REMEDIAL DESIGN SPECIFICATIONS

Tee Bird Country Club - RD
(NYSDEC Site Number 546028)

NYSDEC STANDBY ENGINEERING CONTRACT
Work Assignment #D007625-17

PREPARED FOR
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NEW YORK 12233

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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November 2015

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SECTION XI

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FINAL DESIGN

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SECTION 01100

Scope of Work

PART 1 - GENERAL

1.1 SITE DESCRIPTION

A. Site Location: The Tee-Bird Country Club Site is located at 30 Reservoir Road in the Town of Moreau, Saratoga County, New York. The site is bordered to the north by woods, to the west by several residences located along Burt Road, to the east farmlands and woods, and to the south by woods, farmland and a small cemetery. The property consists of a public 18-hole golf course, with a clubhouse building, a maintenance building, a small open-air food stand, and a cart shed. The buildings are situated around a paved and unpaved parking area located in the north-central part of the property near Reservoir Road. The regulated site is approximately 0.75 acre consisting of partially paved parking lot.

B. Site Background: In the late 1970's, polychlorinated biphenyl (PCB) contaminated waste oils were sprayed onto the surface of the driveway and parking lot for dust control. The detection of PCBs and pesticides in the soil led to the site being classified as a Class 3 Inactive Hazardous Waste Disposal Site (No. 546028) in 1984. Additional investigation sampling performed by NYSDEC revealed site-wide PCB concentrations under and beyond the paved areas leading to the site being reclassified to Class 2 in March 2005. Known concentrations of PCBs range from non-detect (ND) to 553 mg/kg.

1.2 SUMMARY OF WORK

A. Excavation of Contaminated Soils: Soils impacted with PCBs exceeding the site cleanup standards of 1 mg/kg in the surface soils from 0-12 inches and 10 mg/kg in the subsurface soils (soils greater than 12 inches or directly beneath the existing paved cap) will be excavated and disposed offsite to a permitted disposal facility. PCB contaminated soils are regulated under the Toxic Control Substance Act (TSCA). PCB contaminated soil having concentrations greater than 50 mg/kg requires disposal to an EPA approved TSCA disposal facility and/or EPA TSCA approved incineration facility. Soils containing PCBs less than 50 mg/kg will be disposed of to a State approved municipal or non-municipal non-hazardous waste landfill facility or thermally treated at the ESMI burn plant in Fort Edward, NY for reuse as backfill. Thermally treated soil must contain less than 1 mg/kg of PCBs for reuse.

B. Confirmation Sampling: The contractor will be responsible for contracting a NYS licensed survey to locate for confirmation samples, collecting the confirmation samples, and submitting them to a NYSDOH ELAP certified laboratory for PCB analysis. Sample locations shall be as shown in the Contract Documents. Sample results shall be reported to the Engineer who will verify cleanup levels have been met for the site.

C. Site Restoration: The Contractor shall restore the site to the existing grades and restore the parking area with a gravel cap specified in the Contract Documents. Imported fill used to restore the site must meet the clean fill requirements of 6 NYCRR Part 375-6.7(d) specified for a commercial use. In areas where gravel will not be used to restore the site, the Contractor shall provide a minimum of one foot of clean fill over a demarcation layer with the upper four inches of soil of sufficient quality to maintain vegetative growth.

1.3 PRE-CONSTRUCTION CONFERENCE

A. A Pre-Construction Conference will be held between the Department, the Engineer, and the Contractor. Attendance by the Contractor's superintendent, quality control personnel, key safety personnel including Safety Officer, and any major subcontractor's superintendent will be mandatory.

B. Prior to the Pre-Construction Conference the Contractor shall carefully study and compare the Contract Documents for any discrepancies in accordance with Section VIII, Article 1.3. Any discrepancies shall be reported to the Department and Engineer in writing prior to the conference in order for the discrepancies to be discussed at the Pre-Construction Conference.

C. The Contractor shall provide a schedule for the Work to be completed prior to the Pre-Construction Conference. This schedule shall be completed in accordance with Section VIII, Article 1.4.

1.4 BASIC REQUIREMENTS

A. The Contractor shall furnish all labor, materials, supplies and equipment necessary to fully complete the work as defined by the Contract Documents or as directed by the Department.

B. The type and quantity of the work described shall be considered estimates and may not include all the items of work required. Any work that is necessary or required to complete the work as intended, even though it is not specifically included in the specifications or drawings, shall be performed as if it were described or shown.

C. Payment for work shall be made at the prices specified in the Contract. No payment shall be made for work performed by the Contractor to replace defective work, work outside the limits of the Contract, and additional work necessary as a result of actions by the Contractor, unless ordered by the Department in writing.

D. All equipment used will be in good working condition and clean. All equipment shall be of appropriate size and type to complete the work in a reasonable timeframe as determined by the Engineer.

E. All work shall be done in accordance with applicable federal, state, and local regulations. The Health and Safety Plan, Sampling Plan, Quality Assurance/Quality Control (QA/QC) Plan, and other required plans that are to be prepared by the Contractor, are subject to the Department or Engineer's review. If any regulation, the above referenced plans, and/or contract documents have contradicting requirements, then the most stringent requirement shall apply as determined by the Department or Engineer.

F. All samples collected during the remediation will be analyzed by a laboratory approved by the Department. The proposed laboratory shall be NYSDOH ELAP certified for the analytical work to be performed under this contract.

G. All waste materials to be disposed of shall be properly classified and disposed of in accordance with local, state, and federal regulations.

1.5 PERMITS

A. The Contractor shall be responsible for obtaining all permits required to complete the work.

1.6 CONTRACTORS USE OF PREMISES

A. The Contractor shall confine its activities, materials, vehicles, personnel, and equipment to the remediation site and the staging areas indicated on the drawings.

B. The Contractor retains full responsibility for the security and protection of the site and its equipment until completion of the work.

C. It shall be the Contractor's responsibility to prepare and maintain the designated staging areas as well as to restore them to their original pre-construction conditions upon completion of the work.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION– NOT APPLICABLE

END OF SECTION

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SECTION 01320

Quality Control System

PART 1 - GENERAL

1.1 SUMMARY

A. This section addresses the quality control (QC) requirements for the Contractor.

B. Establish and maintain a QC program as described in this section. The QC program consists of a QC Manager, a QC plan, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC Manager is on the work site.

C. The only work that is authorized to proceed prior to the acceptance of the QC plan is mobilization of storage and office trailers, temporary utilities, and surveying.

D. Related sections:
   1. Section VIII – General Conditions, Article 5 – Contractor's Responsibilities

1.2 REFERENCES

A. Should specified reference standards conflict with the Contract Documents, request clarification from the Engineer before proceeding.

B. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

1.3 SUBMITTALS

A. Miscellaneous:
   1. Quality Control Plan: The QC Plan shall be submitted within 5 days of notification that the Bidder is the apparent low Bidder for review and acceptance. At minimum the plan shall contain the following:
      a. Quality Control Organization: provide a chart showing the QC organizational structure.
      b. Duties, responsibilities and authority of QC personnel: provide for each person in the QC organization.
      c. Outside organization: A listing of outside organizations such as subcontractors and consulting firms that will be employed by the Contractor and a description of the services these firms will provide.
      d. Appointment Letters: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for managing and implementing the QC program as described in this contract. Include in this letter the QC Manager's authority to direct the removal and replacement of non-conforming work.
      e. Submittal procedures: Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval.
      f. Testing Laboratory Information: Testing laboratory information required by the paragraphs "Accredited Laboratories" or "Testing Laboratory Requirements", as applicable.

g. Testing Plan and Log: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.
h. Definable Tasks: Provide a list of definable tasks. Tasks may be those presented in the Contractor's progress schedule.
i. Three Phases of Control Procedures: For each definable task referenced in the Contractors progress schedule the Contractor shall provide Preparatory and Initial Phase Checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the Contract Documents. The preparatory and initial phases shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems.
j. Example template for the Contractor's daily QC Reports and Checklist

1.4 QUALITY CONTROL ORGANIZATION

A. QC Manager:
1. Duties:
a. Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The QC Manager is required to attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by others.
2. Qualifications:
a. An individual with a minimum of 5 years combined experience as a superintendent, inspector, QC Manager, project manager or construction manager on similar size and type construction contracts which included the major trades that are part of this contract. The individual must have experience in the areas of hazard identification and safety compliance.
3. Designate Alternative QC Manager:
a. Designate an alternate for the QC Manager to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager shall be the same as for the QC Manager.

1.5 PRE-CONSTRUCTION CONFERENCE

A. During the Pre-Construction conference and prior to the start of construction, discuss the QC program required by this contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production and the QC personnel. At the meeting, the Contractor will be required to explain how three phases of control will be implemented for each definable task. Contractor's personnel required to attend shall include the QC Manager, project manager, and superintendent. Minutes of the meeting will be prepared by the QC Manager and signed by both the Contractor and the Department. The Contractor shall provide a copy of the signed minutes to all attendees. Repeat the coordination and mutual understanding meeting when a new QC Manager is appointed.

1.6 QC MEETINGS

A. After the start of construction, the QC Manager shall conduct QC meetings once every two weeks at the work site with the superintendent and the foreman responsible for the ongoing and upcoming work. The QC Manager shall prepare the minutes of the meeting and provide a copy to the Department within two working days after the meeting. As a minimum, the following shall be accomplished at each meeting:
   1. Review the minutes of the previous meeting;
   2. Review the schedule and the status of work and rework;
   3. Review the status of submittals;
   4. Review the work to be accomplished in the next two weeks and documentation required;
   5. Resolve QC and production problems;
   6. Address items that may require revising the QC plan; and
   7. Review Accident Prevention Plan (APP).

1.7 THREE PHASES OF CONTROL

A. The three phases of control shall adequately cover both on-site and off-site work and shall include the following for each definable task.

B. Preparatory Phase: Notify the Department at least two work days in advance of each preparatory phase. Conduct the preparatory phase with the superintendent and the foreman responsible for the definable feature of work. Document the results of the preparatory phase actions in the daily CQC Report and in the QC checklist. Perform the following prior to beginning work on each definable feature of work:
   1. Review each paragraph of the applicable specification sections;
   2. Review the contract drawings;
   3. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;
   4. Review the testing plan and ensure that provisions have been made to provide the required QC testing;
   5. Examine the work area to ensure that the required preliminary work has been completed;
   6. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data; and
   7. Discuss specific controls used and the construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable task.

C. Initial Phase: Notify the Department at least two work days in advance of each initial phase. When construction crews are ready to start work on a definable task, conduct the Initial Phase with the foreman responsible for that definable task. Observe the initial segment of the work to ensure that it complies with contract requirements. Document the results of the Initial Phase in the daily CQC Report and in the QC checklist. Perform the following for each definable task:
   1. Establish the quality of workmanship required;
   2. Resolve conflicts;
   3. Ensure that testing is performed by the approved laboratory; and
   4. Check work procedures for compliance with the HASP to ensure that applicable safety requirements are met.

D. Follow-up Phase: Perform the following for on-going work daily, or more frequently as necessary, until the completion of each definable task and document in the daily CQC Report and in the QC checklist:
   1. Ensure the work is in compliance with contract requirements;
   2. Maintain the quality of workmanship required;
   3. Ensure that testing is performed by the approved laboratory;
   4. Ensure that rework items are being corrected; and
   5. Assure manufacturers representatives have performed necessary inspections, if required.

E. Additional Preparatory and Initial Phases
   1. Additional preparatory and initial phases shall be conducted on the same definable task if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a definable task is resumed after substantial period of inactivity, or if other problems develop.

F. Notification of Three Phases of Control for Off-Site Work
   1. Notify the Department at least two weeks prior to the start of the preparatory and initial phases.

1.8 TESTING

A. Accreditation Requirements: Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (i.e.; E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office."

B. The Contractor shall be responsible for paying for the services of an independent testing firm, acceptable to the Department and Engineer, to perform tests.

1.9 QC CERTIFICATIONS

A. CQC Report: Each CQC Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report."

B. Invoice Certification: Furnish a certificate to the Department with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.

C. Completion Certification: Upon completion of work under this contract, the QC Manager shall furnish a certificate to the Department attesting that "the work has been completed, inspected, tested and is in compliance with the contract."

1.10 COMPLETION INSPECTIONS

A. Substantial Completion Inspection:
   1. When the Contractor considers all or part of the work ready for its intended use, the Contractor shall notify the Department and Engineering in accordance with the contract clause "*Substantial Completion*" under Section VIII, Article 13 of the General Conditions. A pre-final punch list may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Department that a "Final" inspection can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in a timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates.

B. Final Acceptance Inspection

1. The QC Manager, the superintendent, or other Contractor management personnel and the Department will be in attendance at this inspection. The final acceptance inspection will be formally scheduled by the Department based upon results of the "Pre-Final Inspection". Notice shall be given to the Department at least 14 days prior to the final inspection. The notice shall state that all specific items previously identified to the Contractor as being unacceptable will be complete by the date scheduled for the final acceptance inspection.

1.11 DOCUMENTATION

A. Maintain current and complete records of on-site and off-site QC program operations and activities. Reports are required for each day work is performed. Account for each calendar day throughout the life of the contract. The superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work shall be identified by terminology consistent with the construction progress schedule. In the "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

B. Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Department and Engineer during all business hours.
   1. All completed Preparatory and Initial Phase Checklists, arranged by specification section
   2. All milestone inspections, arranged by Activity/Event Number.
   3. A current up-to-date copy of the Testing and Plan Log with supporting field test reports arranged by specification section.
   4. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
   5. A current up-to-date copy of the Rework Items List.
   6. Maintain up-to-date copies of all punch lists issued by the QC Staff on the Contractor and Sub-Contractors and all punch lists issued by the Department.

1.12 NOTIFICATION ON NON-COMPLIANCE

A. The Department will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action. If the contractor fails or refuses to correct the non-compliant work, the Department will issue a non compliance notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Department may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time, for excess costs, or damages.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION – NOT APPLICABLE

END OF SECTION

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SECTION 01340
SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Mechanics and administration of the submittal process for:
      a. Shop Drawings.
      b. Miscellaneous submittals.
      c. Product Data
   2. General content requirements for Shop Drawings

B. Related Sections include but are not necessarily limited to:
   1. Section III - Bidding Information and Requirements, Article 5 – Required Bid Submittals.
   2. Section VIII – General Conditions, Article 5.7 – "Or Equal" or Substitute Items
   3. Section VIII – General Conditions, Article 5.24 – 5.30 – Shop Drawings and Samples

1.2 DEFINITIONS

A. Shop Drawings:
   1. Diagrams or drawings
   2. Product data and samples are Shop Drawing information.

B. Miscellaneous Submittals:
   1. Submittals other than Shop Drawings
   2. Representative types of miscellaneous submittal items include but are not limited to:
      a. Construction schedule.
      b. Warranties.
      c. Work Plans
      d. Construction photographs.
      e. Survey data.
      f. Cost breakdown (Schedule of Values).
      g. Disposal Manifests.
      h. Analytical results

1.3 SUBMITTAL SCHEDULE

A. Contractor Bid Submittals: All items required by Section III Bidding Information and Requirements, Article 5 – Required Bid Submittals shall be submitted to the Department with the Contractor's Bid.

