conform to the following requirements:
2. Straw Mulch - Straw Mulch shall consist of stalks or stems of grain after threshing.
3. Wood Fiber Mulch - Wood Fiber Mulch shall consist of wood fiber produced from clean, whole uncooked wood, formed into resilient bundles having a high degree of internal friction and shall be dry when delivered to the project.

E. SEED:

1. Seed shall be of an approved mixture, the previous year's crop, clean, high in germinating value, a perennial variety, and low in weed seed. Seed shall be obtained from a reliable seed company and shall be accompanied by certificates relative to mixture purity and germinating value.
2. Grass seed for lawn areas shall conform to the following requirements:

Proportion by Weight	Germination Purity	Purity Minimum
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Chewing's Fescue	30%	70%	97%
Kentucky 31 Fescue	30%	90%	98%
Kentucky Blue Grass	20%	80%	85%
Domestic Rye Grass	20%	90%	98%

Grass seed for cross-country areas, slopes and other areas not normally mowed shall conform to the following requirements:

	Proportion by Weight	Germination Minimum	Purity Minimum
Creeping Red Fescue	50%	85%	95%
Kentucky 31	30%	85%	95%
Domestic Rye	10%	90%	98%
Red Top	5%	85%	92%
Ladino Clover	5%	85%	96%

F. TEMPORARY COVER CROP:

1. Temporary cover crop shall conform to the following requirements:

	% Weight	Germination Minimum
Winter Rye	80 min.	85%
Red Fescue (creeping)	4 min.	80%
Perennial Rye Grass	3 min.	90%
Red Clover	3 min.	90%
Other Crop Grass	0.5 max.	
Noxious Weed Seed	0.5 max.	
Inert Matter	1.0 max.	

G. SLOPE EROSION PROTECTION:

1. Erosion control blanket shall be 100% degradable plastic mesh with 100% degradable straw or straw/coconut fill. Fill shall be held together by degradable fastening. Weight shall be 0.50 lb./sq. yd. Erosion control blankets shall be applied parallel to direction of water flow. The erosion control blankets shall be by North American Green, Evansville, IN or approved equal. For slopes 2:1 or greater, Model SC150 shall be used. For slopes less than 2:1, Model S150 shall be used.

2. Six inch wire staples shall be placed according to manufacturer's recommendations to anchor the mesh material. Staples shall be designed to decompose.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION:

- A. After approval of rough grading, loam shall be placed on areas affected by the Contractor's operations. Loam shall be at least 6-inches compacted thickness.
- B. Lime shall be applied to bring the pH to 6.5 or, without a soil test, at the rate of 2-3 tons of lime per acre.
- C. Fertilizer shall be applied according to the soil test, or without a soil test, at the rate of 1000 pounds per acre.
- D. Loam shall be worked a minimum of 3-inches deep, thoroughly incorporating the lime and fertilizer into the soil. The loam shall then be raked until the surface is finely pulverized and smooth and compacted with rollers, weighing not over 100 pounds per linear foot of tread, to an even surface conforming to the prescribed lines and grades. Minimum depth shall be 6-inches after completion.

3.02 SEEDING:

- A. Seeding shall be done when weather conditions are approved as suitable, in the periods between April 1 and May 30 or August 15 to October 1, unless otherwise approved.
- B. If there is a delay in seeding, during which weeds grow or soil is washed out, the Contractor shall remove the weeds or replace the soil before sowing the seed, without additional compensation. Immediately before seeding is begun, the soil shall be lightly raked.
- C. Seed shall be sown at the approved rate, on a calm day by machine.
- D. One half the seed shall be sown in one direction and the other half at right angles. Seed shall be raked lightly into the soil to a depth of 1/4-inch and rolled with a roller weighing not more than 100 pounds per linear foot of tread.
- E. The surface shall be kept moist by a fine spray until the grass shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than 3 sq. ft., the Contractor shall reseed, roll, and water as necessary to obtain proper germination.
- F. The Contractor shall water, weed, cut and otherwise maintain and protect seeded areas as necessary to produce a dense, healthy growth of perennial lawn grass.

- G. If there is insufficient time in the planting season to complete the fertilizing and seeding, permanent seeding may be left until the following planting season, at the option of the Contractor or as required by the Engineer. In that event, a temporary cover crop shall be sown. This cover crop shall be cut and watered as necessary until the beginning of the following planting season, at which time it shall be plowed or harrowed into the soil, the area shall be fertilized and the permanent seed crop shall be sown as specified.

3.03 PLACING MULCH:

- A. Straw Mulch shall be loosely spread to a uniform depth over all areas designated on the plans, at the rate of 4-1/2 tons per acre, or as otherwise required.
- B. Straw Mulch may be applied by mechanical apparatus, if in the judgment of the Engineer the apparatus spreads the mulch uniformly and forms a suitable mat to control slope erosion. The apparatus shall be capable of spreading at least 80 percent of the hay or straw in lengths of 6-inches or more, otherwise it shall be spread by hand without additional compensation.
- C. Wood Fiber Mulch shall be uniformly spread over certain selected seeded areas at the minimum rate of 1,400 pounds per acre unless otherwise required. It shall be placed by spraying from an approved spraying machine having pressure sufficient to cover the entire area in one operation.

3.04 SEEDING AND MULCHING BY SPRAY MACHINE:

- A. The application of lime, fertilizer, grass seed and mulch may be accomplished in one operation by the use of an approved spraying machine. The materials shall be mixed with water in the machine and kept in an agitated state in order that the materials may be uniformly suspended in the water. The spraying equipment shall be so designed that when the solution is sprayed over an area, the resulting deposits of lime, fertilizer, grass seed and mulch shall be equal to the specified quantities.
- B. A certified statement shall be furnished, prior to start of work, to the Engineer by the Contractor as to the number of pounds of limestone, fertilizer, grass seed and mulch per 100 gallons of water.
- C. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above. If the results of the spray operation are unsatisfactory, the Contractor will be required to abandon this method and to apply the lime, fertilizer, grass seed and mulch by other methods.

3.05 INSPECTION AND ACCEPTANCE:

At the beginning of the planting season following that in which the permanent grass crop is sown, the seeded areas will be inspected. Any section not showing dense, vigorous growth at that time shall be promptly reseeded by the Contractor at his own expense. The seeded areas shall be watered, weeded, cut and otherwise maintained by the Contractor until the end of that planting season, when they will be accepted if the sections show dense, vigorous growth.

END OF SECTION