B. Within five days (5) of notification that the Bidder is the apparent low Bidder, the contractor shall submit the all submittals required by Section III Bidding Information and Requirements, Article 5 – Required Bid Submittals.

C. All other construction submittals shall be as indicated in the specification section requiring the submittal.

1.4 PREPARATION OF SUBMITTALS

A. General:
   1. All pages of all copies of a submittal shall be completely legible.
   2. Submittals which, in the Engineer's opinion, are illegible will be returned without review.

B. Shop Drawings:

1. Scope of any submittal and letter of transmittal:
    a. Limited to one (1) Specification Section.
2. Numbering letter of transmittal:
    a. Include as prefix the Specification Section number followed by a series number, "-xx", beginning with "01" and increasing sequentially with each additional transmittal.
    b. If more than one (1) submittal under any Specification Section, assign consecutive series numbers to subsequent transmittal letters.
3. Describing transmittal contents:
    a. Provide listing of each component or item in submittal capable of receiving an independent review action.
    b. Identify for each item:
        1) Manufacturer and Manufacturer's Drawing or data number.
        2) Contract Document tag number(s).
        3) Unique page numbers for each page of each separate item.
    c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "or-equal" in the item description. Substitute items shall also meet the requirements of the contract clause "*Or-Equal or Substitute Items*" under Section VIII, Article 5 of the General Conditions.
4. Contractor stamping:
    a. General:
        1) Contractor's review and approval stamp shall be applied either to the letter of transmittal or a separate sheet preceding each independent item in the submittal.
            a) Contractor's signature and date shall be wet ink signature.
            b) Shop Drawing submittal stamp shall read "(Contractor's Name) has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval as stipulated under Section VIII, General Conditions, Article 5.24.
            c) Letters of transmittal may be stamped only when the scope of the submittal is one (1) item.
        2) Submittals containing multiple independent items shall be prepared with an index sheet for each item listing the discrete page numbers for each page of that item, which shall be stamped with the Contractor's review and approval stamp.
            a) Individual pages or sheets of independent items shall be numbered in a manner that permits Contractor's review and approval stamp to be associated with the entire contents of a particular item.
    b. Electronic stamps:
        1) Contractor may electronically embed Contractor's review and approval stamp to either the letter of transmittal or a separate index sheet preceding each independent item in the submittal.
        2) Contractor's signature and date on electronically applied stamps shall be wet ink signature.
5. Resubmittals:
    a. Number with original root number and a suffix letter starting with "A" on a (new) duplicate transmittal form.
    b. Do not increase the scope of any prior transmittal.
    c. Account for all components of prior transmittal.
        1) If items in prior transmittal received "A" or "B" Action code, as discussed in Section 1.6, list them and indicate "A" or "B" as appropriate.
            a) Do not include submittal information for items listed with prior "A" or "B" Action in resubmittal.
        2) Indicate "Outstanding-To Be Resubmitted At a Later Date" for any prior "C" or "D" Action item (see Section 1.6 for action code definition) not included in resubmittal.
            a) Obtain Engineer's approval to exclude items.
6. For all size sheets, provide two (2) copies of each page for Engineer plus the number required by the Contractor.

a. The number of copies required by the Contractor will be defined at the Preconstruction Conference, but shall not exceed three (3).
b. Large size sheets:
1) Utilize mailing tube; do not fold.
2) The Engineer will mark and return the reproducible to the Contractor for his reproduction and distribution.

7. Provide clear space (3 sq. in.) for Engineer stamping of each component defined in PREPARATION OF SUBMITTALS – Contractor Stamping.
8. Contractor shall not use red color for marks on transmittals.
a. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible.
b. Outline Contractor marks on reproducible transparencies with a rectangular box.
9. Transmittal contents:
a. Coordinate and identify Shop Drawing contents so that all items can be easily verified by the Engineer.
b. Identify equipment or material use, tag number, Drawing detail reference, weight, and other Project specific information.
c. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
d. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8-1/2 x 11 inch pages.
1) Indicate exact item or model and all options proposed.
e. When a Shop Drawing submittal is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
1) Arrange data and performance information in format similar to that provided in Contract Documents.
2) Provide, at minimum, the detail specified in the Contract Documents.
f. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet.

C. Miscellaneous Submittals:
1. Prepare in the format and detail specified in Specification requiring the miscellaneous submittal.

1.5 TRANSMITTAL OF SUBMITTALS

A. Shop Drawings, Samples and Operation and Maintenance Manuals:
1. Transmit all submittals to:

HDR
One International Boulevard, Floor 10, Suite 1000
Mahwah, NJ 07495
Attn: Shannon Kling

2. Utilize two (2) copies of attached Exhibit "A" to transmit all Shop Drawings and samples.
3. Utilize two (2) copies of attached Exhibit "B" to transmit all Operation and Maintenance Manuals.
4. All submittals must be from Contractor.
a. Submittals will not be received from or returned to subcontractors.
5. Provide submittal information defining specific equipment or materials utilized on the Project.

a. Generalized product information, not clearly defining specific equipment or materials to be provided, will be rejected.

B. Miscellaneous Submittals:
1. Transmit under Contractor's standard letter of transmittal or letterhead.
2. Submit in triplicate or as specified in individual Specification Section.
3. Transmit to:

HDR
One International Boulevard, Floor 10, Suite 1000
Mahwah, NJ 07495
Attn: Shannon Kling

4. Provide copy of letter of transmittal with attachments to the Department Project Manager.
a. Exception for concrete, soils compaction and pressure test reports.
1) Transmit one (1) copy of test reports to Department Project Engineer.
2) Transmit one (1) copy of test reports to location and individual indicated above for other miscellaneous submittals.

C. Expedited Return Delivery:
1. Include prepaid express envelope or airbill in submittal transmittal package for any submittals Contractor expects or requires express return mail.
2. Inclusion of prepaid express envelope or airbill does not obligate Engineer to conduct expedited review of submittal.

D. Electronic submittals other than approved Operation and Maintenance Manuals may be acceptable if previously approved by the Engineer.

E. Fax Transmittals:
1. Permitted on a case-by-case basis to expedite review when approved by Engineer.
2. Requires hard copy transmittal to immediately follow.
a. Engineer will proceed with review of fax transmittal.
b. Engineer's approval or rejection comments will be recorded and returned on hard copy transmittal.
3. Provisions apply to both:
a. Initial transmittal contents.
b. Supplemental information required to make initial transmittal contents complete.

1.6 ENGINEER'S REVIEW ACTION

A. Shop Drawings and Samples:
1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
a. A - APPROVED AS SUBMITTED.
b. B - APPROVED AS NOTED (BY ENGINEER).
c. C – RESUBMIT WITH REVISIONS.
d. D - DISAPPROVED.
e. E - ENGINEER'S REVIEW NOT REQUIRED.
2. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
a. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned without any action.
3. In relying on the representation on the Contractor’s review and approval stamp, the Department and Engineer reserve the right to review and process poorly organized and poorly described submittals as follows:
a. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:

1) Review and approval will be limited to the single item described on the transmittal letter.
2) Other items identified in the submittal will:
a) Not be logged as received by the Engineer.
b) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description and stamping.
c) Be submitted by the Contractor as a new series number, not as a re-submittal number.

b. Engineer, at Engineer's discretion, may revise the transmittal letter item list and descriptions, and conduct review.
1) Unless Contractor notifies Engineer in writing that the Engineer's revision of the transmittal letter item list and descriptions was in error, Contractor's review and approval stamp will be deemed to have applied to the entire contents of the submittal package.

4. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
a. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.
b. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
5. Submittals with Action "A" or "B" combined with Action "C" (Resubmit with Revisions) or "D" (Disapproved) will be individually analyzed giving consideration as follows:
a. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference).
1) One (1) copy or the one (1) transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
a) Correct and resubmit items so marked.
b. Items marked "A" or "B" will be fully distributed.
c. If a portion of the items or system proposed is acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
1) This is at the sole discretion of the Engineer.
2) In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
3) Distribution to the Department and field will not be made (unless previously agreed to otherwise).
6. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
7. Calculations required in individual Specification Sections will be received for information purposes only, as evidence calculations have been performed by individuals meeting specified qualifications, and will be returned stamped "E. Engineer's Review Not Required" to acknowledge receipt.
8. Transmittals of submittals which the Engineer considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" Action in a prior submittal, will be returned with Action "E. Engineer's Review Not Required."
9. Samples may be retained for comparison purposes.
a. Remove samples when directed.
b. Include in bid all costs of furnishing and removing samples.
10. Approved samples submitted or constructed, constitute criteria for judging completed work.
a. Finished work or items not equal to samples will be rejected.

B. Operation and Maintenance Manuals:

1. Engineer will review and indicate one of the following review actions:
   a. A - ACCEPTABLE.
   b. B - APPROVED AS NOTED
   c. C – RESUBMIT WITH REVISIONS.
   d. D - DISAPPROVED
2. Acceptable paper copy submittals will be retained with the transmittal form returned with a request for one (1) additional paper copy and two (2) electronic copies on CD-ROM.
3. Deficient submittals (paper copy and/or electronic copy) will be returned along with the transmittal form which will be marked to indicate deficient areas.

PART 2 - PRODUCTS

2.1 BID SUBMITTALS

A. The contractor shall submit items specified in Section III, Article 5, item b within five (5) days of notification of being the low bidder. These items shall meet the following requirements:
   1. Disposal Facility information:
      a. Name of off-site permitted facility to receive material
      b. A copy of the disposal facilities permit
   2. Plan of Operations (Work Plan): The Contractor shall submit a plan that describes all the activities related to the completion of the work. Activities include but are not limited to:
      a. A diagram of the work site showing the existing site condition and the location of the hauling routes, staging areas, office trailers, air monitoring station, drainage and erosion controls, access to the site, decontamination facilities, and the support zone
      b. Methods of handling all waste materials that will be generated as a result of the construction activities along with the disposal facilities that will be receiving the waste materials
      c. Excavation Work Plan requirements: The Contractor has the option of including the Excavation Work Plan as required by Section 02210 in the overall Work Plan. If the Contractor chooses to do this the submittal transmittal must clearly state this.
         1) Phasing: Provide a phasing plan for the area of excavation. The Contractor shall indicate how the excavation of the area shall be completed. Plan shall include the safety measures to be implemented such as: shoring, underpinning, side wall slopes, and any other measures used to support and protect the excavations.
         2) Staging Areas: The Contractor shall provide on a plan the location of proposed staging areas and how stock piles will be protected to prevent the run-off of contaminated sediment. The Contractor shall also show the proposed truck hauling route and provide the location for soil disposal.
         3) Equipment List: The Contractor shall provide a list of all equipment and the equipment's use proposed for this site.
         4) Equipment Decontamination: The Contractor shall provide a description and plan showing how and where the decontamination station shall be set up and used.
      d. Construction water handling procedures, including treatment or disposal methods.
      e. Provisions for controlling fugitive air emissions and dust from the site including odor control.
      f. Provisions for maintaining a safe excavation including shoring, bracing, or other means
      g. Measures to divert surface run-off from uncontaminated areas around the excavation area
      h. Disposal Plan: The Contractor shall prepare and submit a Disposal Plan that will be incorporated into the overall Work Plan for the project. The plan shall meet the requirements specified by Section XI Specification 02230 – Transportation and Disposal.
   3. Preliminary Progress Schedule: The Contractor shall submit a preliminary progress schedule as required by Section III, Article 11.

4. Health and Safety Plan: The Contractor shall submit a Health and Safety Plan that includes all elements required in Section X, SPEC 00003.
5. Sampling Plan: The Contractor shall prepare a sampling plan as required by Section 01560 – Sampling that will include the following minimum information:
    a. Sampling Personnel along with qualifications
    b. List of sampling and analysis equipment
    c. Sampling procedures for:
        1) Construction water
        2) Soil
            a) Borrow area sampling
            b) Confirmation Sampling
        3) Sampling and analysis of wastes generated at the site
            a) Excavated soil
        4) Information of the laboratory selected to analyze samples
6. QA/QC Plan: The Contractor shall prepare a QA/QC Plan that shall include the following minimum information:
    a. A QA/QC Plan is required for all samples to be collected and analyzed.
    b. Any deviations from the approved QA/QC Plan shall require prior approval by the Engineer. Prior approval of the deviation does not limit the full responsibility of the Contractor to meet all requirements of the Contract Documents.
    c. The Contractor shall designate a project manager, Quality Assurance Officer and field analyst. Resumes of these individuals must be included.
    d. Sampling procedures, data quality usability objectives and decontamination procedures
    e. Site map showing sample locations
    f. Analytical Methods/Quality Assurance Summary Table which must include information for all environmental, performance evaluation and quality control samples:
        1) Matrix type
        2) Number or frequency of samples to be collected per matrix
        3) Number of field and trip blanks per matrix
        4) Analytical parameters to be measures per matrix
        5) Analytical methods to be used per matrix with minimum reporting requirements
        6) Number and type of matrix spike and matrix spike duplicate samples to be collected
        7) Number and type of duplicate samples to be collected
        8) Sample preservation to be used per analytical method and sample matrix
        9) Sample container volume and type to be used per analytical method and sample matrix
        10) Sample holding time to be used per analytical method and sample matrix
    g. Detailed description of sampling methods to be used and sample storage in the field
    h. All samples shall be delivered to the laboratory within 24 hours from the day of collection
    i. Acetone is an unacceptable solvent for decontamination of sampling equipment.

B. The Contractor shall submit items specified in Section III, Article 5 paragraph c) within 14 days from the date of the Notice of Intent to Award Letter from the Department.

2.2 SUBMITTAL SCHEDULE

A. Interim Progress Schedule: The Contractor shall submit an interim progress schedule as required by Section VIII, Article 1, and paragraphs 1.4.1 – 1.4.3 within 10 days after receiving the Notice of Award. This shall not include bid submittals specified in Section 2.1 of this specification section.

B. Final Progress Schedule: No later than twenty (20) days after the start of work at the site the Contractor must submit a proposed progress schedule to finalize the interim schedules submitted. The progress schedule shall meet all the requirements of Section X SPEC 00001.

C. All submittals shall be submitted to the Engineer in a timely manner as to cause no delay in the Work. Submittals shall be in accordance with this specification section and Section VIII, Article 5, Paragraphs 5.24 – 5.30.

2.3 CONTRACTOR SUBMITTALS

A. Refer to Table 01340 – 1 for a list of required submittals.

PART 3 - EXECUTION – NOT USED

END OF SECTION

TABLE 01340 – 1
SCHEDULE OF TECHNICAL SUBMITTALS

Specification Section	Submittal Description	Submittal Number
Section X – SPEC 00001	Progress Schedule	00001.01
Section X – SPEC 00003	Health and Safety Plan	00003.01
Section X – SPEC 00003	Emergency Contact List	00003.02
Section X – SPEC 00003	Site Control Plan and Procedures	00003.03
Section X – SPEC 00003	Shop Drawing of decontamination pad	00003.04
Section X – SPEC 00003	Decontamination Pad Soil Sample Results	00003.05
Section X – SPEC 00003	Air Monitoring Logs	00003.06
Section X – SPEC 00003	Master Telephone List	00003.07
Section X – SPEC 00003	Security Logs	00003.08
Section X – SPEC 00003	Safety Logs	00003.09
Section X – SPEC 00003	Daily Work Reports	00003.10
Section XI – Specification 01320	Quality Control Plan	01320.01
Section XI – Specification 01400	Name, Address and License of Surveyor	01400.01
Section XI – Specification 01400	Survey Field Data	01400.02
Section XI – Specification 01400	As-built Drawings & CAD File	01400.03
Section XI – Specification 01400	Coordinate list of all points with elevations	01400.04
Section XI – Specification 01400	Soil volume quantity calculations	01400.05
Section XI – Specification 01400	Survey points of final excavation depth and limits	01400.06
Section XI – Specification 01400	Survey points of all samples	01400.07
Section XI – Specification 01500	Shop Drawing showing layout of temporary facilities	01500.01
Section XI – Specification 01500	Shop drawing for temporary site sign	01500.02
Section XI – Specification 01560	Sampling Plan (may be included in overall work plan if clearly stated in transmittal letter)	01560.01
Section XI – Specification 01560	Quality Assurance/Quality Control Plan (required bid submittal)	01560.02
Section XI – Specification 01560	Chain of Custody forms	01560.03
Section XI – Specification 01560	Analytical Results	01560.04
Section XI – Specification 01563	Permits	01563.01
Section XI – Specification 02210	Excavation Plan (may be included in overall work plan if clearly stated in transmittal letter)	02210.01
Section XI – Specification 02210	Support Systems, shield systems and other protective systems	02210.02
Section XI – Specification 02220	Analytical and Test Data	02220.01
Section XI – Specification 02220	Origin of Backfill documentation	02220.02
Section XI – Specification 02220	Bill of Ladings	02220.03
Section XI – Specification 02230	Disposal Plan (may be included in overall work plan if clearly stated in transmittal letter)	02230.01
Section XI – Specification 02230	Waste Manifests and Bill of Ladings	02230.02
Section XI – Specification 02270	Contractor Certification	02270.01

Specification Section	Submittal Description	Submittal Number
Section XI – Specification 02270	Inspection Reports	02270.02
Section XI – Specification 02742	Manufacturer's specification	02742.01
Section XI – Specification 02930	Product technical data	02930.01
Section XI – Specification 02930	Certifications	02930.02
Section XI – Specification 02930	Copies of invoices and certification of quality and warranty	02930.03

EXHIBIT A

Shop Drawing Transmittal No. _____-_____

(Spec Section) (Series)

Project Name:		Date Received:	
Project Owner:		Checked By:	
Contractor:	HDR Engineering, Inc.	Log Page:	
Address:	Address:	HDR No.:	
		Spec Section:	
		Drawing/Detail No.:	
Attn:	Attn:	1st. Sub	ReSub.
Date Transmitted:	Previous Transmittal Date:		

Item No.	No. Copies	Description	Manufacturer	Mfr/Vendor Dwg or Data No.	Action Taken*

Remarks:

* The Action designated above is in accordance with the following legend:

A - Approved as Submitted

B - Approved as Noted

C - Revise and Submit
1. Not enough information for review.
2. No reproducibles submitted.
3. Copies illegible.
4. Not enough copies submitted.
5. Wrong sequence number.
6. Wrong resubmittal number.
7. Wrong spec. section.
8. Wrong form used.
9. See comments.

D - Rejected

E - Engineer's review not required
1. Submittal not required.
2. Supplemental Information. Submittal retained for informational purposes only.
3. Information reviewed and approved on prior submittal.
4. See comments.

Comments:

By Date

Distribution: Contractor | File | Field | Owner | Other

(Jun 1990; Revised Jun 1997; Revised Oct 2001, Revised Nov 2007)

EXHIBIT B

O&M Manual Transmittal No. _____-_____

(Spec Section) (Series)

Project Name:		Date Received:
Project Owner:		Checked By:
Contractor:	Owner:	Log Page:
Address:	Address:	HDR No.:
Attn:	Attn:	1st. Sub. ReSub.

Date Transmitted: Previous Transmittal Date:

No. Copies	Description of Item	Manufacturer	Dwg. or Data No.	Action Taken*

Remarks:

To: From:

HDR Engineering, Inc.

Date:

* The Action designated above is in accordance with the following legend:

A - Acceptable, provide number of paper copies and compact disks specified.

B – Approved as noted

C - Revise and Resubmit

This Operation and Maintenance Manual Submittal is deficient in the following area:

1. Equipment Records.
2. Functional description.
3. Assembly, disassembly, installation, alignment, adjustment & checkout instructions.
4. Operating instructions.
5. Lubrication & maintenance instructions.
6. Troubleshooting guide.
7. Parts list and ordering instructions.
8. Organization (binder, binder titles, index & tabbing).
9. Wiring diagrams & schematics specific to installation.
10. Outline, cross section & assembly diagrams.
11. Test data & performance curves.
12. Tag or equipment identification numbers.
13. Inclusion of all components & subcomponents.
14. Other - see comments.

D - Rejected

Comments:

By Date

Distribution: Contractor | File | Field | Owner | Other

(Jun 1990; Revised Oct 2001, Revised Nov 2007)

SECTION 01392

Modifications to Minimum Requirements for Health and Safety

PART 1 - GENERAL

1.1 SUMMARY

A. This section modifies and adds additional decontamination procedures to the Standard Specifications in Section X: SPEC 00003, Minimum Requirements for Health and Safety for equipment and tools in contact with soil contaminated with PCBs greater than or equal to 50 mg/kg.

B. The requirements of this section shall be addressed and included in the Health and Safety Plan (HASP) required by the Contract Documents.

C. Related Specification Sections include but are not necessarily limited to:
   1. Section X: SPEC 00003

1.2 REFERENCES

A. The reference (publications) listed below form a part of this specification to the extent referenced.
   1. 29 CFR 1926.21 – Safety Training and Education
   2. 29 CFR 1910.120/1926.65 – Hazardous Waste Operations and Emergency Response
   3. 40 CFR §761.79(h)

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 DECONTAMINATION PROCEDURES FOR HEAVY MACHINERY

A. Heavy machinery includes equipment such as backhoes, excavators, bulldozers and waste hauling vehicles (dump trucks, trailers or tanker trucks).

B. The Contractor will inspect the equipment to confirm that the equipment arrives on the site in a clean state. If obvious indications of contamination are observed, the Contractor will refuse entrance of the equipment onto the site, or decontaminate the equipment before it is used subject to the approval of the Engineer.

C. No personal vehicles, “lunch wagons” or other non-essential vehicles will be permitted within the area of active work where the potential to encounter waste may occur. Vehicular traffic will be kept to a minimum. To the extent practical, equipment will be stored when not in use (e.g., overnight) in the location last used or the nearest safe location. Overnight staging in clean areas is not permitted unless the equipment is first decontaminated to prevent the potential for tracking contamination back and forth across the site.

D. The Contractor will operate the equipment in a manner that minimizes contact with waste, including minimizing the surface area contacting waste and minimizing the potential for spills, drips, splashes or sprays.

E. Equipment, once decontaminated, will be stored in a designated clean area of the site, or preferably removed from the site as soon as practicable.

F. Waste hauling vehicles will be restricted to driving on the temporary excavation access roads. Tire contact with contamination is to be avoided.

G. Excavation will proceed in such a manor as to not impact site access/egress, and to limit machinery contact with contaminated soils.

H. The waste receiver will be responsible for the appropriate decontamination of waste hauling vehicles at their facility once the waste has been received and before the vehicle departs the facility.

I. Equipment decontamination will take place in designated areas. The designated areas will be constructed to incorporate the following features:
   1. semi-mobile, capable of being disassembled and relocated several times as excavation proceeds, if applicable;
   2. one or two layers of heavy, puncture-resistant geomembrane/plastic to resist vehicle traffic;
   3. sized to be at least 10 feet longer and wider than the largest anticipated equipment (allows 5 feet on all sides for ease of access by the decontamination technician);
   4. bermed and sloped to permit collection of wash waters using a utility pump;
   5. sides or curtains to contain splash or spray from pressure washer;
   6. supply of municipal water (e.g., insulated stationary tank, water truck or access to water from a nearby hydrant);
   7. steam pressure washer and power supply to operate washer and heat water; and
   8. drums/tank for storing spent wash water and drums for storing mud/semi-solids.

J. Subject to the Contractor's planned layout of temporary excavation access roads, the designated decontamination areas will be located close to the edge of the excavation area to maximize the size of the clean area. The decontamination areas will be located at the confluence of the access roads such that all equipment departing the excavation work area must pass through decontamination before proceeding into the clean area.

K. Those portions of the equipment that contacted or likely contacted waste will be decontaminated as follows:
   1. gross contamination (e.g., caked mud) will be removed using a scraper
   2. loose contaminants will be removed using long-handled brushes and a warm water and soap solution (e.g., Liquinox® phosphate-free detergent); and
   3. steam pressure washing.

L. The backhoe and excavator buckets may require more frequent and thorough decontamination because they will have the greatest waste contact and may also be used in some cases to facilitate collecting waste classification samples.

M. Spent wash water and mud/semi-solids will be handled, stored, tested, classified and disposed of in accordance with applicable regulations.

N. The effectiveness of the decontamination method will be confirmed by wipe sampling after each decontamination effort. Equipment will be considered appropriately decontaminated for PCBs before it is allowed to depart the site. Each piece of heavy equipment (i.e., backhoe, excavator, or bulldozer) will be individually tested with one or more wipe samples. Unrestricted use decontamination standards for non-porous surfaces previously in contact with non-liquid PCBs is 10 µg/100 cm^2 as measured by standard wipe test.

O. The decontamination procedure may be revised if required with the Engineer's approval.

3.2 DECONTAMINATION PROCEDURES FOR SMALLER EQUIPMENT AND TOOLS

A. Small equipment and tools may include monitoring instruments, pumps, hoses, shovels and non-disposable sampling tools.

B. Equipment will be stored in a clean and dry location away from potential contact or other exposure to waste until required for use. Cleaned equipment will only be handled by persons wearing clean, disposable gloves.

C. Monitoring instruments will not be handled such that they contact waste directly, such as by placing the instrument directly on the ground or by handling the instrument after handling waste. Instruments will be bagged, handled only with clean, disposable gloves, and/or placed on clean portable surfaces (e.g. folding tables).

D. Equipment contacting waste will be cleaned before and after each use. Equipment will be allowed to air dry after cleaning.

E. Those portions of the equipment that contacted or likely contacted waste will be decontaminated as follows:
   1. gross contamination (e.g., caked mud) will be removed using a scraper
   2. loose contaminants will be removed using long-handled brushes and a warm water and soap solution (e.g., Liquinox® phosphate-free detergent); and
   3. steam pressure washing

F. All hoses used for transferring decontamination fluids will be disposed as waste at the end of the project.

3.3 DOCUMENTATION

A. The following will be documented under this procedure
   1. The decontamination procedures used will be documented in the daily field notes.
   2. A record of all equipment leaving the site will be maintained by the Contractor including photographic documentation of the decontamination procedures and wipe sample results.

3.4 UPDATES TO MASTER TELEPHONE LIST

A. Hospital/Emergency Care Facility:
   1. Glen Falls Hospital: 518-926-1000

B. NYSDEC Albany Office:
   1. Work Hours: 518-402-9814
   2. After Hours: 888-459-8667

C. NYSDEC Region 5 Office:
   1. Work Hours: 518-623-1200

D. NYS Department of Health
   1. Work Hours: 1-800-458-1158

END OF SECTION

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SECTION 01400

Survey

PART 1 - GENERAL

1.1 SUMMARY

A. The Contractor shall provide all necessary survey and control densification required to construct all elements of the project as shown on the Contract Drawings and to document the completed work.

B. The work shall include, but not necessarily be limited to, surveys to verify the limits of excavation, the depths of cut/fills and finished grades, and for the preparation of as-built drawings upon completion of the work. The survey will also be used to compute the final volumes of material removed, and to locate the exact locations of the confirmation samples required by the Contract Documents.

C. All survey work shall be completed by a New York State licensed land surveyor or a person working directly under the supervision of a New York State licensed surveyor and as-built drawings shall be sealed by the licensed surveyor.

D. GPS methods shall be used to establish control at the project site with coordinates being referenced to the New York State Plane Coordinate, East Zone, North America Datum (NAD) 1983 and elevations being referenced to North America Vertical Datum of 1988 (NAVD88).

1.2 SUBMITTALS

A. Name, address and copy of license of proposed surveyor

B. Field Data

C. As-Built Drawings and AutoCAD file as described in Section 2.1. The CAD file shall be AutoCAD version 2010 submitted on a compact disk.

D. Coordinate List of all survey points with elevations

E. Quantity calculations required to support requests for payment and verification of volumes, areas, and lengths.

F. Survey points with specific coordinates and elevations of final excavation depths, to verify excavation depths.

G. Survey points with specific coordinates and elevations of the location where all samples are taken.

PART 2 - PRODUCTS

2.1 AS-BUILT SURVEY

A. The Contractor shall provide as-built drawing files containing the following information
   1. Horizontal limit of all excavations
   2. Vertical limit of all excavations
   3. Survey points indicating both the horizontal and vertical limits of the excavation
   4. Locations of all confirmatory soil samples
   5. Final site grades including tree plantings and cover types.

B. In addition to providing final drawings, the Contractor shall provide a CAD file with all the point information required above.

PART 3 - EXECUTION

3.1 PROJECT SEQUENCE

A. Prior to beginning any work the Contractor shall have the surveyor complete a baseline survey of the existing conditions.

B. During excavation activities the Contractor shall ensure that the surveyor locates all confirmatory sample locations and surveys the bottom and horizontal limit of all completed excavations. Surveyed points along the bottom of the excavation shall be taken a minimum of every 30 feet in order to gain an accurate assessment of the total volume of soil removed.

C. Upon completion of the work, the Contractor shall have the surveyor complete a final survey of the restored site. The survey shall indicate final grades along with all new and existing structures and surfaces.

END OF SECTION

SECTION 01500

Temporary Facilities and Services

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Temporary Utilities
   2. Construction Aids
   3. Barriers
   4. Access Roads and Parking Areas
   5. Traffic Control
   6. Fire Protection and Prevention
   7. Field Offices and Sheds
   8. Temporary First Aid Facilities
   9. Decontamination Station

B. Related Specification Sections include but are not necessarily limited to:
   1. SPEC 00003 – Minimum Requirements for Health and Safety
   2. Section 02210 – Soil Excavation, Storage, and Handling

C. Removal: When no longer required, the Contractor shall remove the temporary facilities and utilities provided, including all debris and restore the area to its original condition, unless otherwise indicated in the Contract Documents.

1.2 SUBMITTALS

A. Shop Drawings:
   1. Field Office Trailer Layout: The Contractor shall submit a drawing depicting the layout, furnishings and facilities of the field office trailer.
   2. Temporary Sign: The Contractor shall submit a shop drawing for the temporary site sign.

1.3 TEMPORARY FACILITIES

A. Electricity: The Contractor shall obtain electricity for temporary power within the limits of the existing power source. Where power is not available, the Contractor shall provide power from other sources (i.e. generator). The Contractor shall supply all temporary wiring and equipment that may be required to extend power from the existing base utility pole or panels. The Contractor is responsible for determining the actual power requirements necessary.
   1. If the power requirements exceed the capacity of an existing power source, the Contractor shall make all the necessary arrangements with the local utility company and the Department, to provide the additional electrical service at the locations where it is required.
   2. All temporary wiring and equipment shall be installed by a licensed electrician and conform to the New York State Uniform Fire Prevention and Building Code as well as the National Electric Code. All temporary wiring shall be provided with ground fault protection.
   3. At the completion of the work, the Contractor shall remove all temporary wiring and repair any damage, which may have been caused by its installation at no additional cost to the Department.
   4. The Contractor shall pay all of the costs associated with the installation and distribution of temporary electric service as well as the cost of the electricity consumed.

B. Lighting: The Contractor shall provide whatever temporary lighting is required for construction.
   1. The Contractor shall pay all the costs associated with the installation and distribution of temporary lighting.

C. Water Supply and Distribution: The Contractor shall provide adequate quantities of water for use by all persons employed or engaged in the work. Water shall be provided for, but not necessarily limited to dust control, testing, trailers, personnel washing facilities, and all other site activities. The Contractor shall be responsible for determining the actual water requirements and shall control the use of water to prevent waste and backflow into the existing system.
   1. At the completion of the work, the Contractor shall remove all temporary piping and repair any damage, which may have been caused by its installation at no additional cost to the Department.
   2. The Contractor shall pay all of the costs associated with the installation, maintenance, distribution, and consumption of the temporary water supply.

D. Sanitary Facilities: The Contractor shall provide, install, and maintain approved sanitary facilities for the use of all persons employed or engaged in the work.
   1. Sanitary facilities including temporary toilets and wash facilities shall comply with all applicable regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. The Contractor shall provide toilet tissue, paper towels, and paper cups, and similar disposable materials for each facility. The Contractor shall also provide covered waste containers for depositing of used items.
   2. The Contractor shall provide wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. The Contractor shall supply cleaning compounds appropriate for each condition.
   3. Self-contained, single-occupant toilet units of the chemical, aerated recirculation or combustion type shall be properly vented and fully enclosed with a fiberglass reinforced polyester shell or similar nonabsorbent material. Use of pit-type privies will not be permitted.
   4. The Contractor shall pay all costs associated with the installation and maintenance of the temporary sanitary facilities.

E. The Contractor shall provide telephone service to its temporary field office as necessary and/or cell phones.
   1. The Contractor shall pay all costs associated with the installation and removal of their telephone service including maintenance, monthly and toll charges.

1.4 CONSTRUCTION AIDS

A. The installation and maintenance of construction aids shall be in accordance with all applicable New York State Labor Laws, OSHA regulations, and other Federal, State, and Local laws. The maintenance of construction aids in a safe condition shall remain the exclusive responsibility of the Contractor.

B. Ramps, Ladders, and Runways: The Contractor shall comply with New York State Labor Laws, OSHA regulation, and other applicable Federal, state, and local laws. Remove as soon as possible and replace with permanent facilities where appropriate.

C. Material Lifting Equipment: The Contractor shall provide equipment as required complying with New York State labor Laws, OSHA regulations, and other applicable Federal, State, and Local laws.

D. Scaffolding and Platforms: The Contractor shall provide equipment as required complying with New York State Labor Laws, OSHA regulations, and other applicable Federal, State, and Local laws.

E. Shoring and Bracing: The Contractor shall provide equipment as required complying with New York State Labor Laws, OSHA regulations, and other applicable Federal, State, and Local laws.

1.5 BARRIERS

A. Site Fencing and Barricades:

1. The Contractor shall provide fencing if necessary to prevent public entry to construction areas and to protect existing facilities and adjacent properties from damage during construction operations.
2. The Contractor shall comply with all applicable standards and code requirements for the design, erection and maintenance of structurally adequate barricades. The Contractor shall place warning signs to inform personnel and the public of the hazard being protected against. Where necessary the Contractor shall provide lighting including flashing red or amber lights.

1.6 ACCESS ROADS AND PARKING AREAS

A. Existing grass or paved areas and existing access roads at the site shall be designated by the Department or Engineer for the Contractor's access and parking; review requirements with Department or Engineer prior to moving onto the site.

B. Upon completion of construction at the site, the Contractor shall remove all temporary construction facilities erected in parking or staging areas, and patch existing surfaces to match adjacent undisturbed surfaces.

1.7 TRAFFIC CONTROL

A. The Contractor shall obtain approval in advance from the local police and highway departments when detours are required due to the construction. The Contractor shall also notify emergency services (medical, fire, etc.) of the detours. The Contractor shall furnish, erect, and maintain whatever barricades are necessary to close the street or highway and protect traffic at the beginning and end of the detour. The Contractor shall provide qualified and suitably equipped flagmen to direct traffic in accordance with the requirements of the authority having jurisdiction. The Contractor shall also provide and operate traffic control and directional signals required to maintain an orderly flow of traffic.

B. Where traffic is to be maintained the Contractor shall provide approved metal plates to cover open trenches, and/or any other additional protection as directed at no additional cost to the Department.

C. The Contractor shall replace any street signs, stop signs, etc. which may have to be temporarily removed and repair or replace any that it may damage at no additional cost to the Department.

D. The Contractor shall not close any private driveway or place equipment, material or debris on adjacent private properties or within the right of way.

E. The Contractor shall not obstruct the sidewalks or gutters.

F. Excavated material, construction material, equipment, or supplies shall not be located in a manner that will obstruct traffic on any street, road, or alley.

G. Fire and police call boxes, hydrants, or other utility controls shall be left unobstructed and accessible.

1.8 FIRE PROTECTION AND PREVENTION

A. Pending removal, the Contractor shall store volatile waste in covered metal containers, equipped with self-closing safety faucets, vent bung fittings and drip pans at a location designated by the Department in compliance with all applicable local laws and state ordinances and OSHA requirements. Metal drums shall be properly bonded and grounded.

B. The Contractor shall locate and maintain gasoline and fuel oil storage facilities in full compliance with all applicable local laws and state ordinances and OSHA requirements.

C. The Contractor shall take all precautions required to prevent fires as a result of its construction operations; operate flame cutting torches, blow torches, welding tools, and similar equipment in strict accordance with applicable safety rules and regulations.

D. In using welding tools or torches of any type the Contractor shall provide and maintain in usable condition at all times in the immediate vicinity of operations a fire extinguisher of the "Multi-Purpose Type ABC".

E. The Contractor shall provide fire extinguishers in working order located at intervals throughout its area of operations. These extinguishers shall not be moved except to be tested or for the purpose of fighting a fire. All vehicles and construction equipment shall be equipped with fire extinguishers.

F. Smoking shall be prohibited at or in the vicinity of all construction operations, which may present a fire hazard and such areas shall be posted "No Smoking or Open Flame."

G. The Contractor shall have all fire extinguishers inspected and maintained in accordance with NFPA 10.

1.9 FIELD OFFICES AND SHEDS

A. The Contractor shall furnish at the job site, prior to the start of work, a field office for its operations with space available for the NYSDEC and their representatives for the duration of the contract. The location of the trailer shall be approved by the Department. The Contractor shall be responsible for obtaining permission to use additional land for field offices by an agreement with the property owner. The Contractor shall forward a copy of the agreement to the Department prior to beginning work.

B. All trailers brought to the site shall comply in all respects with the latest New York State laws and regulations regarding trailer construction, including applicable codes and New York State seal specifications.

C. All temporary field offices shall be provided with proper safety features including fire and smoke detectors as required by state and local standards.

D. Storage and fabrication sheds shall be sized and equipped to accommodate the materials and equipment involved, including temporary utility service. Sheds may be fully open shelters or fully enclosed spaces.

E. Trailers, sheds, and other temporary structures used as field offices or for storage shall be anchored. The anchor system shall be designed to withstand winds and meet applicable State or Local standards for anchoring mobile trailers.

F. Upon completion of work at the site, the Contractor shall remove all temporary offices, storage sheds, trailers, and similar structures and restore the sites to their original condition.

1.10 TEMPORARY SITE SIGN

A. The Contractor shall provide a sign as shown on the Contract Drawings. Any deviations from the detail shown on the drawings must receive prior approval from the Engineer. A shop drawing with specifications for the sign shall be submitted to the Engineer for review and approval.

B. The Contractor is also responsible for obtaining any required permits by the Town of Moreau for the erection of the temporary sign.

C. The sign shall be installed at a location designated by the Department.

1.11 TEMPORARY FIRST AID FACILITIES

A. The Contractor shall provide and make available to its personnel involved with the work at this site, medical supplies and equipment necessary to render first aid.

B. The Contractor shall post at its work location the emergency telephone numbers for the doctor, hospital, ambulance service, police and fire-fighting services.

1.12 DECONTAMINATION STATION

A. The Contractor shall be responsible for constructing a decontamination pad as required by Section X SPEC 00003 of the Contract Documents.
   1. The decontamination station shall be equipped with a drain system and holding tank on a properly graded area that has no deleterious material.
   2. Dimensions of the pad shall be adequate to contain wash waters and debris from the largest vehicle to be used at this site.
   3. Prior to constructing the pad the Contractor shall obtain and analyze one soil sample for PCBs at a depth between 0-6" in the area sited for construction of the pad.
   4. Upon dismantling the pad one soil sample at a depth between 0-6" in the area shall be obtained and analyzed for PCBs.
   5. Water collected during decontamination operations shall be collected and disposed of in accordance with all local, State and Federal regulations.

1.13 REMOVAL OF TEMPORARY FACILITIES AND SERVICES

A. Unless requested by the Department, all temporary facilities shall be removed when the need has ended, or when replaced by the authorized use of the permanent facility. The Contractor shall repair damaged work, clean exposed surfaces and replace work, which cannot be satisfactorily repaired. The Contractor shall remove all materials contaminated with oil, asphalt or other materials, which might impair the growth of plant materials or lawns. The Contractor shall repair or replace street paving, curbs and sidewalks at temporary entrances.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION – NOT APPLICABLE

END OF SECTION

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SECTION 01560
Sampling

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the sampling that will be required to complete the work described in the Contract Documents and include:
   1. Soil
   2. Construction water

B. The Contractor shall be responsible for providing all equipment including sampling and shipping containers, and personnel necessary to complete the sampling required by this section, unless otherwise directed by the Department.

C. All samples shall be analyzed at a laboratory that is certified pursuant to NYSDOH ELAP for the category of parameters analyzed. The laboratory selected for use shall be pre-approved by the Department or Engineer.

D. Any repeat test that is required due to the Contractor's negligence or failure to meet these specifications shall be done at the Contractor's expense and shall not be a cause in delaying the completion of the work.

E. Related Specification Sections include but are not necessarily limited to:
   1. SPEC 00003 – Minimum Requirements for Health and Safety
   2. Section 01100 – Scope
   3. Section 02210 – Soil Excavation, Storage, and Handling
   4. Section 02220 – Backfilling and Compaction
   5. Section 02230 – Transportation and Disposal

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. NYSDEC Analytical Services Protocol (ASP), July 2005 or latest version
   2. NIOSH Manual of Analytical Methods (NMAM)
   3. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)
   4. NYSDEC DER-10: Technical Guidance for Site Investigation and Remediation
   5. 40 CFR Part 136
   6. 40 CFR Part 761

1.3 SUBMITTALS

A. Miscellaneous:
   1. Sampling Plan: The Contractor shall provide a sampling and analysis plan for all materials to be sampled. The plan shall be submitted a minimum of 10 days prior to completing any analytical sampling required by the Contract Documents. The plan shall include the following minimum topics:
      a. Sampling Personnel along with qualifications and resumes
      b. List of sampling and analysis equipment
      c. Sampling procedures and frequency for:
         1) Soil
            a) Borrow area samples
            b) Confirmation samples
         2) Sampling and analysis of wastes generated at the site

a) Excavated soils
b) Construction water

d. Information on the laboratory selected to analyze samples including the laboratories certifications and Quality Assurance Project Plan (QAPP).
e. Decontamination procedures

2. Contractor's Quality Assurance Project Plan (QAPP): The plan shall be submitted a minimum of 10 days prior to completing any analytical sampling required by the Contract Documents. Contractor's QAPP shall include the following minimum information if not already included in the Sampling Plan:
   a. Project organization including designation of project manager and Quality Assurance Officer and resumes for these individuals
   b. Sampling procedures, data quality usability objectives and equipment decontamination procedures
   c. Site map showing sample locations
   d. Analytical Methods/Quality Assurance Summary Table which must include:
      1) Matrix type
      2) Number or frequency of samples collected per matrix
      3) Number of field and trip blanks per matrix
      4) Analytical parameters measured per matrix
      5) Analytical methods used per matrix with minimum reporting limits
      6) Number of matrix spike and matrix spike duplicate samples
      7) Number and type of duplicate samples
      8) Sample preservation to be used per analytical method and sample matrix
      9) Sample holding time to be used per analytical method and sample matrix
      10) Sampling methods and sample storage in the field
3. Chain of Custody forms
4. Analytical Results

1.4 ANALYTICAL METHODS

A. Soil Confirmation Samples
   1. USEPA SW 846 Method 8082A for polychlorinated biphenyls (PCBs)

B. Backfill Samples
   1. Method 8260 for target compound list (TCL) volatile organic compounds (VOCs)
   2. Method 8270 for TCL semi-volatile organic compounds (SVOCs)
   3. CLP SOW for metals
   4. USEPA SW 846 Method 8081A for pesticides/herbicides/PCBs

C. Waste
   1. USEPA SW 846 Method 8082A for PCBs
   2. All other methods requested for analysis by the waste disposal facility.

D. Construction Water
   1. USEPA SW 846 Method 8082A for PCBs
   2. All other methods requested for analysis by the waste disposal facility

1.5 SAMPLE COLLECTION

A. Construction Water
   1. One sample shall be collected for each drum/container used to temporarily store construction water prior to disposal. If water will be disposed of off site at a permitted treatment and disposal facility, additional samples shall be collected as required by the treatment and disposal facility.
   2. Samples will be analyzed for PCBs and other parameters required by the disposal facility.

B. Excavated Soils Waste Characterization

1. Prior to disposal the Contractor shall collect waste characterization samples.
2. One composite sample made up of five discrete samples shall be collected for every 500 cubic yards of soil disposed off site, unless otherwise directed by the disposal facility.
3. Composite samples shall be analyzed for total PCBs in addition to any other parameters required by the disposal facility which may include TCLP, pH, cyanide reactivity, sulfide reactivity, and ignitability.

C. Confirmation Samples:
1. Post excavation samples shall be collected by the Contractor to verify remaining soils meet the soil cleanup objectives for the site. Excavation areas shall not be backfilled until sample results have been received and approved by the Engineer. Table 1 below summarizes the cleanup criteria required for each area.
2.

Table 1		
Contaminant	**Surface Soil Criteria (mg/kg)**	**Subsurface Soil Criteria (mg/kg)**
PCBs	1	10

3. At a minimum, one sample shall be collected for every 400 square feet of bottom area and for every 30 linear feet of sidewall.
4. Samples shall be analyzed for total PCBs.
5. Samples shall be discrete samples. Sidewall samples shall be collected from 0 – 3 inches (or as needed to fill sample jar) below the existing topsoil or pavement/gravel sub-base layer. Bottom samples shall be collected at the bottom depth of the excavation.
6. Samples shall not be collected where standing water is present, unless there is no other location to collect a sample.
7. If additional samples beyond those shown on the Contract Documents are necessary, the Contractor shall mark the locations of confirmatory samples using a stake or other means and have a NYS licensed surveyor locate the additional sample locations. The Contractor shall identify sample locations using the identifiers used on the chain of custody sent to the laboratory. Additional samples shall only be collected with prior approval from the Engineer.

D. Backfill Characterization
1. Samples for imported materials shall be collected at the frequency specified in Table 2 below:

Table 2		
Imported Soil Quantity (cubic yards)	**VOCs Discrete Samples**	**SVOCs, Inorganics & PCBs/Pesticides Composite Samples**
50-100	2	1
100-200	3	1
200-300	4	1
300-400	4	2
400-500	5	2
500-800	6	2
800-1000	7	2
>1000	Add an additional 2 VOC and 1 composite for each additional 1000 cubic yards	

2. Composite samples shall be composed of 3-5 discrete samples from different locations in the imported fill.

3. The sample results shall be submitted to the NYSDEC and the Engineer for confirmation that the backfill analytical results meet the criteria at least 10 days prior to its planned use and prior to bringing any backfill material on site.
4. Samples shall be analyzed for metals, SVOCs, VOCs, PCBs, herbicides, and pesticides.

1.6 DELIVERY TO LABORATORY

A. All samples shall be delivered to the laboratory within 24 hours from the time of collection.

1.7 QA/QC SAMPLES

A. Quality control samples shall be collected for each matrix at the frequency required by the NYSDEC ASP. The collection of QC samples shall be as specified below.

B. Field Quality Control Samples
   1. Field Blanks
      a. These shall be collected to evaluate the cleanliness of sampling equipment and sampling bottles. One sample shall be collected for every 20 decontamination events or a minimum of one sample per equipment type and/or media per day.
      b. Field blanks will not be collected in conjunction with air sampling.
   2. Field duplicates
      a. One duplicate shall be collected for every 20 samples per media
      b. Samples shall be collected for surface water, groundwater, subsurface soil, and sediment.
   3. The Contractor shall also collect and analyze any quality control samples required by the disposal facility.

C. Laboratory Quality Control Samples
   1. Method Blank
      a. One sample shall be analyzed for each analytical batch
      b. Samples shall be analyzed using either laboratory reagent water or standard solid matrix, depending upon the media included in the batch
   2. Matrix Spike/Matrix Spike Duplicate
      a. One matrix and matrix spike duplicate will be performed for every analytical batch
   3. Surrogate Spike Analysis

1.8 REPORTING

A. Reporting shall be per ASP Category B deliverables.

B. Electronic Data Deliverables in the NYSDEC format are required for all soil confirmation sample results.

C. The Contractor shall provide GPS coordinates and mark ups of all soil samples collected.

1.9 TURNAROUND TIMES

A. Turnaround time shall be as required to keep the work moving forward in a timely fashion and not cause substantial delays to its completion.

B. Turnaround times for waste characterization of soil stock piles shall be completed as quickly as possible in order to limit the time soil is stockpiled on site.

C. Turnaround times for confirmatory samples shall be a minimum of 48 hours in order to limit the time excavations are open.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION – NOT APPLICABLE

END OF SECTION

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SECTION 01563

Environmental Protection and Special Controls

PART 1 - GENERAL

1.1 SUMMARY

A. This section addresses minimizing the pollution of air, water, or land; control of noise, and the disposal of solid waste materials (daily trash).

B. Related sections:
   1. Section 01100 – Scope of Work
   2. Section 02210 – Soil Excavation, Storage, and Handling
   3. Section 02270 – Erosion and Sediment Control

1.2 REFERENCES

A. The reference listed below form a part of this specification to the extent referenced.
   1. Town of Moreau Municipal Code

B. 40 CFR 761

1.3 SUBMITTALS

A. Miscellaneous:
   1. Permits

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 GENERAL

A. Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations.

3.2 LAND PROTECTION:

A. Except for any work or storage area and access routes specifically assigned for the use of the Contractor, the land areas outside the limits of construction shall be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work within the Contract Documents.

B. Manage and control all borrow areas, work or storage areas, access routes and embankments to prevent sediment from entering nearby water or land adjacent to the work site.

C. Restore all disturbed areas including borrow and haul areas and establish permanent type of locally adaptable vegetative cover.

D. Protect all side slopes and back slopes immediately upon completion of final grading.

E. Plan and execute earthwork in a manner to minimize duration of exposure of unprotected soils.

F. Except for areas designated by the Contract Documents to be cleared and grubbed, the Contractor shall not deface, injure or destroy trees and vegetation, nor remove, cut, or disturb them without approval of the Department or Engineer. Any damage caused by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense.

3.3 SURFACE WATER PROTECTION

A. Discharges from the construction site shall not contain pollutants at concentrations that produce objectionable films, colors, turbidity, deposits or noxious odors in the receiving stream or waterway.

B. The Contractor shall immediately correct any problems causing such discharges and stop any such discharges from leaving the site.

C. Materials shall be staged a minimum of 50 feet from the edge of the wetlands and surface water bodies.

D. Equipment shall not be fueled within 100 feet of the wetland and surface water bodies.

3.4 SOLID WASTE (RUBBISH) DISPOSAL:

A. Collect solid waste consisting of daily rubbish, on a daily basis.

B. Provide disposal of degradable solid waste to an approved solid waste disposal site.

C. Provide disposal of non-degradable solid waste to an approved solid waste disposal site or in an alternate manner approved by the Department or Engineer and all regulatory agencies.

D. No materials shall be buried, dumped, or disposed of on the site.

3.5 FUEL AND CHEMICAL HANDLING:

A. The Contractor shall comply with "Right to Know" requirements of Chapter 55 of the Laws of New York, 1980, concerning notification of the use of toxic substances. Any product or substance used by the Contractor or its subcontractors which is listed in Subpart Z of OSHA Part 1910 Title 29 of the Code of Federal Regulations entitled "Toxic and Hazardous Substances" shall be identified by the Contractor's submission of the standard Material Safety Data Sheet (MSDS).

B. Store and dispose of chemical wastes in a manner approved by all Federal, State, and local regulations.

C. Take special measures to prevent chemicals, fuels, oils, greases, herbicides, and insecticides from entering drainage ways.

D. Do not allow water used in onsite material processing, concrete curing, cleanup, and other waste waters to enter a drainage way(s) or stream.

E. The Contractor shall provide containment around fueling and chemical storage areas to ensure that spills in these areas do not reach waters of the state or land.

3.6 CONTROL OF DUST:

A. The control of dust shall mean that no construction activity shall take place without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne so that it remains visible beyond the limits of construction. Reasonable measures may include frequent road cleaning, planting vegetative groundcover, application of water or application of chemical dust suppressants. The use of chemical agents such as calcium chloride must be approved by the Department.

B. Utilize methods and practices of construction to eliminate dust in full observance of agency regulations.

C. The Engineer will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to the Department.

3.7 BURNING:

A. Do not burn material on the site.

3.8 CONTROL OF NOISE:

A. Control noise by fitting equipment with appropriate mufflers.

B. Chapter 100 Noise of the Town of Moreau Municipal Code prohibits noise associated with construction activities between the hours of 11:00 pm to 7:00 am.

3.9 HISTORICAL PROTECTION:

A. If during the course of construction, evidence of deposits of historical or archaeological interests is found, cease work and immediately notify the Engineer. Do not disturb deposits until written notice from the Department or the Engineer is given to proceed.

B. The Contractor will be compensated for lost time or changes in construction to avoid the find based upon normal change order procedures.

3.10 PERMITS:

A. The NYSDEC will obtain the following approvals and permits or permit equivalencies:
   1. General Permit for Stormwater Associated with Construction Activities (GP-0-15-002)

B. The Contractor shall be responsible for obtaining and paying for all local permits required. Copies of permits shall be submitted to the Engineer prior to beginning work. Permits required unless otherwise waived by the municipality include the following:
   1. Town of Moreau
      a. Erosion Control Permit (Chapter 120 of the Town Code)
   2. Sign Permit
      a. The proposed sign exceeds the 6 square foot area for a temporary sign and will thus require a permit to be installed.

END OF SECTION

SECTION 02090

Decommission Groundwater Monitoring Wells

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the labor, materials, and equipment necessary to decommission and remove the groundwater monitoring wells located within the excavation limits shown on the Contract Drawings.

B. Contractor will be responsible for verifying all site conditions and the location of all existing utilities and protecting those to remain during well decommissioning procedures. Inactive or abandoned utilities shall be capped in accordance with local requirements.

C. Decommissioning shall be done in accordance with NYSDEC guidance document CP:43 Groundwater Monitoring Well Decommissioning Policy.

1.2 REFERENCES

A. The reference (publications) listed below form a part of this specification to the extent referenced.
   1. CP-43: Groundwater Monitoring Well Decommissioning Policy

1.3 PROJECT CONDITIONS

A. Three monitoring wells are located in the limit of excavation and will require removal. The wells are single stem risers with diameters of 2 inches and depths ranging from 19.9 to 21 feet. The well logs are included as Attachment A to this specification section. It is the Contractor's responsibility to verify all information on the existing wells to be removed.

1.4 SUBMITTALS

A. Data:
   1. Well Decommissioning Records (see section 3.1 below)

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 DECOMMISSIONING PROCEDURES

A. Wells will be grouted in place unless the well seal has been compromised. If the seal has been compromised the well shall be decommissioned using the casing perforation method.
   1. Well casing shall be filled with grout to a level of five feet below the ground surface.
   2. Well casing shall be cut at the five feet depth and removed.
   3. The upper five feet of the borehole will be filled with backfill to the surrounding ground surface.

B. The Contractor shall maintain a record of the decommissioning process for each well. An example of the well decommissioning records required taken from CP:43 Groundwater Monitoring Well Decommissioning Policy is included as Attachment A.
   1. Grouting

a. Interval grouted
b. Number of batches prepared
c. For each batch record (as applicable):
    1) Quantity of water used
    2) Quantity of cement used
    3) Cement type
    4) Quantity of bentonite used
    5) Quantity of calcium chloride used
    6) Volume of grout prepared
    7) Volume of grout used.

2. Schematic showing relevant decommissioning data

C. A daily field report shall be prepared that will make note of the progress for removing the wells, any problems that arise during the removal, and measures used to correct those problems.

D. The Contractor may use an alternative decommissioning procedure with prior approval by the Engineer.

3.2 DISPOSAL

A. All materials removed shall be properly disposed of off site in accordance with all local, state, and federal regulations.

ATTACHMENT A

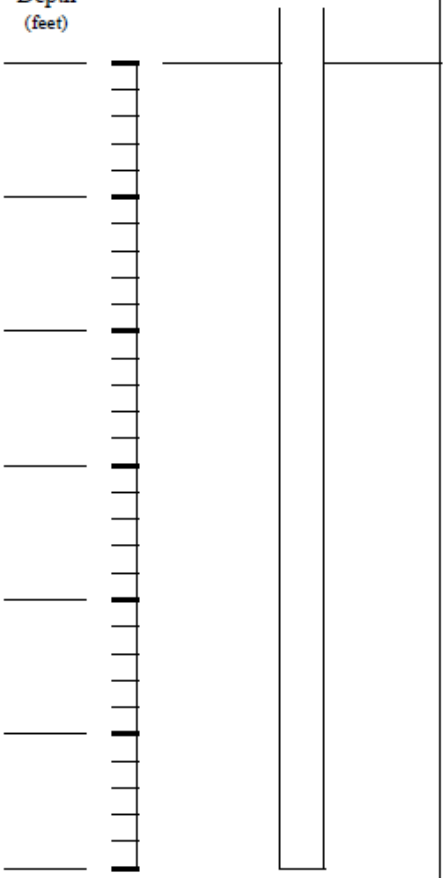
FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name:	Well I.D.:
Site Location:	Driller:
Drilling Co.:	Inspector:
	Date:

DECOMMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	
Drilling Method(s)	
Borehole Dia. (in.)	
Temporary Casing Installed? (y/n)	
Depth temporary casing installed	
Casing type/dia. (in.)	
Method of installing	
CASING PULLING	
Method employed	
Casing retrieved (feet)	
Casing type/dia. (in)	
CASING PERFORATING	
Equipment used	
Number of perforations/foot	
Size of perforations	
Interval perforated	
GROUTING	
Interval grouted (FBLS)	
# of batches prepared	
For each batch record:	
Quantity of water used (gal.)	
Quantity of cement used (lbs.)	
Cement type	
Quantity of bentonite used (lbs.)	
Quantity of calcium chloride used (lbs.)	
Volume of grout prepared (gal.)	
Volume of grout used (gal.)	

WELL SCHEMATIC*



COMMENTS:

* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

END OF SECTION

SECTION 02110
Clearing and Grubbing

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes all labor, materials, and equipment necessary for clearing and grubbing the site in preparation of the work.

B. Related Sections include but are not necessarily limited to:
   1. Section 02210 – Soil Excavation, Storage, and Handling
   2. Section 02270 - Soil Erosion and Sediment Control.
   3. Section 02930 – Final Site Restoration

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 PREPARATION

A. Clearly mark in the field the limit of disturbance.

B. Protect existing trees and other vegetation to remain against damage.
   1. Do not smother trees by stockpiling construction materials or excavated materials within drip line.
   2. Avoid foot or vehicular traffic or parking of vehicles within drip line.
   3. Provide temporary protection as required.

C. Prior approval by the Department or Engineer is required to remove or disturb trees not currently shown in the limit of disturbance.

3.2 SITE CLEARING

A. Clearing and Grubbing:
   1. Clear from within limits of construction all trees not marked to remain.
      a. Include shrubs, brush, downed timber, rotten wood, heavy growth of grass and weeds, vines, rubbish, structures and debris.
   2. Grub (remove) from within limits of construction all stumps, roots, root mats, logs and debris encountered.

B. Disposal of Waste Materials:
   1. Do not burn combustible materials on site.
   2. Remove all waste materials from site in accordance with Section 02230 – Transportation and Disposal.
   3. Do not bury organic matter on site.

3.3 ACCEPTANCE

A. Upon completion of the site clearing, obtain Engineer's acceptance of the extent of clearing.

END OF SECTION

SECTION 02210

Soil Excavation, Storage and Handling

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes the labor, equipment, tools, materials, and services necessary to perform the excavation as described herein and shown on the Contract Drawings.

B. The work described in this section consists of the excavation of contaminated materials from the site, material storage, and handling.

C. Related Sections include but are not necessarily limited to:
1. SPEC 00003 – Minimum Requirements for Health and Safety
2. Section 01100 – Scope of Work
3. Section 01500 – Temporary Facilities and Services
4. Section 01560 – Sampling
5. Section 01563 – Environmental Protection and Special Controls
6. Section 02220 – Backfill and Compaction
7. Section 02230 – Transportation and Disposal
8. Section 02270 – Erosion and Sediment Control
9. Section 02930 – Final Site Restoration

1.2 REFERENCES

A. Referenced Standards:
1. New York State Department of Environmental Conservation (NYSDEC):
   a. DER-10: Technical Guidance for Site Investigation and Remediation
   b. CP-51 / Soil Cleanup Guidance
2. 6NYCRR Part 375
3. OSHA Standards for Construction Industry, 29 CFR 1926
4. 40 CFR Part 761

1.3 DEFINITIONS

A. Exclusion Zone: Portion of the site where hazardous substances are, or are reasonably suspected to be present in the air, water or soil.

B. Contamination Reduction Zone: Area between the Exclusion Zone and Clean Zone that provides a transition between contaminated and clean areas. Decontamination stations are located in this zone.

C. Clean/Support Zone: The rest of the site. Support equipment is located in this zone.

D. Onsite Personnel: Contractor and subcontractor personnel involved in completing the work.

E. Visitor: Personnel, except the onsite personnel. Visitors must receive approval to be onsite.

1.4 SUBMITTALS

A. Miscellaneous:

1. Excavation Work Plan: The Contractor shall prepare and submit to the Engineer for review and approval an Excavation Work Plan. The Excavation Work Plan may be included in the Work Plan required by Section III, Article 5, item b. If included in the overall Work Plan the Contractor shall clearly state this in the submittal transmittal. The Excavation Work Plan shall include the following minimum information:
    a. Phasing: Provide a phasing plan for the area of excavation. The Contractor shall indicate how the excavation of the area shall be completed. Plan shall include the safety measures to be implemented such as: shoring, underpinning, side wall slopes, and any other measures used to support and protect the excavations.
    b. Staging Areas: The Contractor shall provide on a plan the location of proposed staging areas and how stock piles will be protected to prevent run-off of contaminated sediment if different than what is shown on the Contract Drawings. The Contractor shall also show the proposed truck hauling route and provide the location for soil disposal.
    c. Equipment List: The Contractor shall provide a list of all equipment and the equipment's use proposed for this site.
    d. Equipment Decontamination: The Contractor shall provide a description and plan showing how and where the decontamination station shall be set up and used. The plan shall be in accordance with the EPA approved Self-Implementing PCB Cleanup Plan.

B. Shop Drawings:
    1. Support Systems, shield systems and other protective systems: Methods proposed for protecting individuals within an excavation shall meet the requirements of 29 CFR 1926.625. Structural methods, if not designed using tabulated data shall be designed and certified by a NYS licensed professional engineer.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect existing surface and subsurface features on-site and adjacent to site as follows:
    1. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing items indicated to remain in place.
    2. Protect and maintain bench marks, monuments or other established reference points and property corners.
        a. If disturbed or destroyed, replace at own expense to full satisfaction of the Engineer.
    3. Verify location of utilities.
        a. Omission or inclusion of utility items in these specifications does not constitute non-existence or definite location.
        b. Secure and examine local utility records for location data.
        c. Take necessary precautions to protect existing utilities from damage due to any construction activity.
        d. Repair damages to utility items at own expense.
        e. In case of damage, notify the Engineer at once so required protective measures may be taken.
    4. Maintain free of damage, existing sidewalks, structures, and pavement, not indicated to be removed.
        a. Any item known or unknown or not properly located that is inadvertently damaged shall be repaired to its original condition.
        b. All repairs to be made and paid for by the Contractor.
    5. Provide full access to public and adjacent private premises, fire hydrants, street crossings, sidewalks to prevent serious interruption of travel.

6. Maintain stockpiles and excavations in such a manner to prevent possible run-off of contaminated sediments to adjoining property or public streets.
7. Avoid surcharge or excavation procedures which can result in heaving, caving, or slides.
8. Coordinate excavations in the vicinity of utility poles and underground gas lines with the proper utility company prior to commencing.

B. The Contractor is responsible for ensuring unauthorized persons do not enter the exclusion zone. Snow fence or other acceptable means shall be installed around the hazardous work zone to restrict access. Warning signs shall be posted stating "Warning Hazardous Work Area, Do Not Enter Unless Authorized".

3.2 SITE EXCAVATION

A. All equipment supplied shall arrive in good working condition, without any leaks. Any equipment having visible oil or hydraulic leaks shall be immediately removed from the site and shall not be permitted back unless properly repaired. Any cleanup required as a result of a leak or spill of fuel or hydraulic oil from any equipment on site shall be the responsibility and expense of the Contractor.

B. The Contractor shall excavate the site to the depth and horizontal limits shown on the Contract Drawings. Confirmation samples shall be collected in accordance with Section 01560-Sampling before backfilling the excavation area. If confirmation samples indicate soils above the standard, the Contractor shall continue to excavate soils as directed by the Engineer. Any unapproved excavations beyond the limit determined by the Engineer shall be removed at the Contractor's expense.

C. Additional confirmation samples shall be collected as directed by the Engineer for areas where the excavation limit was extended. All additional samples shall be located by a NYS licensed surveyor.

D. During all excavations soil shall be screened for contamination using visual observations. Confirmation samples shall be collected at the locations shown on the Contract Drawings and as indicated in the field by the Engineer. All samples shall be in accordance with Section 01560 – Sampling.

E. The Contractor shall reduce the potential for cross-contamination of uncontaminated areas with contaminated soils by phasing the work and keeping contaminated soils within the exclusion zone.

F. The Contractor shall make sure that soil with PCB concentrations greater than or equal to 50 mg/kg is not mixed with soil with PCB concentrations less than 50 mg/kg. If waste is stockpiled separate stockpiles shall be provided for soils having PCBs greater than or equal to 50 mg/kg and soils less than 50 mg/kg of PCBs meeting the requirements specified in Section 3.3 below.

G. The Contractor shall shore, sheet pile, slope, or brace excavations, as required, to prevent them from collapsing. Shoring shall be removed as backfilling progresses but only when banks are stable and safe from caving or collapsing. All means for shoring the excavation area shall be done in accordance with applicable New York State and OSHA regulations. All means for shoring shall be submitted to the Engineer, and any other affected party.

H. The tracking of any sediment onto public roads is prohibited. Any tracking shall be immediately cleaned at the expense of the Contractor. The Contractor shall take precautions by putting in place procedures to ensure sediment is removed from tires of equipment and vehicles prior to leaving the site.

I. The Contractor shall take measures to prevent storm water run-off from entering open excavations by diverting storm water were possible and minimizing the length of time excavations are left open. Any storm water that does collect within the excavated areas shall be disposed of in accordance with Section 02230 – Transportation. Any temporary drainage ditches or drains that may be needed, although not shown, shall be provided at the Contractor's expense.

J. Excavations of contaminated materials shall be completed during dry weather, unless otherwise directed by the Engineer.

K. The Contractor shall make every effort possible to eliminate the need for trucks to drive into the exclusion zone. Load out areas shall be provided outside the exclusion zone whenever possible to eliminate the need to decontaminate trucks before leaving the site.

L. Equipment used within the exclusion zone shall be decontaminated prior to its transport off the site or its use in any uncontaminated areas. Decontamination shall be done in accordance with SPEC-00003 – Minimum Requirements for Health and Safety and the EPA approved Self Implementing Cleanup Plan.

3.3 HANDLING AND STORAGE PROCEDURES

A. Onsite storage of contaminated soils shall be minimized. If stockpiles of contaminated or uncontaminated materials are required for storage and handling, the locations shall be as shown on the Contract Drawings or as otherwise approved by the Department or the Engineer.

B. Stockpiles of soil with PCB concentrations greater than or equal to 50 mg/kg shall be constructed to include:
   1. A HDPE geo-membrane with a minimum thickness 60 mils is to be placed underneath the stockpile.
   2. If the liner becomes ripped during loading and excavation activities the ground surface under the stockpile location shall be scraped a minimum of 6 inches upon completion of excavation activities. The area must then be sampled and analyzed for PCBs; any soil with PCB concentrations equal to or greater than 50 mg/kg must be removed and disposed to an EPA approved disposal facility.
   3. A berm shall be installed around the stockpile. The berm shall be a minimum of six inches high.
   4. Stockpile locations shall not be located within 50-ft of a storm drain or natural water body and shall not be located in any natural drainage path.
   5. Stockpiles shall be covered with a 10 mil geo-membrane when not in active use to prevent rain or surface water from coming into contact with the contaminated soil. The cover shall be anchored using sand bags or an alternative means approved by the Department or the Engineer, to prevent it from being blown away.

C. Stockpiles of soil with PCB concentrations less than 50 mg/kg shall be constructed to include:
   1. A geo-membrane with a minimum thickness 60 mils is to be placed underneath the stockpile, unless stockpile is located within the exclusion zone and is <u>not</u> located directly over soil with PCB concentrations greater than or equal to 50 mg/kg.
   2. The geo-membrane shall be placed such that the stockpiled soil does not come into contact with surface water run-off.
   3. A berm shall be installed around any stockpile of contaminated material to prevent the migration of contaminants.
   4. Stockpile locations shall not be located within 50-ft of a storm drain or natural water body and shall not be located in any natural drainage path.
   5. All stockpiles shall be covered with a 10 mil geo-membrane when not in active use to prevent rain or surface water from coming into contact with the contaminated soil. The cover shall be anchored using sand bags or an alternative means approved by the Department or the Engineer, to prevent it from being blown away.

D. During the active excavation continuous air and dust monitoring shall be completed as required by SPEC 00003 – Minimum Requirements for Health and Safety.

E. Any contaminated materials on the exteriors of the transport vehicles shall be removed prior to the vehicle leaving the site.

END OF SECTION

SECTION 02220

Backfilling and Compacting

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes all labor, materials, and equipment necessary for backfilling and compaction required for completion of the work as described in the Contract Documents.

B. Related Sections include but are not necessarily limited to:
   1. Section 01560 – Sampling
   2. Section 02210 – Soil Excavation, Storage, and Handling
   3. Section 02270 – Erosion and Sediment Control
   4. Section 02930 – Site Restoration

1.2 REFERENCES

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).
      b. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).
      c. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
      d. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
   2. New York State Department of Environmental Conservation (NYSDEC):
      a. DER-10: Technical Guidance for Site Investigation and Remediation
   3. 6NYCRR Part 375

1.3 QUALITY ASSURANCE

A. Qualifications: Hire a recognized testing laboratory to conduct soil tests for backfilling.

1.4 SUBMITTALS

A. Analytical and Test Data:
   1. Submit analytical results on all backfill material and per borrow source at least one week prior to its planned use and before it is brought on site.
   2. Submit sieve analysis reports on all granular materials for each borrow area.
   3. Submit proctor test results for each borrow area.
   4. Submit test reports for furnished topsoil.

B. Documentation providing the location and description of the origin of imported backfill and topsoil material shall be provided a minimum of two days prior to bringing any material onsite. The documentation shall include:
   1. Name of the person providing the documentation and relationship to the source of fill
   2. Location where the fill was obtained
   3. Identify any state or local approvals for use as fill
   4. If no approvals exist provide a brief history of the use of the property where the fill originates from.

C. Bill of ladings or equivalent shall be provided to the Department documenting that fill and topsoil delivered to the site are from the approved locations. Backfill locations shall be approved by the Department prior to commencing of work.

PART 2 - PRODUCTS

2.1 STRUCTURAL BACKFILL

A. Material shall be as approved by the Engineer and shall be free of rock, cobbles, roots, sod or other organic matter, and frozen material or any other foreign objectionable material that will interfere with or prevent construction of satisfactory fills. The moisture content at time of placement shall be within optimum moisture content specified by test results.

B. Backfill material shall be free of debris or solid waste.

C. Frozen materials or soft, mucky or highly compressible materials shall not be incorporated in fills.

D. Sampling is required for all imported backfill to be used at the site. Soil sampling shall be performed in accordance with DER-10 Table 5.4(e)10. Soil sampling shall be performed for each new source of backfill material. The allowable constituent levels for imported fill or soil shall not exceed the lower of the protection of groundwater or protection of health limits set forth in 6 NYCRR Part 375 Table 375-6.8(b) for a commercial use.

2.2 CRUSHED STONE

A. Material to be used for stabilized construction entrances shall be only natural stone and shall meet the requirements as specified in this section.

B. Stone size shall be between 1-2 inches, or reclaimed, or approved equivalent.

C. Analytical testing for crushed stone consisting of virgin material from a permitted mine or quarry is not required.

2.3 TOPSOIL

A. Topsoil shall be free from refuse, toxic materials or materials deleterious to plant growth, subsoil, seeds or other viable propagules of invasive plants, woody vegetation and stumps, roots, brush, stones, clay lumps, or similar objects.

B. Sampling is required for all imported topsoil to be used at the site. Soil sampling shall be performed in accordance with DER-10 Table 5.4(e)10. Soil sampling shall be performed for each new source of topsoil material. The allowable constituent levels for topsoil shall not exceed the lower of the protection of groundwater or protection of health limits set forth in 6 NYCRR Part 375 Table 375-6.8(b) for a commercial use.

C. Topsoil treated with soil sterilants or herbicides shall be identified to the Department, and only used if approved.

D. Topsoil shall have at least 6% by weight of fine textured stable organic material, and no greater than 20%. Muck soil shall not be considered topsoil.

E. Topsoil shall have a pH between 5.5 and 7.6.

F. Topsoil containing soluble salts greater than 500 ppb shall not be used.

G. Topsoil shall have not less than 20% fine textured material (passing the No. 200 sieve) and not more than 15% clay.

H. Topsoil from each borrow source shall be submitted to the laboratory for testing a minimum of 20 days prior to placement.

PART 3 - EXECUTION

3.1 GENERAL

A. Remove and dispose of unsuitable materials from the site as directed by the Engineer.

B. Backfill shall be placed as required to meet the specified grades shown on the Contract Drawings.

3.2 BACKFILLING

A. Do not backfill until soil analytical results, required by Section 01560 – Sampling, have been received showing that the remaining soils are in full compliance with the soil cleanup limits specified in the Contract Documents.

B. Place demarcation layer as specified in Section 02742 – Demarcation Layer prior to placing backfill.

C. Do not place backfill on saturated or frozen surfaces or in areas of ponded water.

D. Backfill shall be placed in lifts not exceeding 8 inches (loose thickness)

E. Water flushing for consolidation is not permitted.

3.3 COMPACTED BACKFILL

A. Backfill shall be compacted to 95% of the Laboratory Maximum Density and between +5% and -3% of the optimum moisture content determined in accordance with ASTM D1557 (Modified Proctor) for areas adjacent to existing structures.

B. Vibratory compaction using large self-propelled equipment shall be kept at least 40 feet from existing structures. Hand-operated plate compactors shall be used when within 10 feet of any existing structures. If vibrations are found to be a problem, the Contractor shall compact using a static sheepsfoot roller without vibration.

C. No compacting shall be done when there is standing water. At such times, work shall be suspended until the previously placed and new materials have dried sufficiently to permit proper compaction.

D. Compaction over underground utilities shall be done by hand tamping.

E. Approved compacted sub-grades that are disturbed by the Contractor's operations or adverse weather shall be scarified and re-compacted to the required density, prior to further construction. Re-compaction over underground utilities shall be done by hand tamping.

3.4 TESTING OF COMPACTED BACKFILL

A. In-place moisture-density tests shall be completed in the field using a troxler. A minimum of one test shall be performed per 100 cubic yards of material placed or as otherwise directed by the Engineer.

B. When compaction results indicate compaction is not as specified, the material shall be removed, replaced and re-compacted to meet specification requirements. Tests on re-compacted areas shall be performed to determine conformance with specification requirements.

C. Costs associated with failing tests shall be paid by the Contractor.

3.5 TOPSOIL APPLICATION

A. Preparation:

1. Correct, adjust and/or repair rough graded areas before applying topsoil.
    a. Cut off mounds and ridges
    b. Fill gullies and depressions
    c. Perform other necessary repairs
    d. Bring all sub-grades to specified contours, even and properly compacted. Finish grading shall be within 0.1 ft. plus/minus from required elevations.
2. Loosen surface to depth of two inches minimum.
3. Remove all stones and debris over two inches in any dimension.

B. Application:
1. Topsoil shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water.
2. Topsoil shall not be placed when sub-grade is wet or frozen enough to cause clodding.
3. Topsoil shall be distributed to a uniform depth, not less than six inches, for all disturbed earth areas.
4. If topsoil stockpiled is less than amounts required for work, furnish additional topsoil at no cost to the Department.
5. Provide finished surface free of stones, sticks, or other material one inch or more in any dimension
6. Provide finished surface smooth and true to required grades.
7. Restore stockpile area to condition of rest of finished work.

C. Acceptance
1. Upon completion of topsoiling, obtain Engineer's acceptance of grade and surface.
2. Make test holes where directed by the Engineer to verify proper placement and thickness of topsoil.

3.6 GRAVEL

A. Place four inches of gravel over installed structural backfill.

B. Gravel shall be fine graded and raked to provide a uniform thickness.

END OF SECTION

SECTION 02230
Transportation and Disposal

PART 1 - GENERAL

1.1 SUMMARY

A. The Contractor shall be responsible for the proper handling and storage of all waste generated at the site. Waste materials include but are not limited to debris from removing the building slab and footings, excavated soil, and materials associated with decontamination and personal protective measures.

B. The Department shall provide an EPA Identification Number for generating regulated waste at the site.

C. Related Specification Sections include but are not necessarily limited to:
   1. 01100 – Scope of Work
   2. 01563 – Environmental Protection and Special Controls
   3. 02210 – Soil Excavation, Storage and Handling

1.2 SUBMITTALS

A. Disposal Plan: The Contractor shall prepare and submit to the Engineer for review and approval a Disposal Plan which will include the following minimum information:
   1. Name and Location of Selected Disposal Facilities
   2. Plan showing the work area, haul routes, waste storage areas, access routes and loading areas
   3. Times during the day when waste hauling will occur
   4. Name of the Company responsible for hauling the waste along with a copy of the haulers Part 364 Waste Transporter Permit, if applicable
   5. Storage, handling, and disposal procedures for:
      a. Contaminated water
      b. PPE and project consumables
      c. Contaminated soils with PCBs $\geq$ 50 mg/kg
      d. Contaminated soils with PCBs <50 mg/kg

B. Waste Manifests and Bill of Ladings

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 GENERAL

A. The Engineer shall be responsible for signing all manifests for proper shipping on behalf of the Department.

B. All vehicles used for off-site and onsite transport shall be designed for hauling the waste to be disposed of. Vehicles shall be equipped with a means to prevent any escape of any source of contamination from spills, leaks, or airborne emissions during transport.

C. The tracking of any sediment onto public roads is prohibited. Any tracking shall be immediately cleaned at the expense of the Contractor. The Contractor shall take precautions by putting in place procedures to ensure sediment is removed from tires of trucks prior to leaving the site.

D. The Engineer is responsible for characterizing all waste and preparing the waste manifests. The Contractor shall be responsible for providing all samples and analyses and any other information requested by the disposal facility.

E. All wastes to be disposed of off site shall be properly labeled and packaged in accordance with all local, State and Federal regulations.

F. All drums used to store waste for disposal must conform to the requirements of 40 CFR Part 178 for Transportation of Hazardous Materials.

G. The contactor is responsible for all fees associated with the transportation and off site disposal of waste.

3.2 DEBRIS

A. The Contractor is responsible for the proper disposal of all waste generated from removal of the existing asphalt cap and clearing and grubbing activities. The following waste streams are anticipated:
   1. Trees, shrubs, and woody debris
   2. Asphalt
   3. Personal Protective Equipment (PPE) and Remediation Process Consumables

B. PPE and Remediation Process Consumables: Used PPE and project consumables shall be packaged, handled and stored to prevent any possible cross contamination of clean areas. These materials will be stored in bags and /or drums for offsite disposal.

3.3 EXCAVATED SOIL

A. This item includes all soils removed from the site with contaminant levels above the site specific soil cleanup objectives. Soils shall be classified based on the concentration of PCBs. PCB concentrations of $\geq$50 mg/kg require disposal to an EPA approved disposal facility. PCB concentrations <50 mg/kg can be disposed to a State approved municipal or non-municipal non-hazardous waste disposal facility or decontaminated off-site using thermal treatment. Decontaminated soils shall be treated to have PCB concentrations less than 1 mg/kg.

B. Stock piling of contaminated soil shall be minimized and shall in accordance with Section 02210 – Soil Excavation, Storage, and Handling.

C. The Contractor will be responsible for screening and collecting samples of all excavated soil in accordance with Section 01560 – Sampling, and any required sampling and analysis required by the disposal facility. Based upon the results, the Engineer shall characterize the waste.

D. Vehicles used for hauling shall be equipped with an impermeable cover to prevent airborne emissions from escaping during transport.

E. Disposal vehicles used to haul soil shall not enter the exclusion zone but shall be loaded in the area designated on the Contract Documents. If a disposal vehicle enters the exclusion zone the vehicle must be decontaminated prior to leaving the site. The Contractor's Health and Safety Officer shall be responsible for ensuring the vehicle is decontaminated prior to leaving the site.

3.4 CONTAMINATED WATER

A. This item includes all water generated during equipment decontamination and any storm water that enters open excavation areas. The Contractor shall collect the contaminated water for off-site disposal to an approved disposal facility.

B. Contaminated water shall be sampled and analyzed as required by the disposal facility to properly characterize the wastewater. Water shall be stored in either drums, tanks, or other type of vessel as approved by the Engineer.

C. The Contractor shall submit a plan for storage, handling and disposal of contaminated water. This plan will require prior approval by the Engineer.

3.5 TRANSPORATION REQUIREMENTS

A. All waste will be transported in accordance with applicable local, State and Federal regulations including but not limited to, bills of lading, manifests, placards, etc. All wastes shall be shipped using properly permitted vehicles operated by drivers with commercial drivers licenses (CDLs) with hazardous materials endorsement (if applicable). All hazardous and bulk remediation waste with PCB concentrations $\geq$50 mg/kg will be transported using Part 364 permitted transporters and transporters with RCRA identification numbers.

B. Travel routes shall be determined by the Contractor and shall be submitted to the Engineer for approval.

C. The Contractor is responsible for making sure all vehicles meet the load height and weight regulations. The Contractor shall provide a means to weigh all loaded vehicles prior to leaving the site. The weight shall be recorded by the Contractor and provided to the Engineer. Each truck will be weighed again upon arrival at the waste disposal facility and the weight recorded on a certified weigh ticket provided by the disposal facility. If discrepancies are discovered between the two scales the Contractor shall either calibrate the scale or provide a new scale if the scale is determined to be inaccurate.

D. All trucks shall be covered before leaving the site.

E. The Contractor is responsible for scheduling waste disposal with the disposal facility to make sure trucks will be received. The Department will not be responsible for demurrage due to the Contractor's lack of scheduling and/or coordinating with the disposal facility.

3.6 DISPOSAL FACILITIES

A. Only those facilities with a valid federal/state/local permit to accept the specific waste being disposed shall be used. The Contractor shall submit a list of all facilities to be used to the Engineer for approval.

END OF SECTION

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SECTION 02270

Soil Erosion and Sediment Control

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes all the labor, materials, and equipment necessary for the erosion and sediment control measures to be used at the site.

B. The erosion control measures described in this section shall be considered estimates and may not in all cases include all the measures necessary to prevent the migration of sediment off site. Any measures that are necessary or required to keep sediment from migrating off the site, even though it is not specifically included in the specifications or drawings, shall be installed at the site as if it were described or shown.

C. Related Sections include but are not necessarily limited to:
   1. Section 01100 – Scope of Work
   2. Section 01121 – Air Monitoring and Dust Control
   3. Section 01563 – Environmental Protection and Special Controls
   4. Section 02210 – Soil Excavation, Handling and Storage
   5. Section 02220 – Backfilling and Compaction
   6. Section 02930 – Final Site Restoration

1.2 REFERENCES

A. Referenced Standards:
   1. New York State Standards and Specifications for Erosion and Sediment Controls (August 2005).
   2. Town of Moreau Municipal Code, Chapter 120 Stormwater Management and Erosion and Sediment Control

1.3 SUBMITTALS

A. Miscellaneous:
   1. Contractor Certification
   2. Inspection Reports
      a. Submit within one day after completion. Report must be signed by the Qualified Inspector completing the report.

1.4 CONTRACTOR'S RESPONSIBILITY

A. The construction activities required by the Contract Documents are covered under a Stormwater Pollution Prevention Plan and SPDES General Permit GP-0-15-002 equivalency. As such the Contractor has the following responsibilities:
   1. Unless otherwise waived by the Department and local Municipal Separate Storm Sewer System (MS4), the Contractor shall sign the certification identified in Part III.A.6 of GP-0-15-002 and shall identify at least one trained individual as identified by GP-0-15-002. This certification statement has been included as Attachment A and shall be signed and maintained in the construction trailer for review by the local MS4. A copy shall be provided to the Department and the Engineer.
   2. The Contractor is responsible for the proper maintenance of all erosion and sediment control measures installed at the site. In the event the controls installed are determined to be deficient or ineffective, the Contractor shall repair and/or install additional controls to prevent sediment from leaving the site.

3. The Contractor shall complete weekly inspections of all erosion control measures installed and repair/replace defective measures immediately.
4. The Contractor shall be responsible for hiring a Qualified Inspector to complete the weekly inspections required by GP-0-15-002 unless otherwise waived by the Department and the local MS4. The Qualified Inspector must meet all requirements identified in Part IV.C of the SPDES General Permit GP-0-15-002. Unless waived by the local MS4 the Qualified Inspector must also complete inspections within 24 hours of a rainfall of 0.5 inches or greater.
    a. An inspection report meeting the requirements of Part IV.C.4 of GP-0-15-002 shall be prepared and submitted to the Engineer weekly. A copy of the report shall be maintained on site in the construction trailer.
    b. The Contractor shall document all corrections to deficiencies noted in the inspection reports prepared by the Qualified Inspector and shall keep all documentation in the construction trailer with the reports and contractor certifications.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Silt Fence:
1. Filter Fabric: Filter fabric shall meet the following specifications
    a. Grab Tensile Strength (lbs) – 90 (ASTM D1682 test method)
    b. Elongation at Failure (%) – 50 (ASTM D1682 test method)
    c. Mullen Burst Strength (psi) – 190 (ASTM D3786 test method)
    d. Puncture Strength (lbs) – 40 (ASTM D751)
    e. Slurry Flow Rate (gpm/sf) – 0.3
    f. Equivalent Opening Size – 40-80 (US Std. Sieve CW-02215)
    g. Ultraviolet Radiation Stability (%) – 90 (ASTM G-26 test method)
2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long.
    a. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches.
    b. Steel Posts will be standard T and U section weighing not less than 1.00 pound per linear foot.
3. Wire Fence (for fabricated units): Wire fencing shall be a minimum of 14 gage with a maximum 6 in. mesh opening, or as approved.
4. Prefabricated Units: The following prefabricated units may be used in lieu of the above methods providing the unit is installed as shown on the Contract Drawings.
    a. Envirofence
    b. Geofab
    c. Approved equal

B. Stabilized Construction Entrance:
1. Geotextile: The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filament yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties shown below:
    a. Grab Tensile Strength (lbs) – 220 (ASTM D1682 test method)
    b. Elongation at Failure (%) – 60 (ASTM D1682 test method)
    c. Mullen Burst Strength (lbs) – 430 (ASTM D3786 test method)
    d. Puncture Strength (lbs) – 125 (ASTM D751 modified)
    e. Equivalent Opening Size – 40-80 (US Std. Sieve CW-02215)
    f. Aggregate Depth – 10 inches
2. Aggregate Size - use size specified for crushed stone in Section 02220 – Backfilling and Compacting.

C. Straw bales:
   1. Bales shall be a minimum of 14 inches wide, 18 inches high, 36 inches long and should have a minimum mass of 50 pounds.
   2. Bales should be composed of entirely vegetative matter, except for the binding material. Hay bales are unacceptable and shall not be used.
   3. Bales shall be bound by a minimum 14 gauge steel wire or nylon or polypropylene string. Jute or cotton binding shall not be used.

D. Temporary Grass Seed: Annual ryegrass.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning any excavation work:
   1. Install silt fence as indicated on the Contract Drawings.
   2. Install perimeter dikes and swales as required to divert storm water runoff away from open excavations.
   3. Install straw bales if needed.
      a. Provide two stakes per bale.
      b. First stake angled toward previously installed bale to keep ends tight against each other.

3.2 DURING CONSTRUCTION

A. Maintain all erosion control measures installed.
   1. Inspect weekly and within 24 hours of a rainfall event of 0.5 inches or greater.
   2. Repair or replace damaged or missing items as needed. Repair/replacement shall be completed within three calendar days.
   3. Remove sediment collected in silt fence when bulges are evident.
   4. Entrance shall be maintained in a condition which will prevent the tracking of sediment onto public rights-of-way or streets. This may require periods of top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.
   5. Inspect construction access roads and parking areas periodically for condition of surface. Top-dress with new gravel as needed. Areas producing sediment shall be treated immediately.
   6. If straw bales are used they shall be replaced when they become degraded, or rotted. At minimum bales shall be replaced every 3 to 6 months.

B. Surface Water Protection:
   1. Utilize, as necessary, erosion control methods to protect side and back slopes, and minimize the discharge of sediment to surface water leaving the construction site. These controls shall be maintained until the site is ready for final grading and restoration or until they are no longer warranted and concurrence is received from the Department's Representative. Physically retard the rate and volume of run-on and runoff by:
      a. Implementing structural practices such as diversion swales, terraces, straw bales, silt fences, berms, storm drain inlet protection, rocked outlet protection, sediment traps and temporary basins
      b. Implementing vegetative practices such as temporary seeding, permanent seeding, mulching, hydro-seeding, anchored erosion control blankets, vegetated swales or a combination of these methods
      c. Providing Construction sites with graveled or rocked access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads

2. Discharges from the construction site shall not contain pollutants unless allowed by a permit, and shall not produce objectionable films, colors, turbidity, deposits or noxious odors in the receiving stream or waterway.

C. Construct inlet protection as needed. Inlet protection shall be one of the methods described in the NYSDEC Standards and Specifications for Erosion and Sediment Controls.

D. Do not disturb existing areas (grass and trees) outside the excavation limit.

3.3 FINAL STABILIZATION

A. Areas shall be stabilized as shown on the Contract Documents.

END OF SECTION

ATTACHMENT A

CONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Title: Tee Bird NYSDEC Site No.546028

Owner(s): New York State Department of Environmental Conservation

As a contractor/subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each contractor/subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that NYSDEC must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

Trained Contractor Information: In addition to the above you must identify at least one person from your company that will be responsible for implementing the SWPPP for this site. This individual shall be known as the *trained contractor* and must meet the training requirements defined in the most current version of the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges Associated with Construction Activities (GP-0-15-002).

Name: _____

Title: _____

SWT#: _____

Issue Date: _____

SECTION 02742
DEMARCATION LAYER

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes all labor, materials, and equipment necessary to furnish and install the demarcation layer as described in the Contract Documents.

B. Related Specification Sections include but are not necessarily limited to:
   1. Section 02930 – Site Restoration

1.2 SUBMITTALS

A. Manufacturers Information:
   1. Manufacturer's specification

PART 2 - PRODUCTS

2.1 MATERIALS

A. The demarcation layer can be orange geotextile or approved equal material that satisfies the intent and purpose of the application. The material for the demarcation layer and any accessory appurtenances shall have sufficient strength to maintain its form during and after application of the cover. The demarcation layer shall have a high visibility color (orange or equal) and be biologically and chemically compatible with environment normally found in soils.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The demarcation layer shall be installed flat and in a continuous manner with individual pieces overlapping by one inch. Where the material is available in rolls the maximum length roll shall be provided to minimize the number of individual pieces. The demarcation layer shall be anchored to prevent movement during application of the cover.

END OF SECTION

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SECTION 02930
Final Site Restoration

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the labor, materials, and equipment necessary to complete the final site restoration as shown on the Contract Drawings.

B. All areas disturbed in the course of the work shall be applied with topsoil and hydro-seeded, unless otherwise indicated on the Contract Drawings.

C. Related Sections include but are not necessarily limited to:
   1. Section 01100 – Scope of Work
   2. Section 01563 – Environmental Protection and Special Controls
   3. Section 02270 – Erosion and Sediment Control

1.2 REFERENCES

A. Referenced Standards:
   1. American Nursery and Landscape Association/American National Standards Institute (ANLA/ANSI):
      a. Z60.1, American Standard for Nursery Stock.
   2. AOAC International (AOAC).
   3. ASTM International (ASTM):
      a. D2028, Standard Specification for Cutback Asphalt (Rapid-Curing Type).
      b. D5276, Standard Test Method for Drop Test of Loaded Containers by Free Fall.

B. Quality Control:
   1. Fertilizer:
      a. If Engineer determines fertilizer requires sampling and testing to verify quality, testing will be done at Contractor's expense, in accordance with current methods of the AOAC.
      b. Upon completion of Project, a final check of total quantities of fertilizer used will be made against total area seeded.
      c. If minimum rates of application have not been met, Contractor will be required to distribute additional quantities to make up minimum application specified.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Signed copies of vendor's statement for seed mixture required, stating botanical and common name, place of origin, strain, percentage of purity, percentage of germination, and amount of Pure Live Seed (PLS) per bag.
      d. Type of herbicide to be used during first growing season to contain annual weeds and application rate
      e. Source and location of sod, plants, and plant material
      f. Test reports for furnished topsoil.
   2. Certification that each container of seed delivered will be labeled in accordance with Federal and State Seed Laws and equals or exceeds Specification requirements.

B. Miscellaneous Submittals:

1. Copies of invoices for fertilizer used on Project showing grade furnished, along with certification of quality and warranty.

1.4 SEQUENCING AND SCHEDULING

A. Installation Schedule:
   1. Show schedule of when lawn type and other grass areas are anticipated to be planted.
   2. Indicate planting schedules in relation to schedule for finish grading and topsoiling.
   3. Indicate anticipated dates Engineer will be required to review the installation for initial acceptance and final acceptance.

B. Pre-installation Meeting:
   1. Meet with Engineer and other parties as necessary to discuss schedule and methods, unless otherwise indicated by the Department.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Topsoil shall meet the requirements of specification Section 02220 – Backfilling and Compaction.

2.2 SEED

A. Grass Seed shall be pure, clean, new-crop commercial variety seed that is free of noxious weed seed, guaranteed 95% pure and have a minimum germination rate of 85%.

B. The seed mix shall be as follows:
   1. Creeping Red Fescue: 30% by weight
   2. Kentucky Bluegrass: 60% by weight
   3. Perennial Ryegrass: 10% by weight
   4. An alternative seed mixture may be used with prior approval of the Engineer.

C. The Contractor shall submit the seed vendor's certification stating the mixture percentage by weight of purity and germination and weed seed for each grass species specified. The Department reserves the right to alter the seed mixture depending on the season. Wet or moldy seed will not be accepted and will be replaced at the Contractor's own expense.

2.3 SOIL AMENDMENTS

A. Ground agricultural limestone adjusted to 100% effective neutralizing value (ENV).

B. The Contractor shall amend the soil with a commercial grade fertilizer that is dry and free flowing. The fertilizer shall contain not less than 10% nitrogen, 6% available phosphoric acid and 4% water-soluble potash.

2.4 WATER

A. Water shall be free from substances harmful to grass growth.

B. Provide potable water from a source approved by the Engineer prior to use.

2.5 MULCH

A. Mulch materials acceptable for use on this site include:
   1. Wood chips or shavings
   2. Straw
   3. Other materials approved for use by the Engineer prior to use.

PART 3 - EXECUTION

3.1 VEGETATIVE CAP

A. Install backfill and topsoil as specified in Section 02220 – Backfilling and Compaction.

B. Soil Preparation
   1. General:
      a. Limit preparation to areas which will be planted soon after.
   2. Preparation:
      a. Loosen surface to minimum depth of 2 inches.
      b. Remove stones over one inch in any dimension and sticks, roots, rubbish, and other extraneous matter.
      c. Prior to applying fertilizer, loosen areas to be seeded with a double disc or other suitable device if the soil has become hard or compacted.
      d. Correct any surface irregularities in order to prevent pocket or low areas which will allow water to stand.
      e. If directed to do so by the Engineer test the topsoil to determine the amount of amendments and fertilizer that will be needed for the site.
      f. Apply lime to attain a pH of 6.5 in the upper two to four inches of soil.
      g. Apply fertilizer as per soil test or if soil tests are not required distribute fertilizer uniformly over areas to be seeded at a rate of 30 lbs per 1000 sq ft.
      h. Incorporate fertilizer into soil to a depth of at least 2 inches by disking, harrowing, or other approved methods.
      i. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and before planting.

C. Installation
   1. Lawn-Type Seeding:
      a. Do not use seed which is wet, moldy, or otherwise damaged.
      b. Perform seeding work from April 20 to May 15 for spring planting, and August 1 to September 15 for fall planting, unless otherwise approved by the Engineer.
      c. Employ satisfactory methods of sowing using mechanical power-driven drills or seeders, or mechanical hand seeders, hydro-seeding, or other approved equipment.
      d. Distribute seed evenly over entire area at rate of application not less than 3.4 lbs of seed per 1000 sq ft, 50 percent sown in one direction, remainder at right angles to first sowing. Seed should be distributed to a depth of 1/8 to 1/4 inch.
      e. Stop work when work extends beyond most favorable planting season for species designated, or when satisfactory results cannot be obtained because of drought, high winds excessive moisture, or other factors.
         1) Resume work only when favorable conditions develop.
      f. Lightly rake seed into soil followed by light rolling or cultipacking.
      g. Immediately protect seeded areas against erosion by mulching with straw or other acceptable measures as approved by the Engineer.
         1) Spread mulch in continuous blanket using 90-100 lbs per 1000 sq ft (2-3 bales) or 2 tons per acre (100-120 bales). The depth of application should be such that 90% of the surface is covered with straw.
      h. Protect seeded slopes against erosion and wind blowing with erosion netting or other methods approved by the Engineer.
      i. Protect seeded areas against traffic or other use by erecting barricades and placing warning signs.
      j. Immediately following spreading mulch, anchor mulch using a rolling coulter or a wheat land packer having wheels with V-shaped edges to force mulch into soil surface.

D. Maintenance and Replacement

1. General:
    a. Begin maintenance of planted areas immediately after each portion is planted and continue until final acceptance or for a specific time period as stated below, whichever is the longer.
    b. Provide and maintain temporary piping, hoses, and watering equipment as required to convey water from water sources and to keep planted areas uniformly moist as required for proper growth.
    c. Protection of new materials:
        1) Provide barricades, coverings or other types of protection necessary to prevent damage to existing improvements indicated to remain.
        2) Repair and pay for all damaged items.
    d. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Engineer.
2. Seeded Lawns:
    a. Maintain seeded lawns: 90 days, minimum, after installation and review of entire project area to be planted.
    b. Maintenance period begins at completion of planting or installation of entire area to be seeded.
    c. The Engineer will review seeded lawn area after installation for initial acceptance.
    d. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading, and replanting as required to establish a smooth, uniform lawn, free of weeds and eroded or bare areas.
    e. Lay out temporary lawn watering system and arrange watering schedule to avoid walking over muddy and newly seeded areas.
        1) Use equipment and water to prevent puddles and water erosion and displacement of seed or mulch.
    f. Mow lawns as soon as there is enough top growth to cut with mower set at recommended height for principal species planted.
        1) Repeat mowing as required to maintain height.
        2) Do not delay mowing until grass blades bend over and become matted.
        3) Do not mow when grass is wet.
        4) Time initial and subsequent mowings as required to maintain a height of 1-1/2 to 2 inches.
        5) Do not mow lower than 1-1/2 inches
    g. Re-mulch with new mulch in areas where mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose.
        1) Anchor as required to prevent displacement.
    h. Unacceptable plantings are those areas that do not meet the quality of the specified material, produce the specified results, or were not installed to the specified methods.
    i. Replant bare areas using same materials specified.
    j. The Engineer will review final acceptability of installed areas at end of maintenance period.
    k. Maintain repaired areas until remainder of maintenance period or as otherwise approved by the Engineer.
3. Completion of Work:
    a. Upon completion of work, leave area in a clean, natural looking condition.
    b. Ensure all signs of temporary construction and activities incidental to construction of required permanent work are removed.

3.2 GRAVEL CAP

A. Install backfill and gravel as specified in Section 02220 – Backfilling and Compaction.

END OF SECTION